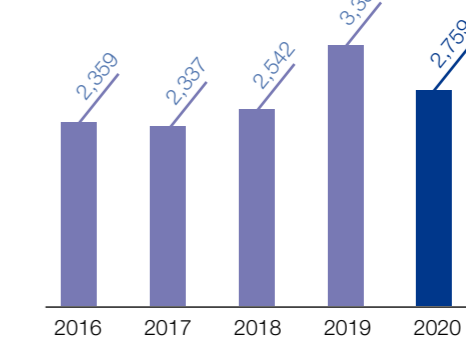


# ACTIVITY REPORT 2020

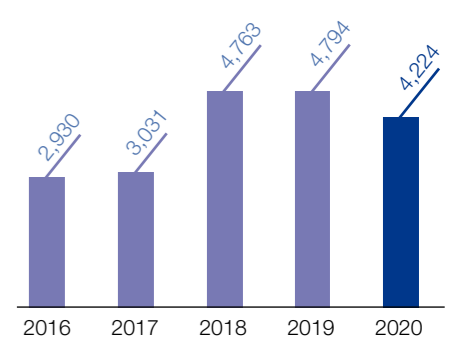


# BESIX in 2020

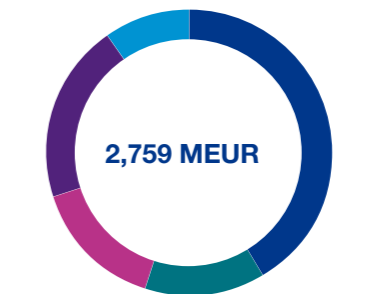
EVOLUTION OF REVENUES (IN MEUR)



EVOLUTION OF ORDER BOOK (IN MEUR)

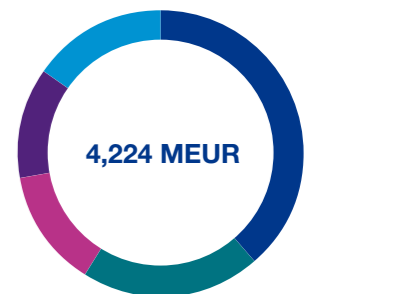


REVENUES BY REGION (2020)



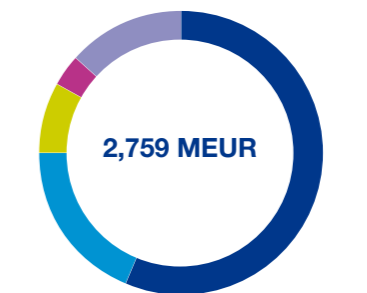
- BELGIUM // 41.7%
- THE NETHERLANDS, LUXEMBOURG & FRANCE // 13.5%
- MIDDLE EAST // 15.1%
- AUSTRALIA // 20.1%
- REST OF THE WORLD // 9.6%

ORDER BOOK BY REGION (AT 31/12/2020)



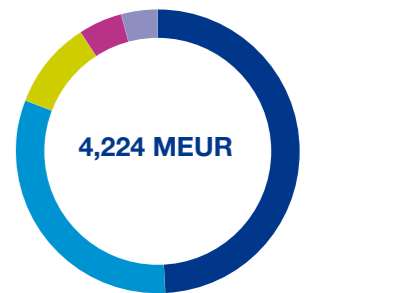
- BELGIUM // 38.6%
- THE NETHERLANDS, LUXEMBOURG & FRANCE // 20.4%
- MIDDLE EAST // 13.2%
- AUSTRALIA // 12.5%
- REST OF THE WORLD // 15.3%

REVENUES BY AREA OF ACTIVITY (2020)



- BUILDING // 56.5%
- INFRASTRUCTURE // 18.8%
- ROADS & UTILITIES // 7.9%
- MARINE WORKS // 3.8%
- OTHER // 13.1%

ORDER BOOK BY AREA OF ACTIVITY (AT 31/12/2020)



- BUILDING // 49.2%
- INFRASTRUCTURE // 31.7%
- ROADS & UTILITIES // 9.9%
- MARINE WORKS // 5.1%
- OTHER // 4.0%



RAILWAY INFRASTRUCTURE, AALTER STATION, BELGIUM

# Consolidated Key Figures 2020

(in MEUR)	2020	2019	2018	2017	2016
<b>INCOME STATEMENT</b>					
Revenues	2,759.6	3,332.0	2,542.1	2,337.0	2,359.1
EBITDA	55.7	97.8	131.4	122.5	168.1
EBITDA margin (%)	2.0%	2.9%	5.2%	5.2%	7.1%
EBIT	-19.4	22.0	83.7	78.9	117.8
EBIT margin (%)	-0.7%	0.7%	3.3%	3.4%	5.0%
Earnings before taxes	2.1	48.1	103.2	115.5	135.0
Consolidated profit	-9.8	42.2	95.3	102.6	120.8
Net result on revenues (%)	-0.3%	1.3%	3.7%	4.4%	5.1%
Cash flow	53.4	127.4	149.8	142.1	159.3
Cash flow margin (%)	1.6%	3.8%	5.9%	6.1%	6.8%
<b>BALANCE SHEET</b>					
Equity	622.6	698.5	695.1	660.4	653.0
Net cash position	57.5 <sup>1</sup>	141.0	135.7	34.1	172.4
Solvency ratio (%)	22.0%	24.2%	26	28.1	27.3
Liquidity ratio	1.26	1.31	1.30	1.42	1.42
Return on equity (%)	-1.6%	6.0%	14.4	15.7	20.6
<b>ORDER BOOK (AT 31 DECEMBER)</b>					
	4,224	4,794	4,763	3,031	2,930

1. Excluding IFRS16 and PPPs non-recourse financing.

LA MÈ DRINKING WATER TREATMENT PLANT, ABIDJAN, IVORY COAST



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Florence Bribosia

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## 110 years of global expertise

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01 /

# BESIX AT A GLANCE



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# Company profile

## A GLOBAL MULTIDISCIPLINARY PLAYER, WITH 110+ YEARS OF EXPERIENCE

BESIX Group is a leading Belgian industrial group operating in the **construction, real estate development and concessions sectors**. Founded in 1909, it has grown steadily over the years. As a global multi-service group, BESIX is able to take on projects of all sizes and complexity, and draws its strength from its entrepreneurial roots.

NV BESIX SA, its largest subsidiary, offers services in the different stages of construction projects, with branches in Europe, Africa, Asia and North America. BESIX Group subsidiaries also include Six Construct in the Middle East, BESIX Watpac in Australia, as well as regional and specialist contractors in the Benelux including Jacques Delens, Vanhout, Lux TP, Wust, Socogetra, Franki Foundations, BESIX Infra and Van den Berg.

The Group stands out by having its **in-house Engineering Department**, a distinctive feature in the industry, which is home to state-of-the-art expertise in structural engineering, geotechnical engineering, methods & planning, BIM, parametric design, sustainability, concrete and façade. Thanks to its value engineering capabilities, BESIX is able to improve project design and adapt implementation processes so as to limit construction costs, reduce risks, increase the lifespan of projects and optimise their functional objectives.

To reduce its risk exposure, BESIX has been diversifying its activities on a geographical and sectoral level, through organic growth, acquisitions or shareholdings. The Group's expansion in the Middle East, where it has built an impressive portfolio over the last 60 years, and more recently in Africa and Australia, illustrates the success of this strategy. Through its many projects and initiatives, BESIX is constantly seeking to consolidate its purpose: **"To excel in creating sustainable solutions for a better world."**

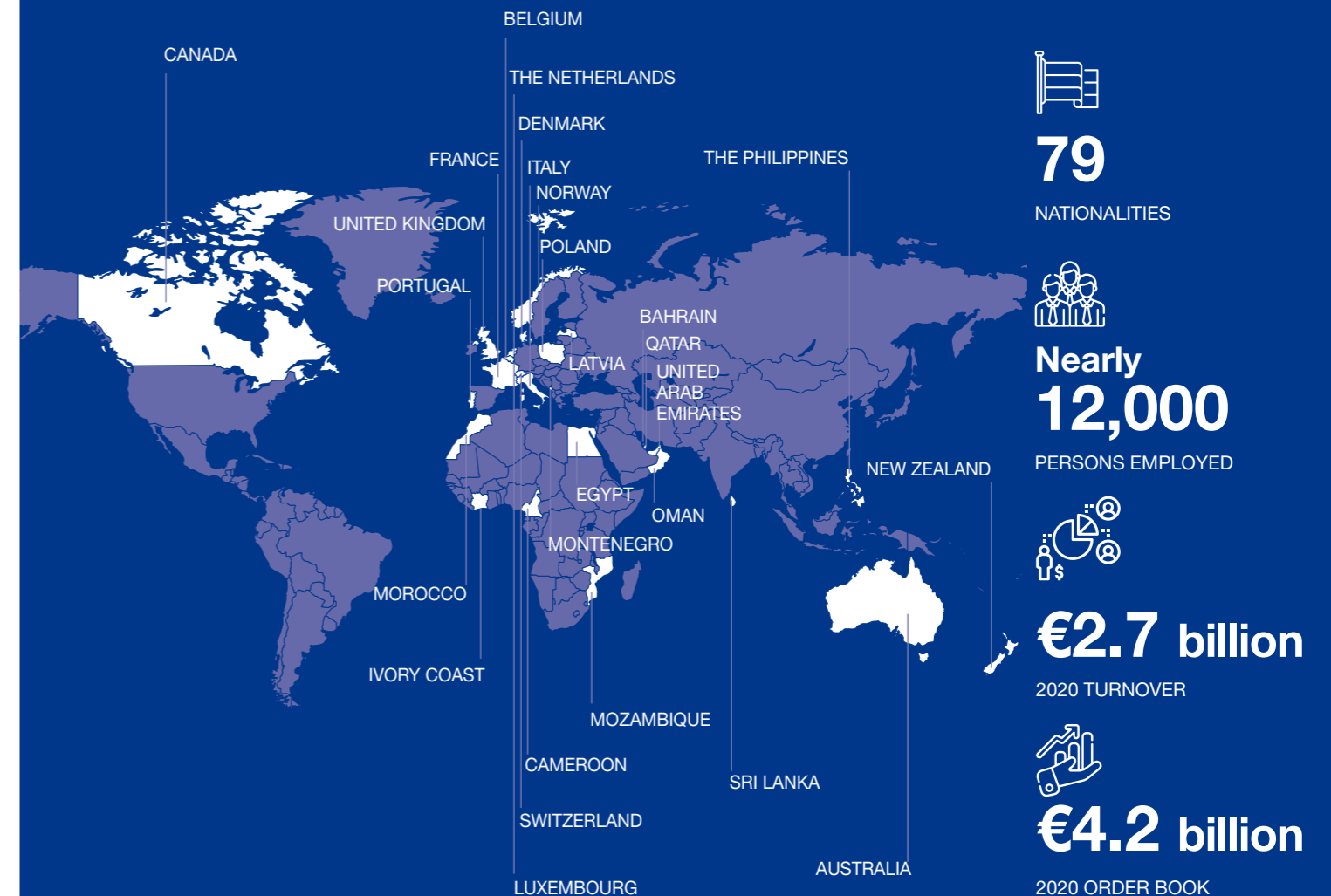
### A DEDICATED PARTNER, FROM CONSTRUCTION TO CONCESSIONS //

Always highly regarded as a valued construction partner, BESIX has become a full-fledged services company that operates on the whole value chain. While construction is still its core business, the Group's Concessions & Assets and Real Estate Development activities have been growing steadily. BESIX can rely on a vast and diversified expertise to take on projects from financing to design and construction to long-term maintenance.



### KEY FIGURES 2020 //

## BESIX GROUP IS PRESENT IN 27 COUNTRIES ON 5 CONTINENTS



### THE GROUP IN 5 KEY DATES //

- 1909 //** Founding of the Société Belge des Bétons, (SBB), which undertakes prestigious construction projects
- 1966 //** Founding of subsidiary Six Construct to take charge of major projects in the Middle East
- 2004 //** Management buyout, SBB becomes BESIX Group
- 2010 //** Inauguration of the Burj Khalifa in Dubai (UAE), the world's tallest tower, built by Six Construct
- 2020 //** Watpac Limited is renamed BESIX Watpac; this confirms the Group's commitment to establish a long-term presence in the Australian construction market



# Group Structure

OPERATING ACROSS FIVE CONTINENTS, BESIX ENCOMPASSES MANY BRANCHES AND LEGAL ENTITIES, FULLY OWNED BY THE GROUP. THERE ARE ALSO SOME COMPANIES IN WHICH BESIX OWNS A MINORITY OR MAJORITY STAKE.



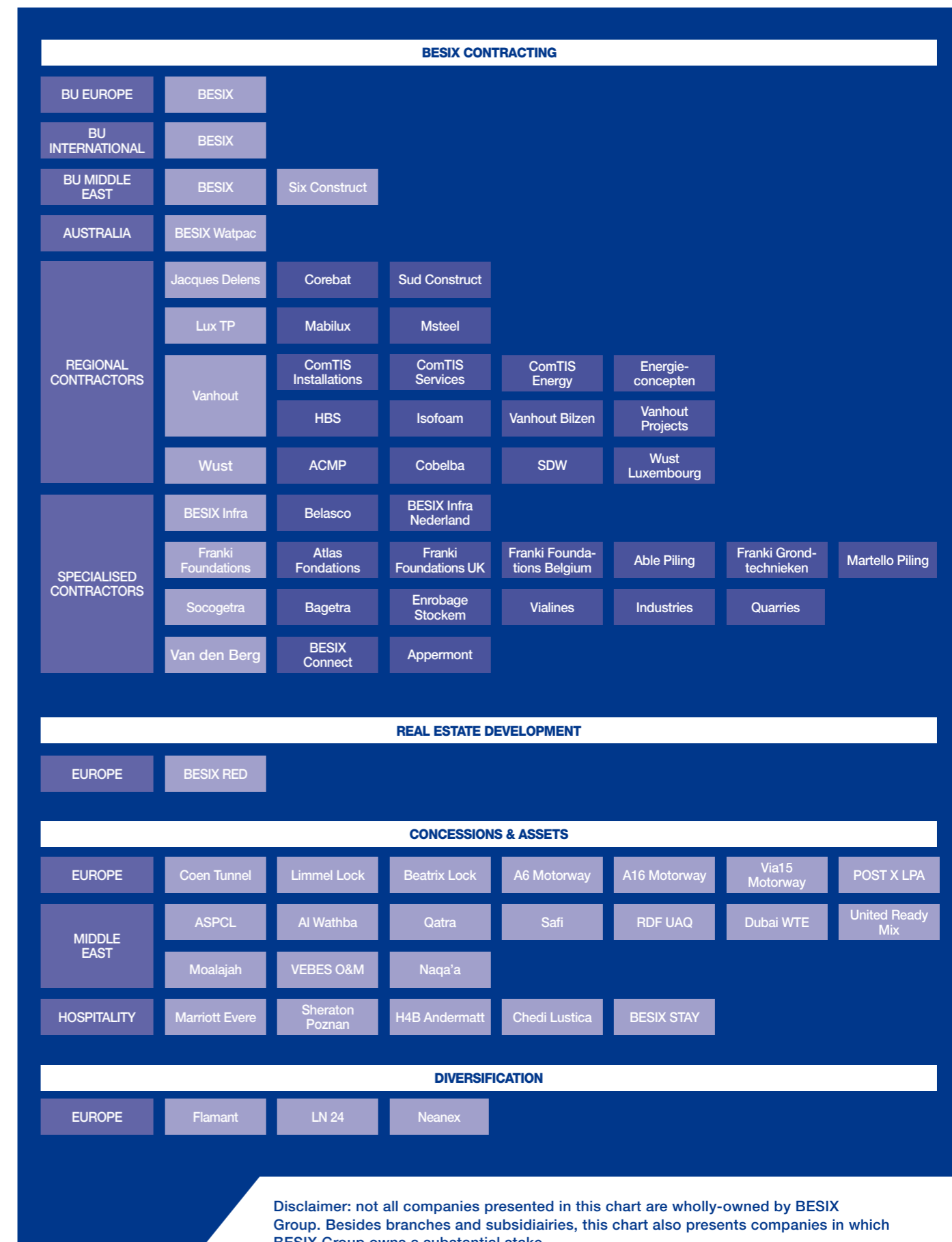
/// BESIX's branches were created as the Group diversified geographically. In most cases, the BESIX name goes in front of the country in which they are established. For example, BESIX Egypt is a branch integrated into the 'Business Unit (BU) International', just as BESIX Nederland and BESIX France belong to the 'BU Europe'.

/// Most of the legal entities are companies acquired by BESIX over the last few decades. They are the result of vertical integration and sectoral or geographic diversification. Although they are fully owned by BESIX, many of them have kept their original name or a direct reference to it. For example BESIX Watpac (Australia), Lux TP (Luxembourg) or Martello Piling (United Kingdom). Besides commercial considerations – vital for companies whose brand embodies their specific expertise – this reflects the policy of controlled autonomy embedded within the Group.

Not all BESIX companies necessarily fall within these two categories.

/// Some companies were created by the Group itself: for example Six Construct, founded in 1966 to develop the Group's activities in the Middle East, or BESIX Real Estate Development established in 1988, to further the Group's real estate development business.

/// Companies in which BESIX owns a stake also retain their identity. This applies to Flamant, for example.



Disclaimer: not all companies presented in this chart are wholly-owned by BESIX Group. Besides branches and subsidiaries, this chart also presents companies in which BESIX Group owns a substantial stake.

# Message

## FROM THE CEO AND THE CHAIRMAN OF BESIX GROUP

**Rik Vandenberghe** - CEO BESIX Group

**Johan Beerlandt** - Chairman of the Board of Directors BESIX Group



Dear Readers,

2020 will be remembered as the year in which the Covid-19 pandemic hit the world. Under these uncertain circumstances, BESIX Group's priority was to protect its employees, our many projects and the trust placed in us by our clients.

These 12 months, unprecedented in the challenges they imposed on us, demonstrated BESIX Group's resilience in the difficult first half of the year, and then its great ability to bounce back in the second. We are both proud of this and extremely grateful to the Group's employees, who have remained true to our values, including excellence, unity and passion.

In the construction industry, the pandemic has resulted in fewer or cancelled tenders, redirection of budgets to social priorities and reduced spending in the private sector. This of course has an impact on our financial results, to which were added conservative provisions for four projects - four projects that will be delivered in 2021. All of this explains our 2.7 billion euros turnover and our net result, which are clearly down on 2019.

However, with a healthy balance sheet, a solid order book of 4.2 billion euros and, above all, competent and determined teams, we look to the future with renewed ambition and great optimism.

BESIX Group's diversification strategy proved its relevance in 2020 and will continue to do so in the years to come. BESIX Watpac in Australia, our public-private partnerships in water and waste in the Middle East, our infrastructure entities in Western Europe and our real estate development subsidiary, BESIX RED, have all performed very well.

In contracting, our largest business, we have continued to design, build and deliver outstanding projects in 2020. This Activity Report gives many representative examples, which I warmly invite you to discover. In this field too, the year 2021 is looking very promising with the delivery of major projects and the start of several first-class construction sites in each of our markets: Europe, the Middle East, Oceania, Africa and North America.

BESIX Group is also ideally positioned to actively contribute to the post-Covid-19 recovery, combining our renowned experience with leading expertise in engineering, sustainability and innovative solutions. In addition to this, we remain a company of first choice, as confirmed by our Top Employer certification for the second year in a row.

In 2021, BESIX Group is perfectly equipped to have a good year and to continue to serve our customers in the best possible way. The year is placed under the absolute objective of operational excellence.

To this end, we can rely on our rich history of more than 110 years, on our employees and their extraordinary skills, and on the purpose of our group: to excel in creating sustainable solutions for a better world.

Enjoy your reading,

**Rik Vandenberghe**  
CEO BESIX Group

Dear readers,

The year 2020 will go down in history books as a multi-faceted health, economic and social global crisis. In this respect, it is the worst crisis since the Second World War. We have been forced to change our lifestyles and for many of us it has been accompanied by the loss of relatives.

The performance of BESIX Group has not been positive either. The reasons being the modified market conditions because of collapsed oil prices affecting mainly the Middle East. This region is our main overseas market, having been a recurring net contributor to the Group's economic results. Other negative contributors are some large construction sites where we did not perform as well as we would have expected.

However, the disappointment of non-profitability should not throw shadow on the successes of BESIX Group in 2020.

We reaped the results of the remarkable performance our business development teams have done in recent years, securing new challenging projects in new countries in sub-Saharan Africa and Eastern and Northern Europe, as well as in Australia, Canada and recently New Zealand. Our operational teams have now started importing the experience and expertise that make up BESIX Group's worldwide reputation.

I would also like to emphasize the operational excellence demonstrated by our teams in 2020, often in complex situations, and for some of them remote from their families and with inability to travel because of the ongoing pandemic. They have honoured BESIX Group, as have all our teams who have shown remarkable resilience during the year. On behalf of the Board of Directors, I congratulate them and thank them warmly.

Our strategy of sectoral diversification and integration of new skills is also proving its relevance today, particularly in public-private partnerships, real estate development and specialized trades related to infrastructure, from fiber network installations to upgrading railway infrastructures.

Our healthy financial situation, our diversified activities and our outstanding expertise permit us to look to the future, and in particular to the year 2021, with optimism. In each of our markets, we believe to be ideally positioned to actively participate in the post-Covid-19 recovery and economic upswing, and offer our clients first-class solutions for their projects across the globe.

BESIX Group's strengths are undeniable, particularly in terms of excellence and technical know-how. In addition to this, we have a strong set of values, including an entrepreneurial mindset and a family spirit that we nurture. All of this will enable us to achieve the objectives we have set ourselves for 2021, which starts by demonstrating excellence in each of our projects, for the benefit of our clients and partners.

On behalf of the Board of Directors, I reiterate the sincere confidence we have in the management team and our many employees, wherever they are in the world.

**Johan Beerlandt**  
Chairman of the Board of Directors  
BESIX Group

# Milestones 2020

## JANUARY

/// Rijkswaterstaat, the Dutch transport authority, awards the DBFM project of the A12-A15 Highway (ViA15) to the JV GelreGroen, composed by BESIX and partners. The ViA15 project will improve traffic flow, traffic safety and regional quality of life.

/// Bush fires in Australia become the largest wildfires in the country's history. Many of BESIX Watpac colleagues contribute courageously to the national effort to fight this natural disaster. Within the Group, initiatives are taken all over the world to raise funds, particularly for wildlife.

/// BESIX 3D sets a record by cladding BESIX-Six Construct's new headquarters in Dubai (UAE) with the world's largest 3D printed concrete façade.



## FEBRUARY

/// BESIX Group is certified as a Top Employer 2020 by the Top Employers Institute. Top Employer-certified organisations are assessed and guarantee the very best working environment through progressive HR policies in which people are at the centre.



/// BESIX is awarded the ISO 19650-2:2018 certification, the world's first international standard for Building Information Management (BIM).

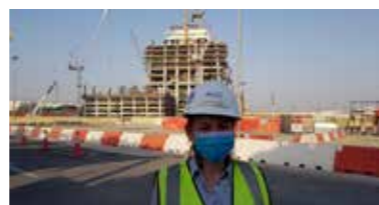
/// Queensland Country Bank Stadium, built by BESIX Watpac, is completed. This Australian stadium is a world-class venue with 25,000 seats.



## MARCH

/// BESIX Foundation invests for the first time in a social impact bond for the 'Back on Track' project. This project provides support for young adults leaving detention in West and East Flanders (Belgium) and helps them to 'get back on track'.

/// With the outbreak of Covid-19, BESIX adapts its ways of working to the safety measures taken by the different authorities and to its own specific risk analysis. In all 27 countries where it is present, BESIX keeps carrying out its missions and demonstrates resilience.



## APRIL

/// At the Deep Tunnel Storm Water System project in Dubai (UAE), BESIX-Six Construct completes the second tunnel breakthrough. This tunnel complex, designed for rainwater and groundwater, will drain 40 % of Dubai's urban area.



/// BESIX Watpac completes the AU\$ 135 million expansion of the Casey Hospital in Melbourne (Australia), boosting capacity for Victoria's healthcare system. Works included the finalisation of design and the construction of the 13,000 m<sup>2</sup> expansion.

## MAY

/// The waters from the La Mé River flow for the first time into the drinking water treatment plant. BESIX is responsible for carrying out the civil engineering works of the plant that will provide drinking water to 1.5 million Ivorians.



## JUNE

/// The 100<sup>th</sup> segment of the Shindagha Bridge in Dubai (UAE) is placed. The first segment of the bridge had been cast only three months earlier, in March.



/// Lantis, the authority in charge of the mobility projects in the Antwerp region (Belgium), awards the contract for the construction of the Scheldt tunnel to the JV COTU, composed of BESIX and several partners. This tunnel will be the most important connection element in the Oosterweel link that will close the Antwerp Ring Road.

/// Nye Veier, the Norwegian road authority, selects the proposal submitted by the joint venture of which BESIX is part for the E6 Moelv-Roterud infrastructure project. This project consists of the design of a more than one kilometre long timber structure bridge over Lake Mjøsa and an 11-kilometre long section of four-lane motorway.



/// The construction of the new Saint-Denis Pleyel metro station is awarded to BESIX France. This station will be the largest station of the Grand Paris Express. The contract, worth over 100 million euros, includes works to develop the station, covering a total area of 34,000 m<sup>2</sup> spread across nine levels – four of these below ground.



## JULY

/// BESIX Group subsidiary Van den Berg is selected by the Belgian Buildings Agency and Brussels Energy to connect the Laeken Royal Palace and greenhouses to the district heating network fed by the nearby waste incinerator. The objective is to reduce the estate's ecological footprint and to lower heating costs.



/// BESIX-Six Construct in partnership with Mota-Engil S.A. is selected to build the marine facilities of the Mozambique LNG Gas Development Project. The terminal comprises one of the world's longest jetty structures, comprising mooring facilities for the largest LNG carriers, and a material offloading facility for cargo ships.

/// BESIX Watpac delivers a new 12,500 m<sup>2</sup> hospital for the Maranoa Region (Australia). The project has been notable for the high level of participation from local business communities.



## AUGUST

/// The upgrade of the Brussels Airport logistic hub for international trade is completed (Belgium). This state-of-the-art infrastructure is specifically suited for the handling of high-quality and temperature-sensitive products.



/// In Dubai (UAE), the first panels of the Uptown Tower's façade, designed by the experts from BESIX, are put in place. This 340-metre high tower will offer a breathtaking view of Dubai's waterfront and iconic skyline and will meet the highest environmental standards for high-rise buildings.

**// READ MORE ON PAGE 74**



## SEPTEMBER

/// The construction of the Deloitte University EMEA (Eastern Paris, France) has started. The project targets five first-class environmental certifications. BESIX is in charge of the construction works and the landscaping of the site with gardens and a wooded park.



/// For the second BESIX Cleanup Day, BESIX Group colleagues from construction sites and offices all around the world collect 2,000 tons of waste in their communities.



## OCTOBER

/// BESIX and its partner have been awarded the expansion of the Port of Fujairah in Dibba (UAE). The project includes the construction of breakwaters, a quay wall and port infrastructure, as well as dredging the navigation channel and port basin.

/// In Brussels, BESIX and its partners start the construction of the Toots Thielemans subway station, two tunnel elements and the extension and renovation of the Lemonnier tram station. The project is part of the construction the new Brussels metro line 3.

/// BESIX Group is one of the 53 signatories of the Belgian Alliance for Climate Action. Signatories align their activities with the objectives of the Paris Agreement, aiming to limit the rise in global temperature to a maximum of 1.5 °C.

/// BESIX delivers the thoroughly renovated and upgraded Manhattan building in the Brussels business district to client Victory (Belgium). This office complex was designed and built to meet the highest sustainability standards.

**// READ MORE ON PAGE 68**



/// The construction works at the Refuse-Derived Fuel (RDF) Facility in Umm al Quwain (UAE) are completed and tests are launched to transform waste into high-quality alternative fuel for factories in the region.



/// The BESIX teams on the Nachtigal project site (Cameroon) and on the Dubai Uptown Tower (UAE) both reach 5 million man-hours without lost-time incident.



/// BESIX-Six Construct deliver a major four-way footbridge in the heart of Dubai, allowing pedestrians to safely cross one of the busiest junctions in the city. At rush hour, up to 8,000 people per hour in all directions are able to use the 75 m long elevated crossing.



## NOVEMBER

/// BESIX and partner are awarded the State Road 318 Valfabbrica contract by Anas S.p.A, the Italian road authorities. The project will improve the connection and traffic flow between the cities of Perugia and Ancona (Italy).

/// The construction works of the Rail Baltica Central Hub in Riga begin (Latvia). BESIX and its partner can now bring the D&B concept to life, including a new central station building, a major railway bridge and various rail infrastructures. The project aims to integrating the Baltic States in the European rail network.



/// Grid operators Elia and Amprion inaugurate ALEGrO, the first electricity interconnector between Belgium and Germany. Two BESIX entities, Franki Foundations and Van den Berg, were responsible for the foundations of the Lixhe conversion station and the underground DC installation. The project aims to enhance the countries' security of supply and facilitate the integration of renewable energy sources.

## DECEMBER

/// The French Minister for Foreign Trade and the French Ambassador to the UAE visit their national Pavilion, built by Six Construct, at the Dubai World Expo site.

/// On the site of the Mohammed VI Tower (Rabat, Morocco), the concrete central core reaches level 13. The tower is progressing at the rhythm of 1 floor per week!

**// READ MORE ON PAGE 72**



/// The first steel elements of the southern bridge are erected on the Vistula Spit project site (Poland). Reinforced concrete works are underway on the northern bridge and the construction of the breakwaters is progressing swiftly.

**// READ MORE ON PAGE 84**



# Corporate Governance

BESIX FOLLOWS THE BELGIAN RECOMMENDATIONS ON CORPORATE GOVERNANCE FOR UNLISTED COMPANIES ('CODE BUYSSE III'). BESIX HAS STRUCTURES AND RULES IN PLACE TO ENSURE EFFECTIVE CORPORATE GOVERNANCE, RISK MANAGEMENT AND CONTROL BOTH IN EACH BESIX COMPANY AND WITHIN THE ORGANISATION AS A WHOLE.

BESIX promotes a similar corporate approach within its subsidiaries and entities. The Board of Directors, assisted by advisory committees, plays a leading role in outlining, monitoring and controlling such structures and rules and in securing the day-to-day operational and financial management of the Group and its entities by the Chief Executive Officer and the senior management.

The Board includes four external directors, whereby a balanced configuration ensures authority, expertise and independence, and the positions of Chairman and Chief Executive Officer are separated. Decisions are also taken after ample deliberation and consultation and the functioning of the Board is regularly reviewed, also in the light of the prevailing shareholders' arrangements. A number of advisory committees are organised within the Board of Directors to prepare its deliberations and optimise its decision-making process. These committees prepare the topics discussed during the Board meetings, assess the effectiveness of the internal controls in place and formulate opinions and recommendations:

✦ The Audit Committee supervises the setup of the statutory and consolidated financial statements, the interim financial reports and the relations with the statutory auditor. It works closely with representatives of the senior management, monitors the internal control and risk management systems and the main risks associated with the activities of the Group and its entities, and operates in accordance with its charter;

✦ The Remuneration & Nominations Committee evaluates the performance of the senior management, oversees the HR policies of the Group and its entities and pays specific attention to succession management;

✦ The Strategic & Executive Committee focuses on the vision, mission and strategic objectives of the Group and oversees the business activities and performance as well as the risk management and internal control and organisation, as implemented by the Chief Executive Officer and the senior management.

BESIX will publish in 2021 the fifth edition of its Citizenship & Sustainability report (2019-2020). The biennial report aims to inform stakeholders about the Group's commitments regarding climate change, workers' rights, safety and well-being for all staff members, sustainable engineering solutions, responsible supply chain and contributions to local communities.

## BOARD OF DIRECTORS AND COMMITTEES



Johan Beerlandt



Rik Vandenberghe



Osama Bishai



Jérôme Guiraud



Ihab Mehawed



Paddy Padmanathan



Philippe Quoilin



Etienne Schneider



Wouter De Geest



Baron Philippe Vlerick

### Board of Directors

Name	Position	End of term
Johan Beerlandt <sup>1</sup>	Chairman	2022
Rik Vandenberghe <sup>2</sup>	Managing Director, Chief Executive Officer	2023
Osama Bishai	Director	2022
Jérôme Guiraud	Director	2022
Ihab Mehawed	Director	2022
Philippe Quoilin <sup>3</sup>	Director	2022
Wouter De Geest	Independent Director	2021
Paddy Padmanathan	Independent Director	2023
Etienne Schneider <sup>4</sup>	Independent Director	2023
Baron Philippe Vlerick	Independent Director	2022
Baron Jean Stéphane <sup>5</sup>	Honorary Chairman	
Ridder Luc Vandewalle	Honorary Director	

### Remuneration & Nominations Committee

Johan Beerlandt<sup>1</sup> (Chairman)  
Osama Bishai  
Baron Philippe Vlerick

### Audit Committee

Baron Philippe Vlerick (Chairman)  
Johan Beerlandt<sup>1</sup>  
Wouter De Geest  
Ihab Mehawed  
Etienne Schneider<sup>4</sup>

1. Permanent representative of Bevafin SPRL  
2. Permanent representative of Audymatt SPRL  
3. Permanent representative of Philippe Quoilin SPRL  
4. Permanent representative of Beta Aquarii  
5. Permanent representative of Innosté SA

## STRATEGIC & EXECUTIVE COMMITTEE



From left to right:

// **Geert Aelbrecht** <sup>1</sup>  
Chief People Officer

// **Jan Van Steirteghem**  
General Manager Business Unit Europe

// **Rik Vandenberghe** <sup>2</sup>  
Chief Executive Officer

// **Frédéric de Schrevel** <sup>3</sup>  
Secretary General - General Counsel

// **Mathieu Dechamps** <sup>4</sup>  
General Manager Business  
Unit International

// **Johan Beerlandt** <sup>5</sup>  
Chairman of the Board of Directors

// **Gabriel Uzgen** <sup>6</sup>  
Managing Director BESIX  
Real Estate Development

// **Jean Polet**  
General Manager Key Projects

// **Hans Beerlandt** <sup>7</sup>  
Executive Director

// **Tom Neyrinck**  
General Manager Concessions & Assets

// **Pierre Sironval** <sup>8</sup>  
Chief Operating Officer

1. Permanent representative of Gacco bv  
2. Permanent representative of Audymatt SPRL  
3. Permanent representative of Arthepa SPRL  
4. Permanent representative of Athena International  
5. Permanent representative of Bevalin SPRL  
6. Permanent representative of B2B Group sa  
7. Permanent representative of Gabeli  
8. Permanent representative of ALTHIEL bvba

02 /

# CREATING THE HIGHEST VALUE FOR OUR STAKEHOLDERS

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# BESIX Forward:

## MEETING TOMORROW'S CHALLENGES

### Changing construction market

The world in which BESIX operates and the construction sector are undergoing profound changes. In response to these changes, BESIX has defined the foundations of its strategy to support its capacity to innovate, maintain a high level of quality, face competition, meet new financial requirements and diversify.

**Technological:** artificial intelligence, parametric design, digital twin, 3D printing...

**Environmental:** energy efficiency, energy neutral, circularity of materials...

**Competitive:** risk sharing, shrinking margins, talent war...

### 6 strategic drivers

#### 01 //

##### BEING A LEADER IN INNOVATION

Innovation is where our operations are, where each and every one is empowered and supported to carry out the BESIX innovative and entrepreneurial company culture.

#### 02 //

##### PROMOTING OPENNESS TOWARDS NEW VENTURES

We have been known for decades for our entrepreneurial spirit. We need to continuously explore and to react positively to new opportunities.

#### 03 //

##### DEVELOPING 'ONE-STOP SHOP' SOLUTIONS

Our Group has unique capabilities and a multiservice offer, meaning we can provide solutions throughout the value chain, from 'develop' to 'operate and maintain'.

#### 04 //

##### LEVERAGING ON OUR CUSTOMER CENTRICITY

It is key for our business to really know our clients, understand their needs and satisfy them to achieve the desired results. Doing this better than our competitors is a major differentiating aspect.

#### 05 //

##### PROMOTING A GREAT PLACE TO WORK

Our ability to provide a great employee experience in an open community of enthusiastic colleagues is a defining factor in our successes of tomorrow.

#### 06 //

##### CREATING SYNERGIES ACROSS THE GROUP

This means 'working light' by simplifying and harmonising our internal processes. This can include common choices of tools, organisational formats and resource allocation across the Group.

### 5 values



#### Excellence

This takes us straight back to our corporate purpose and trademark: to always excel in what we do.



#### Passion

We are all passionate about our jobs.



#### Co-creation

We need to demonstrate this every day, by pooling our minds and skills, and advancing forward.



#### Unity

Despite the size of our company, there is an attitude where colleagues stand up for each other and are ready to lend an extra hand to help others succeed.



#### Respect

Respect is all about attitude. It is vital to create an atmosphere of comfort and trust for everyone.

### Purpose

#### "Excel in creating sustainable solutions for a better world"

This mission gives our actions a goal that goes far beyond profit. It is pivotal, inspiring our decisions and actions based on a simple question: what kind of future do we want and how do we make it happen? By encouraging new ideas, assuming our responsibilities in a proactive way and by excelling in all of our initiatives, we believe that we can help bring about positive change - economic, societal and environmental.



WHAT BEGAN 110 YEARS AGO HAS GROWN INTO THE LARGEST CONSTRUCTION COMPANY IN BELGIUM AND A GLOBAL MULTIDISCIPLINARY PLAYER. THROUGHOUT THE DECADES, BESIX HAS BUILT ROADS THAT CONNECT COMMUNITIES, DUG PORTS TO ACCOMMODATE SHIPS COMING FROM ALL OVER THE WORLD, DEVELOPED NEIGHBOURHOODS WHERE PEOPLE LIVE, LEARN, WORK, AND RELAX.

To maintain its relevance for society, BESIX needs to rely on a clear and sensible purpose and a well-conceived strategy that set it apart from its competitors.

BESIX Forward outlines the strategic direction that BESIX follows since 2018. The aim is to increase shareholder value while working toward a more sustainable future for employees, clients and communities.

The world in which BESIX operates and the construction sector are undergoing profound changes. In response to these changes, BESIX has defined the foundations of its strategy to support its capacity to innovate, maintain a high level of quality, face competition, meet new financial requirements and diversify. BESIX Forward is built around six strategic drivers aimed at meeting these different challenges.

## 01 // BEING A LEADER IN INNOVATION

The digitisation of working methods in the construction sector has been a steadily accelerating trend for several years. Internet of Things, artificial intelligence, robotics, augmented reality, new materials, 3D printing... These technologies can have a decisive impact on operational performance and sustainability, one more reason for BESIX to make innovation a priority.

THE BESIX HEADQUARTER IN DORDRECHT, THE NETHERLANDS, IS A SMART BUILDING



The in-house Engineering department of BESIX is for instance a natural platform where incremental innovation happens in the fields of methods & planning, BIM, computational design, façade and concrete technology, etc. – while further afield, the digitalisation of construction processes brings unprecedented improvement on project sites.

// READ MORE ON PAGES 24-30

## 02 // PROMOTING OPENNESS TOWARDS NEW VENTURES

Staying open to all new business opportunities and activities is another driver that lies at the very centre of BESIX's DNA: entrepreneurship. It involves a constant curiosity for new products and services, and boldness in seizing potentially promising opportunities. It is these opportunities and new business activities that allow BESIX to diversify and to take on board new skills. And in this way to differentiate itself and to continue to grow.

For instance, since a couple of years, BESIX is partnering with leading companies in the ICT and energy sectors to develop new solutions for intelligent buildings, particularly in terms of energy management, comfort and efficiency.

// READ MORE ON PAGE 31

## 03 // DEVELOPING 'ONE-STOP SHOP' SOLUTIONS

In a multi-services group like BESIX, the several entities and subsidiaries cover almost every area of construction, from early upstream to far downstream the value chain. Thanks to its wide range of areas of expertise and specialisations, BESIX can offer efficient and integrated solutions to its clients. This 'one-stop shop' approach allows to optimise planning and execution methods and to reduce costs for the customer.

The bicycle highway between Leuven and Brussels, including the bike and pedestrian bridge across the Ring Road is such an example of a successful collaboration between BESIX, BESIX Infra and Franki Foundations. By favouring an integrated approach, BESIX was able to offer all the disciplines required for the project under one roof and to submit a particularly competitive bid, both in terms of costs and management and execution of the works.

// READ MORE ON PAGES 80-81

## 04 // LEVERAGING ON OUR CUSTOMER CENTRICITY

Decade after decade, BESIX is concentrating on strengthening its relationships with its customers. This is because a better understanding of their environment and strategy enables BESIX to create new opportunities, to bring added value and to optimise its efficiency, in a win-win way.

To understand the long-term interests of its customers and to respond to them in a 100 % adapted way, BESIX is guided by a clear account management system. This approach enables BESIX to establish effective partnerships with its key customers, such as with Real Estate investor Victory. This collaboration has generated a relationship of trust, which helped to bring in the Manhattan contract.

// READ MORE ON PAGES 68-71



## 05 // PROMOTING A GREAT PLACE TO WORK

BESIX thrives on the commitment and wellbeing of its employees, now more than ever. It is they who make all the difference. Ensuring good working conditions is a priority for BESIX worldwide. All employees are important: whether they are migrant colleagues in the Middle East, expatriates or locals working on European, African or Australian sites. Each of them contribute directly to the life and success of BESIX. Each of them is important to the Group. That is why BESIX anchors itself in a strong people-oriented strategy '#WeCare' to place its employees even more at the heart of its business.

// READ MORE ON PAGES 38-47

## 06 // CREATING SYNERGIES ACROSS THE GROUP

Another key part of the BESIX strategy is the simplification and harmonisation of internal processes. Major harmonisation processes are in progress. They cover a variety of aspects, including human resources policies, IT processes, purchasing and accounting practices. For example, as far as purchasing is concerned, BESIX now has ultra-specialised purchasers for specific product categories, serving all Group companies globally, to generate substantial economies of scale.

//

Thanks to this clear strategy, BESIX can have a considerable and positive impact on society as part of its profitable business. Because of its international scope, BESIX has a duty to support economic, social and environmental progress and to improve the quality of life of people everywhere it operates. The ultimate goal is to have a positive impact, to make the economy more sustainable, to contribute to the preservation of the planet and the legacy left for future generations.

// READ MORE ON PAGES 32-35 AND 48-51

# BESIX Engineering

## A CENTRE OF EXCELLENCE AND KNOWLEDGE AT THE GROUP'S CORE

BESIX ENGINEERING IS THE IN-HOUSE DESIGN OFFICE OF BESIX. THE CONTRIBUTION OF THIS DEPARTMENT IS TO A LARGE EXTENT WHAT ENABLES THE GROUP TO DELIVER FIRST-CLASS PORT TERMINALS, CUTTING-EDGE CIVIL ENGINEERING WORKS AND DEMANDING BUILDINGS.

THE INTEGRATION OF A DESIGN OFFICE WITHIN A CONSTRUCTION GROUP, ALTHOUGH RARE, IS A KEY ASSET FOR CLIENTS. IT ENABLES BESIX TO OFFER TAILOR-MADE SOLUTIONS AND OPTIMISE PROJECTS, WHILE GUARANTEEING MAXIMUM REACTIVITY. BESIX ENGINEERING'S SERVICES RELY ON 150 ENGINEERS IN BRUSSELS, DUBAI AND BRISBANE.

IN 2020, FABIAN BOUCHER WAS APPOINTED AS ITS NEW DIRECTOR – INTERVIEW.



### How would you describe the role of BESIX Engineering?

We work exclusively for the Group, which sets us apart from traditional design consultants. Our mission hinges on two main axes. The first is to protect the Group from design-related risks. This varies from the role of a supervisory committee, to taking full responsibility for a design. The second is that of the trusted partner for all BESIX project teams. This implies a constant dialogue between design engineers and their BESIX colleagues throughout the different stages, from tendering to design and execution. We contribute to set up strategies to optimise a design, maximise a project's functional objectives, reduce costs, define the planning and construction methods.

BESIX Engineering is also a knowledge centre within the Group, both by making its expertise available for projects and by being a community and platform for exchange.

### What are the disciplines available at BESIX Engineering and its key sectors?

BESIX Engineering designs projects for all BESIX sectors, with particular experience in high-rise buildings, marine works and infrastructures. We provide



THE 2.2 KM LONG TUNNEL ON THE A16 IS AN OUTSTANDING EXAMPLE OF BESIX ENGINEERING'S CAPABILITIES IN PARAMETRIC DESIGN



**BESIX ENGINEERING IS A KNOWLEDGE CENTRE WITHIN THE GROUP, BOTH BY MAKING ITS EXPERTISE AVAILABLE FOR PROJECTS AND BY BEING A COMMUNITY AND PLATFORM FOR EXCHANGE. //**

**FABIAN BOUCHER,  
DIRECTOR BESIX ENGINEERING**

experts in all disciplines with a particular knowledge in geotechnics and structure. We also have centres of expertise, which intervene depending on the project, specialising in methods and planning, Building Information Management (BIM), computational design (parametric, automation, AI), sustainability, façades and concrete technology. Several of our engineers are world references and academics. By combining their expertise, we are able to fully design projects, including the most complex ones.

### Could you further detail how you support the different engineering stages of a project?

In the tender phase, we assist our colleagues by identifying risks and ways to improve a project. Ultimately, we ensure that the right choices are made and that the BESIX offer is both optimal and reliable.

In the design phase, our scope varies. For Design & Build contracts, we do detailed engineering, developing a design from a concept. We also develop value engineering solutions, which consist of proposing an improved, alternative design benefiting the project's lifespan, its functional objectives and cost. For Build-only projects, we can simply develop shop drawings or create value to the client by proposing alternative designs. We can also work more upstream and support clients right from

the project's conceptual phase. It is in this case that the contribution of our know-how will be the most extensive.

With regard to execution, we proactively ensure constructability and reactively resolve errors quickly.

### What about methods and planning ?

More and more, we partner with our projects by preparing, challenging and controlling the execution planning, including pre-planning. We also help



ENGINEERING AND OPERATIONS: LOOKING IN THE SAME DIRECTION!

## // A16 Rotterdam

# THE DECISIVE CONTRIBUTION OF BESIX ENGINEERING

THE A16 IS A NEW MOTORWAY THAT WILL GREATLY IMPROVE MOBILITY IN ROTTERDAM. THE 984 MILLION EUROS CONTRACT WAS AWARDED TO BESIX AND ITS PARTNERS BY RIJKSWATERSTAAT. IT INCLUDES FINANCING, DESIGN AND CONSTRUCTION, AS WELL AS MAINTENANCE FOR 20 YEARS. BESIX ENGINEERING PLAYS A DECISIVE ROLE IN THE PROJECT WITH THE DESIGN OF SIX CIVIL STRUCTURES AND A 2.2 KM TUNNEL. BELOW ARE THREE EXAMPLES.

### A MOTORWAY BRIDGE

The “K52 A” bridge consists of two parallel structures, about 400 m long, accommodating two and three lanes respectively. It will span an existing interchange and a railway line, the use of which cannot be disrupted by the construction.

“This prompted us to opt for the incremental launching method. This consists of constructing the bridge segments behind the bridge abutment. Each segment is cast in relation to the previous one and pre-stressed. The superstructure is then pushed forward a distance equal to the length of the segment, a process that is repeated for each segment until the bridge reaches its final position”, explains Pierre Mengeot, Senior Project Manager for the design of the A16 bridges.

This requires an ultra-precise BIM model, a 3D digital replica, even more so as the bridge follows a curved trajectory. In addition to the quantities and structure, the model also takes into account the prefabrication of the slightly curved segments and defines all the intermediate phases of construction.

“We used a special calculation programme which, in the design, takes into account the construction phases and the effects on the concrete, hence a time factor”, continues Pierre Mengeot.

The construction will be carried out in close collaboration with BESIX Engineering, with the presence of a methods specialist on site.

### A CIRCULAR PEDESTRIAN BRIDGE

In collaboration with the Block Research Group of the University of Zurich, BESIX Engineering is designing a circular pedestrian bridge.

“We favour principles of structural geometry and material efficiency, allowing us not to use reinforcement in this bridge. For its construction, we are designing a flexible formwork system, a textile made of recycled and natural fibres that is easy and quick to assemble”, details Pierre Mengeot.

The concrete itself is innovative. It is “green concrete”, i.e. made from recycled concrete.

“Thanks to its structure, the bridge will use less material, allowing us to reduce the addition of cement to the recycled concrete. Its design requires state-of-the-art calculations to guarantee first-class strength and quality”, adds Pierre Mengeot.

### THE TUNNEL

The 2.2 km long tunnel crosses a green area and will form an artificial mound under the trees and the river Rotte. It is also an outstanding example of BESIX Engineering’s capabilities in parametric design, BIM, digital twin and sustainability.

“We used parametric design to optimise the entire tunnel structure,” explains Xavier Raucroix, Senior Project Manager responsible for the tunnel design.

Parametric design consists of automating the design process through the use of algorithms and computer programming. By focusing on segments of the tunnel, which are then replicated automatically, engineers save precious time, allowing them to concentrate on quality and material optimisation, while reducing repetitive manual calculations and the risk of errors.

“The parametric design allowed an extremely precise calculation of the forces, loads and control of the reinforcements on each segment, which gives the most optimised design and reduces the quantities,” continues Xavier Raucroix. “We also used it to optimise the 4.4 km of sheet piling and 7,000 piles, taking into account the soil data at each individual location”.

In addition to parametric design, a BIM model was created, integrating all the tunnel elements into a single 3D model. This model is used to automatically generate drawings and will then be used on site by the operations team.

“We have also created a digital twin of the tunnel,” says Xavier Raucroix. “This allows us to already test all the functionalities in a fictitious environment, for example the softwares that will control the light or ventilation. This saves time for subsequent test phases and long-term maintenance”.

Finally, the tunnel will be an energy-neutral structure, the first in the Benelux. This is the case thanks to solar panels that guarantee its independence for the supply of light and IT systems.

“All of this has also been integrated into the BIM model of the tunnel,” concludes Xavier Raucroix.

implement Lean Planning techniques, which are considered a key operational driver for our clients.

### To what extent do you use cutting-edge technologies?

BESIX Engineering constantly embraces new technologies that improve the quality of our work, and remains a leader in this field. BESIX Engineering was a pioneer in Building Information Management. We are now reaching a maturity stage where a group-wide information management culture is being built.

Today we also are a pioneer in computational design. This is what we do with parametric design, which uses algorithms and artificial intelligence to improve design quality, reduce the risk of error, test more design alternatives and engage in ever more complex projects.

### How is BESIX Engineering active in sustainability?

Our sustainability experts accompany the design, procurement and execution of our building to achieve environmental

certifications, such as BREEAM, LEED, Passive Buildings ... Here, too, we have often been pioneers.

We also support R&D, for example with green concrete, which consists of reusing old concrete.

A third area is circularity, in which we’ve won several awards in recent years. This involves, for example, keeping existing structures and reusing materials, thus minimising recycling or new production. This has a high environmental gain.

### Since you took office, have you been impressed by other aspects than expertise?

There is an exceptional ‘professional camaraderie’ at BESIX Engineering. They are passionate colleagues who enjoy working together in a positive atmosphere. This is an important aspect of BESIX’s culture, which is particularly lively within BESIX Engineering. In 2020, despite Covid-19, they have remained united and efficient. This stems from their professionalism, the fact that they know each other well, and their human qualities. I also greatly value our strategy of hosting young engineers before they join construction sites. This allows us to update their technical knowledge and create links, which facilitates dialogue and knowledge sharing within BESIX.



THE DOUBLE BRIDGE ON THE A16 REQUIRES AN ULTRA-PRECISE BIM MODEL



# Digitalisation

## THE PATH TO OPERATIONAL EXCELLENCE

THE HISTORY OF BESIX HAS BEEN A HISTORY OF INNOVATION AND PIONEERING. AS A RESULT, THE GROUP STANDS TODAY AT THE FOREFRONT OF NEW TECHNOLOGIES IN CONSTRUCTION. IN 2020, BESIX HAS SET NEW AMBITIONS, IN PARTICULAR TO FURTHER DIGITISE ITS CONSTRUCTION PROCESSES. THROUGH INCREMENTING INNOVATION, THE OBJECTIVE IS AN UNPRECEDENTED IMPROVEMENT IN THE EFFICIENCY OF OPERATIONS AND THE SUSTAINABILITY OF CONSTRUCTION SITES

### WHY DIGITISE?

Cutting-edge technologies offer extraordinary opportunities to improve the daily work of operational teams. "We bring innovation and digitalisation to our construction sites, to the benefit of our operational excellence", says Patrik Peynsaert, Manager for Project Support and Digitisation at BESIX Europe. "The aim is to provide site managers with objective, reliable information on the project and work progress".

The method is twofold. It consists, firstly, of enhancing the use of BIM models on site to better manage the construction phase, and secondly, of using digital solutions to improve day-to-day project control.

### BIM ON SITE

BESIX Engineering was a pioneer of BIM. The BIM approach consists of creating a 3D digital model of a project before building it. This allows, during the design phase, to detect errors, optimise the project, estimate quantities and costs, prepare planning and methods.

But BIM is also of great use in the construction phase. "The BIM model centralises all project data in a single tool, which is a great asset for preparing, assessing and effectively coordinating trades", explains Juan Nolet, Design Coordinator at the NMBS/SNCB site. "BIM is also a dynamic collaborative platform. All stakeholders have access to the same model, which improves communication and information sharing".

### // Added value for clients

By better controlling cost and planning, digitisation has a positive impact for clients. But digital tools offer more than that: the BIM model is an extraordinary set of data documenting every aspect of the construction. This can be the most comprehensive "As Built" file, providing a wealth of information that is extremely useful for maintenance, the origin and suppliers of materials, 3D scans...

The digital model will also serve as a basis for clients to maintain their smart building with optimised use and efficient energy consumption.



LAST PLANNER SYSTEM®

### // LEAN Planning

Not all solutions to enhance excellence are necessarily digital. BESIX is also extending the use of the Last Planner System®, for example. This means involving in the planning process all parties who contribute to logistical and operational tasks, which improves performance and sustainability by reducing time loss and waste.

Examples of extensive use of BIM on BESIX projects are numerous and include for example the Warner Bros. World Abu Dhabi project.

### MEASURING = KNOWING

Digital solutions are also used to better monitor and control work progress. "Worldwide, project control is still under-digitised", says Patrik Peynsaert. "Including for the key aspects of our activity, such as quantity management, cost control, planning, reporting. Digital innovations now enable us to measure these aspects, often in real time".

### THE DIGIPRO EXAMPLE

In the Middle East, Six Construct's operations and digitisation teams have developed a unified tool to monitor work progress. They called it DIGIPRO, an acronym for 'Digital Project'.

"DIGIPRO was created with one objective and one focus in mind: to improve our performance and be more competitive by giving to our site teams a better control over their project", explains Ouafae Messaoudi, Project Manager.

"DIGIPRO allows us to create a smart connection between different information available on site and to have it at our disposal within an efficient project control platform", she adds. In particular, DIGIPRO combines quantities, cost control, manpower performance and general planning into a centralised digital system.

"DIGIPRO connects these aspects to each other. By combining them, we can visualise the progress of a project like never before. The fact that the data is instantaneous and easy to use helps projects team to control and monitor different aspects of the project in a timely manner", continues Ouafae Messaoudi. "A problem can be almost instantaneously detected and resolved".

## // IoT to tackle the pandemic

At the Dubai Uptown Tower, workers are connected via sensors in their helmets. While preserving anonymity, this helps to improve safety and the logistical organisation of the site. With their agreement, when the first workers tested positive for Covid-19, the application made it possible to identify other workers at risk, which prevented widespread contagion.

## // Enhancing sustainability

Innovative solutions improve the energy management of sites. For example, BESIX uses solar panels on many construction sites, reducing energy costs and their carbon footprint. In Dubai, on the Uptown Tower site, the project team has even installed the world's largest solar power plant on a civil worksite. Since November, this system has also been connected to the local grid, allowing excess electricity to be fed back into the grid and to reduce the electricity bill.



SOLAR POWER PLANT, DUBAI UPTOWN TOWER, UAE

To achieve this result, an unprecedented co-creation between the different departments of Six Construct to standardise and integrate different systems and data was necessary. DIGIPRO is now implemented on a few construction sites and is proving to be a reliable tool to anticipate, visualise, and prevent projects overruns.

## RELIABLE DATA

In addition to smart codification, systems such as DIGIPRO require reliable data. Here too, digitalisation plays a key role. For example, by connecting workers via the Internet of Things, by creating digital timesheets, by linking the players in the logistics chain within a single live digital platform, by adopting digital reporting...

"We collaborate with innovative companies that provide us solutions or with whom we develop new ones", says Patrik Peynsaert. "The work of the BESIX Innovation Board over the past few years has certainly played a major role in this. We have created links with innovative start-ups and acquired a thorough knowledge of this ecosystem". In 2020, it was decided to move from a centralised to a decentralised approach, where everyone at BESIX is encouraged to innovate, especially on construction sites.

## THE KEY TO SUCCESS

If the solutions are digital, the key to success remains the people within the operational teams. "Interaction and exchange between operations and BESIX Engineering teams, where the use of cutting-edge technologies is highly advanced, play an important role in the adoption of digital solutions on our sites. In addition, young engineers joining us every year have a natural openness to this topic. All this creates a momentum to transform our company to this digital era", adds Patrik Peynsaert.



**INTERACTION AND EXCHANGE BETWEEN OPERATIONS AND BESIX ENGINEERING TEAMS, WHERE THE USE OF CUTTING-EDGE TECHNOLOGIES IS HIGHLY ADVANCED, PLAY AN IMPORTANT ROLE IN THE ADOPTION OF DIGITAL SOLUTIONS ON OUR SITES. //**

**PATRIK PEYNSAERT, MANAGER FOR PROJECT SUPPORT AND DIGITISATION AT BESIX EUROPE**



## TOMORROW'S WORLD NOW

### SMART BUILDINGS & INFRASTRUCTURES

BESIX OFFERS ITS CLIENTS THE POSSIBILITY TO DEVELOP NEXT-GENERATION SMART BUILDINGS AND INFRASTRUCTURES. CONSTRUCTIONS WITH WHICH IT IS POSSIBLE TO INTERACT TO IMPROVE COMFORT, MAINTENANCE OR ELECTRICITY CONSUMPTION. BESIX SOLUTIONS ARE THE RESULT OF INTERNAL DEVELOPMENTS AND COLLABORATIONS WITH LEADING COMPANIES IN ICT AND ENERGY (E.G. PROXIMUS, ELIA). THEY ALSO STEM FROM THE ACQUISITION OF STAKES IN COMPANIES SPECIALISING IN ADVANCED DIGITAL TECHNOLOGIES, SUCH AS NEANEX.

THREE QUESTIONS TO BART GENTENS, SENIOR MANAGER NEW CLIENT SOLUTIONS

### What is a "Smart Building"?

A: It is a building that integrates new technologies improving its performance: comfort, sustainability, maintenance, hospitality... The building is smart because it actively assists its tenants and owners to be more efficient and comfortable and because it can optimise energy consumption and simplify maintenance through remote inspection and by automatically detecting anomalies. All this is enabled by cutting-edge technologies that have matured in other industries and are now finding their way into real estate: digital twins, the Internet of Things, data science, artificial intelligence, ...

### What are BESIX's strengths in the development of these solutions?

A: In addition to our ability to design and build complex buildings, our advanced capabilities in BIM are an overriding advantage. BIM is becoming ever more important as enabler for smart buildings. It forms the backbone that allows owners to remain masters of their buildings' related data. We prevent our customers from getting locked into an expensive application landscape from which they can't get out. Remember that the only game you

could play on early mobile phones was Snake and if you wanted another game you had to buy another phone. Today we expect to be able to choose from an extensive list of games in the Appstore. The same goes for our customers and their buildings. But this requires careful planning. I consider this as the next step in BESIX's renowned expertise in value engineering.

### So what does our Smart Building offer look like?

A: We partner up with experts in data collection and analysis, because data science truly forms the foundation of smart buildings. Our smart buildings allow users, via smartphone, to adjust the temperature or ventilation, charge their cars, book meeting rooms... By constantly analysing this input, they adapt and proactively optimise electricity consumption. They learn from past experience and anticipate their needs. They also simplify maintenance through remote inspection and by automatically detecting anomalies. With regard to energy, our expertise even allows buildings to communicate with each other, creating interconnected local energy communities in which they are both producers and consumers. All of this enables us to live up to our purpose to excel in creating sustainable solutions for a better world.

# Citizenship & Sustainability

## SUSTAINING SUSTAINABILITY THROUGH THE PANDEMIC

DURING THE COVID-19 PANDEMIC, BESIX GROUP WORKED HARD TO MAINTAIN THE CONTINUITY OF ITS BUSINESS AND DELIVER THE SAME LEVEL OF EXCELLENCE TO ITS CLIENTS, WHILE AT THE SAME TIME, PROVIDING A SAFE WORK ENVIRONMENT FOR ITS TEAMS, AND ADAPTING TO MAJOR CHANGES. LIKE MANY MULTINATIONAL COMPANIES, BESIX GROUP IMPLEMENTED SOLUTIONS TO SECURE ITS SUSTAINABLE BUSINESS PRACTICES AND ITS OPERATIONS THROUGH THE YEAR. SHORT-TERM ACTIONS WERE QUICKLY PUT IN PLACE BOTH TO PROTECT LIVES AND LIVELIHOODS, AND TO ENSURE PROJECT CONTINUITY.



WORKERS' QUARTERS, DUBAI, UAE

### BESIX'S PEOPLE-CENTRIC APPROACH

BESIX Group respects and supports the Universal Declaration of Human Rights (UDHR). The implementation of the International Framework Agreement (IFA) on fair labour standards demonstrates its continued willingness to secure the welfare of workers in the Middle East and in other continents such as Africa, where the Group is also active.

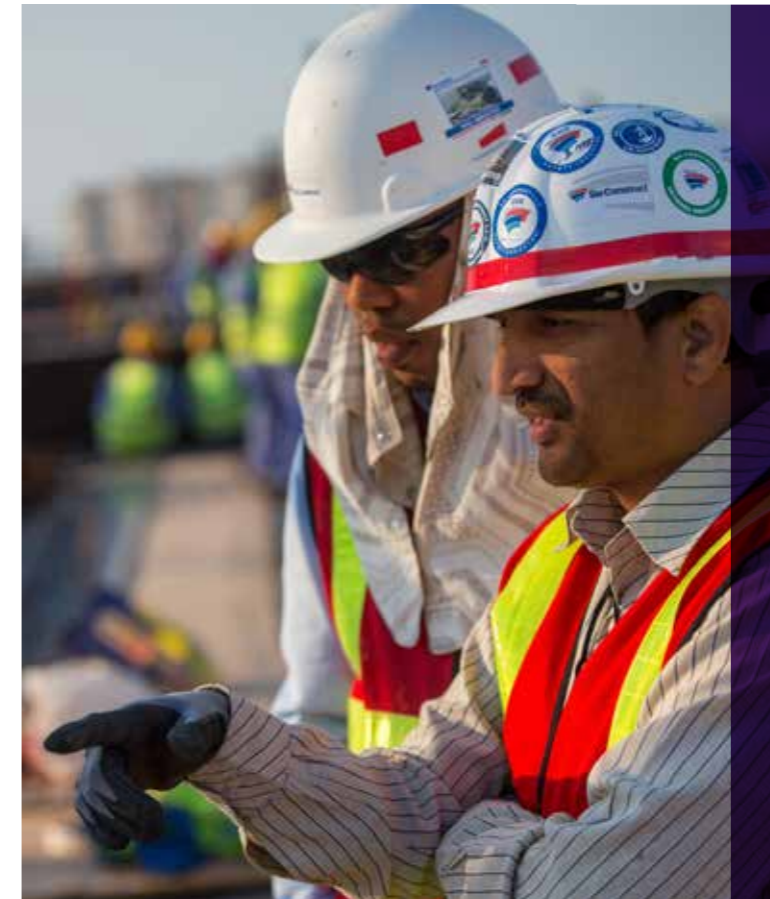
BESIX participated in the National Baseline Assessment on Business and Human Rights, commissioned by the Belgian Federal Institute for Sustainable Development and the Federal Public Service Foreign Affairs, which charted the progress made by the Belgian companies that were assessed.

The Group also reported to Business & Human Rights Resource Centre to outline its actions in preventing the spread of Covid-19 among its migrant workforce, as well as in the management of infected workers. BESIX made considerable efforts to put in place the preventive health measures necessary to ensure work continuity in a safe environment for its teams.

In the pandemic context, all possible precautionary measures were taken with the aim of maintaining business continuity and to remaining present on project sites. Awareness campaigns, dedicated helpdesk and communication lines, as well as operational toolkits have all offered valuable support to teams since the start of the pandemic. While the digitalisation of communication methods has been accelerated to provide teams with the necessary means to work from home and to communicate remotely with their colleagues.

### BESIX'S PLANET AMBITION: A LOW-CARBON FUTURE

Despite the challenges it brought, the pandemic did not stop BESIX Group in its fight against climate change. More than ever, the Group wants to contribute actively to the transition to a low-carbon society. Due to the pandemic, the Group's climate ambitions described in 2019 have been refocused primarily on keeping in line with the COP21 CO<sub>2</sub> targets.



In this field, the CO<sub>2</sub> performance ladder that is used in tender processes in the Netherlands was introduced in 2019 by the Belgian federal and regional governments. Since then, the Belgian authorities have been experimenting with the CO<sub>2</sub> performance ladder for their calls for tender in a 3-year trial period. BESIX strongly supports this, and is notably an initiative taker, along with the Association of Belgian Civil Engineering Entrepreneurs (ADEB-VBA), and a member of the steering committee.

The Group is also a member of the Belgian Alliance for Climate Action, initiated by The Shift and WWF Belgium. The objective of this community is that members align their activities with the Paris Agreement on climate change. In addition to that, BESIX Group will commit to Science-Based Targets initiatives by the end of 2021.

### BESIX'S ACTIONS TO IMPROVE SUSTAINABLE PERFORMANCE

BESIX Group is involved in innovative initiatives that minimise CO<sub>2</sub> and energy impact of construction projects. The Group advises clients and plays a key role in the building of passive or green certified projects. Some examples include: the BNP Paribas headquarters in Brussels (Belgium), which is rated BREEAM Excellent; the Quatuor buildings, also in Brussels, which are rated BREEAM Outstanding; the first energy-neutral tunnel on the A16 highway in Rotterdam (The

## MEMBERSHIPS

- // United Nations Global Compact since 2016 (worldwide)
- // The Shift since 2016 (Belgium)
- // Belgian Alliance for Climate Action since 2020 (Belgium)
- // Dubai Chamber of Commerce and Industry 'Sustainability Network' (United Arab Emirates)
- // Green Deal Civil Engineering 2.0 (The Netherlands)
- // Green Deal Circular Construction (Belgium)
- // Green Deal Circular Procurement (Belgium)
- // Brussels Ecobuild cluster (Belgium)
- // European International Contractors, Corporate Responsibility work group (Europe)
- // Fédération Belge des Fondations Philanthropiques (Belgium)

Netherlands); the Mohamed VI Tower in Rabat (Morocco), which is rated LEED Gold and HQE; and the World Expo 2020 infrastructure works in Dubai (UAE), which are rated CEEQUAL Excellent.

BESIX's engineering teams are equally skilled and empowered to develop sustainable engineering solutions. Most of these sustainable solutions were originally initiated via the Group's internal innovation drive. BESIX encourages an entrepreneurial, innovative mindset among its staff members, both to keep up with the fast changes in the industry and to develop new, creative and ecologically conscious solutions. Examples of these include: the development of smart building technologies to reduce and optimise energy consumption; the development of applied research tracks in partnership with universities to reduce carbon footprint; research in the field of recycled aggregates; the development of sustainable site installations on construction sites, with optimal insulation and low energy consumption; the use of material passports that follow the life cycle of materials and their impact on the environment; the installation of moss walls to fight against air pollution; and the use of 3D concrete printing solutions to optimise waste reduction and reduce the CO<sub>2</sub> footprint.

**2020 WAS A TRANSITION YEAR IN OUR CITIZENSHIP AND SUSTAINABILITY AMBITIONS. BESIDES KEEPING ACTIVITIES GOING, MAINTAINING HUMAN RIGHTS AND ENVIRONMENT AS TOP PRIORITIES WAS CRUCIAL TO BESIX. //**

**FRÉDÉRIC DE SCHREVEL,  
GROUP CITIZENSHIP &  
SUSTAINABILITY OFFICER,  
BESIX GROUP**



## KEY EVENTS IN 2020 //

- // BESIX joined the Belgian Alliance for Climate Action among the early signatories
- // BESIX is one of the initiative takers and a member of the steering committee for the introduction and testing of the CO<sub>2</sub> performance ladder in tenders on the Belgian public market
- // BESIX was awarded a silver medal by EcoVadis, the world's largest and most trusted provider of business sustainability ratings
- // BESIX carried out 13 green-rated projects in 2019-2020



MOSS WALLS FIGHT AGAINST AIR POLLUTION

BESIX uses Building Information Management (BIM) and data management to optimise the design and the execution phases. This allows the Group to proactively minimise risks as it promotes information exchange and data sharing between project stakeholders. It also intends to expand its expertise in wastewater and waste treatment from the Middle East to Africa to provide drinking water for local populations in these regions. Furthermore, the Group also considers waste to be an innovative and sustainable solution and is building various energy-from-waste facilities, such as refuse-derived fuel plants. This solution, originating from waste treatment, offers an alternative energy source.

## BESIX'S SUSTAINABLE STRATEGY ALIGNED WITH SDGs AMBITION

BESIX Group, as an active member of the United Nations Global Compact pact, supports the Sustainable Development Goals (SDGs). It works with SDGs, considering them as a guiding compass, while focusing on selected goals where the Group can have the most impact. It communicates its sustainability progress every year.

## STRONGER TOGETHER THROUGH PARTNERSHIPS

The world will not be sustainable without real, efficient partnerships. The Group has built strong relationships with experts from various sectors: with international institutions and networks (UNGC, EIC, The Shift, ADEB-VBA), universities, companies, and start-ups.

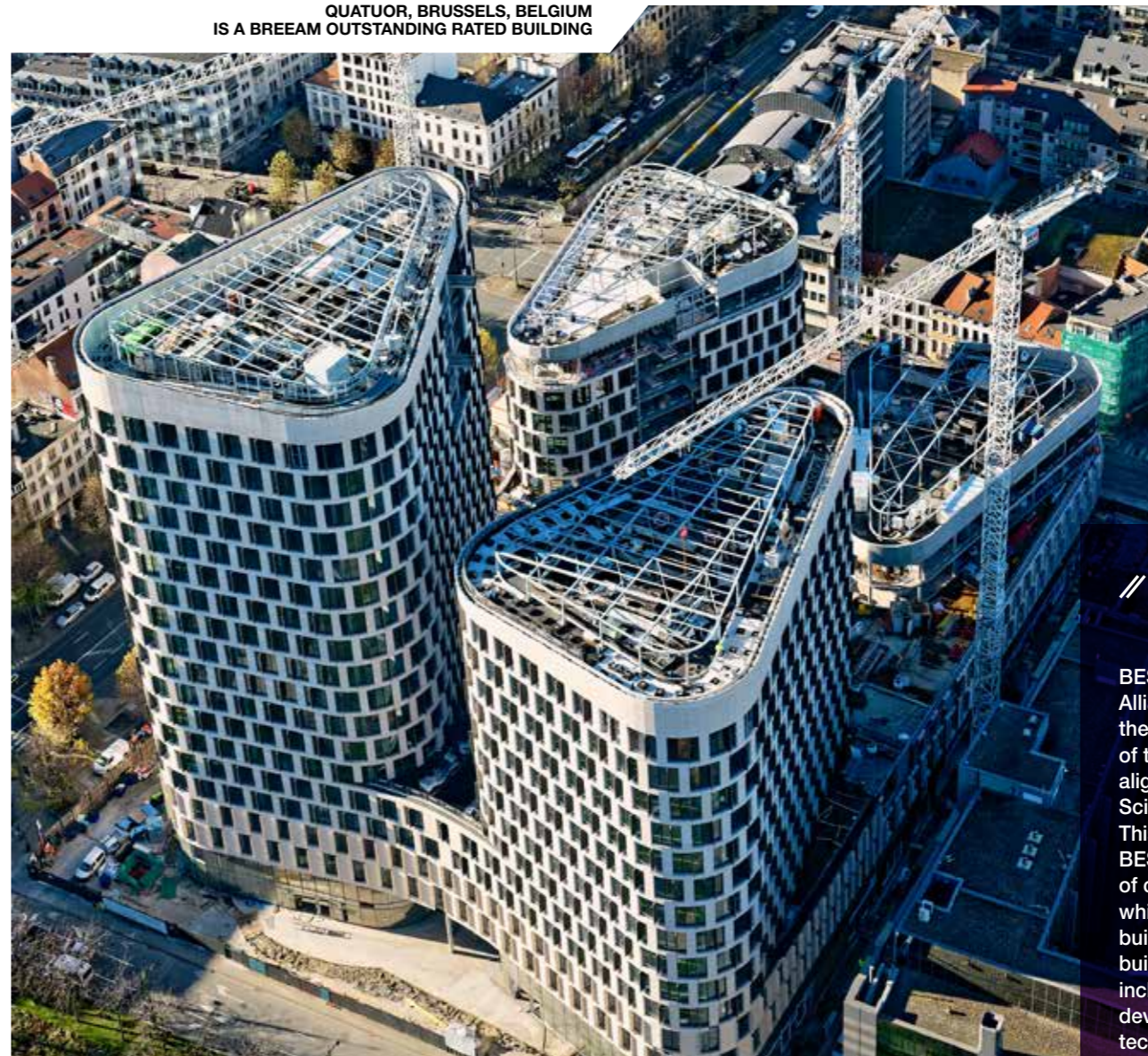
It remains aware of its impact on its supply chain. Besides its General Code of Conduct and Procurement Code of Conduct, BESIX has also developed a tool to evaluate its main subcontractors and suppliers. The objective is to build transparent and trustful partnerships with them in terms of ethics, environment and innovation.

## UPGRADING RISK MANAGEMENT

The Group also focuses on risks and opportunities to manage operations through the slogan 'Choose better, Prepare better, Execute better'. BESIX chooses a Citizenship & Sustainability approach that is integrated in its daily activities and achievements in tender, procurement, contract and insurance management. These are in line with relevant ISO and other guidance and standards.



QUATUOR, BRUSSELS, BELGIUM  
IS A BREEAM OUTSTANDING RATED BUILDING



**Belgian Alliance for Climate Action**

## // Belgian Alliance for Climate Action

BESIX Group joined the 'Belgian Alliance for Climate Action' at the end of 2020. The objective of the signatory members is to align their activities with the Science Based Targets (SBT). This initiative complements BESIX's actions in the field of construction, through which it aims to design and build increasingly sustainable buildings and infrastructures, including through the development and the use of new technologies and innovative materials.

## IN A NUTSHELL

The pandemic allowed the Group to specifically focus on two critical pillars. First, BESIX focused on minimising negative impacts and developing new, positive opportunities in people management. Efforts were made notably towards the digitalisation of work and towards healthy and safe workplaces. Alongside this, BESIX focused on its planet ambitions, with the integration of CO<sub>2</sub> performance in tender activities and participation in a dedicated climate action network.

Sustainability remained a priority for BESIX Group's clients during this pandemic. The Group is proud of all its integrated Citizenship & Sustainability initiatives and achievements that are illustrated through this activity report.

Later this year, the fifth edition of the BESIX Group Citizenship & Sustainability report, covering the years 2019 and 2020, will give more information in line with the UN Global Compact and SDG guidelines: the Group's mission, vision and objectives, as well as its continuous engagement and achievements in environment protection, human rights, worker welfare, anti-corruption and contributions to local communities.

**ACTIVITIES AND SUPPLY CHAINS WERE DISRUPTED IN 2020. EVALUATING OUR SUSTAINABILITY PERFORMANCE AND PREVENTING RISKS FOR OUR TEAMS AND OUR CLIENTS IS MORE THAN EVER A NEED AND A CHALLENGE. //**

**PIERRE SIRONVAL,  
CHIEF OPERATING  
OFFICER, BESIX GROUP**



03 /

# OUR PEOPLE



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# People

## A PEOPLE-CENTRIC APPROACH, NOW MORE THAN EVER

COVID-19 HAS RADICALLY CHANGED THE PLAYING FIELD, ALSO FOR PEOPLE-RELATED MATTERS. NAVIGATING THE WORKPLACE IN 2020 WAS NO SIMPLE TASK.

AT BESIX, SOME COLLEAGUES WERE SOCIALLY ISOLATED. OTHERS HAD TO JUGGLE A FULL-TIME JOB WITH CARING FOR ELDERLY PARENTS OR YOUNG CHILDREN. EXPATRIATES HAVE BEEN BLOCKED ON PROJECT SITES IN REMOTE PARTS OF THE WORLD, UNABLE TO TRAVEL OR REUNITE WITH THEIR FAMILIES. DIFFICULT DECISIONS HAD TO BE TAKEN AND SOME COLLEAGUES HAVE BEEN FURLOUGHED OR LET GO. MANY FACED SEVERE SUPPLY CHAIN DISRUPTIONS AND SANITARY CHALLENGES ON CONSTRUCTION SITES. SOME WERE ALSO STRICKEN BY THE VIRUS. NO ONE AMONG THE 11.000 BESIX EMPLOYEES WAS SPARED.



THE CRISIS DIDN'T PUT AN END TO RECRUITING AS THIS DIGITAL JOB FAIR SHOWS

### #WECARE

The virus has forced BESIX to step into uncharted territories; but 2020 has shown how resilient and courageous the staff were. BESIX is proud and grateful to the teams around the globe who ensured business continuity and to those who carried out critical tasks to manage this crisis. The all-round resilience and commitment to deliver have generated positive drive within the company in such a way that a good balance has now been found between safeguarding both the health of its employees and its business.

Before the crisis struck, BESIX had already started redefining its transactional HR practices into a more people-centric strategy, where support, innovation, environmental awareness and quality of life are central. Who could have foreseen that this strategy, dubbed '#WeCare', would have become so crucial a few months later... The pandemic proved, if need be, that care is today more important than ever in people policies and that an employer needs to focus on both the mental and physical health of its employees to boost its capacity for resilience. If BESIX has been able to get through 2020 with resilience and focus, it is partly thanks to its caring and people-centric HR policies.

### A NEW WAY OF RECRUITING

New People practices have emerged from this forced new way of remote working, especially in the field of recruitment. The crisis didn't put an end to recruiting, but it certainly changed the way to do it. Very quickly, BESIX recruiters realised that attracting, selecting and recruiting talents could be greatly facilitated by technology. For instance, a virtual interview saves time and resources for both BESIX and

# 730

NEW HIRES

# 11,813

EMPLOYEES AT 31.12.2020

# 44 years

AVERAGE AGE

# 79

NATIONALITIES IN THE GROUP

# 9.72 years

AVERAGE SENIORITY

**THE EXPERIENCE OF THIS CRISIS WILL HOPEFULLY MAKE US ALL BETTER AT WHAT WE DO. TOGETHER, WE CAN INNOVATE AND PUSH OUR ORGANISATION FORWARD INTO A 100 % PEOPLE-FIRST COMPANY. //**



**GEERT AELBRECHT,  
CHIEF PEOPLE OFFICER**

the candidates, as there is no commute or meeting place. Even more daringly, the organisation recognised that, in some cases, recruiting virtually increased the reach of the recruitment process and enriched the return, as doing things remotely eliminated potential hassles such as travel arrangements. In 2020, as many as 730 new talent were recruited and on-boarded digitally.

## A NEW WAY OF GROWING

Before the virus struck, some 80 % of training at BESIX was classroom-based. Not surprisingly, Learning and Development emerged as one of the earliest and hardest hit People activities, with most in-person programs cancelled as soon as the virus spread. Again, by luck or foresight – or because it was already planned as a smart strategic move – BESIX had launched its eAcademy platform a few months prior to the pandemic.

BESIX turned the forced standstill in L&D into an opportunity to review its training offer as the worldwide crisis raised new types of challenges. Today, the eAcademy platform has moved away from a prescriptive approach to a more entrepreneurial format: the employee has access to a myriad of blended learning opportunities, allowing him or her to develop and progress in their own way.

Take for instance the monthly brown bag sessions that used to be held in-person at headquarters over breakfast. Today this knowledge-sharing moment has been transformed into a virtual get-together, accessible to all colleague around the world, live or in replay from the eAcademy platform. Participation to these brown bag sessions has skyrocketed and has seriously boosted internal knowledge sharing.

## A NEW WAY OF PLANNING

Manpower planning is an important aspect of any organisation, but is particularly difficult in an activity subject to as many variables as construction, where tomorrow's work depends on winning yesterday's (public) tenders.

At BESIX, specific efforts have been made in 2020 to reinforce the efficient match of manpower supply and demand. In order to foster and secure the competent colleagues needed to achieve its projects in the pipeline, BESIX undertook a formal mapping of skillsets present at the various stages of a project's life cycle (tender, design, execution...) and a cartography of all profiles active in the company.

This detailed, worldwide mapping of skills and profiles allows the 'pre-booking' of talents on up-coming jobs. By ensuring an optimum match between available manpower and future work volume, BESIX is killing two birds with one stone: it boosts career prospects for the individual employee, and it secures project start-up by allocating the right resources in time. In 2020-2021, this pilot for dynamic career management based on tomorrow's volume is being tested in France and will be soon extended to Europe.

## CHALLENGES GOING FORWARD

Even when the crisis is over, several challenges will remain. Going forward, BESIX will specifically explore its leaders' ability to coach remote workforce and preserve the company's culture in the 'new normal'.

The pandemic and its effects have highlighted the need for adaptability in today's workforce. The social dynamic between employees will no longer be the same due to varying working conditions, such as travel restrictions, less face-to-face interactions and an increasingly dispersed workforce. As a 110-year old engineering company, BESIX has a legacy of traditional face-to-face management system – which now requires a shift to agile and remote management. Leaders need to increase their facilitation skills to coach their virtual organisation efficiently: be straightforward in their expectations, provide clear guidelines and unite teams around results, not means.

At BESIX, a third of the white-collar workers has less than five years' seniority. It is therefore crucial that leaders are explicit about the culture and attitudes expected, that they formalise what used to be taken for granted when employees saw each other every day.



## CONCLUSION //

Even as we move forward and look to a better 2021, one of the most recurring People themes remains: how can BESIX best connect, recognise and support its staff in today's unpredictable environment? To remain in tune with the overall feelings of its workforce, BESIX will conduct a worldwide satisfaction survey as a way to check and ensure that everyone is well and engaged. This will also capture the nuanced experiences of employees in different countries.

In 2020, as various levels of lockdowns were introduced in the many countries where BESIX was present, the company was quick to implement digital solutions to enable some of its employees to work remotely. Working from home was not entirely new, as it had been introduced at BESIX a few years earlier – a move that was then considered quite innovative for the construction sector. Going forward, BESIX will keep offering a hybrid working culture that supports both in-person and remote staff – with one constant: the employee at the heart of its people-centric culture.

While 2021 may not be plain sailing, BESIX People is prepared and ready to meet challenges, to continue on the path of agility and resilience.

# Fair labour standards

## HEALTH & SAFETY DURING COVID CRISIS IN THE MIDDLE EAST

IN THE MIDDLE EAST, BESIX OPERATES WITH A LARGE POPULATION OF MIGRANT WORKERS. BESIX IS THEREFORE RESPONSIBLE FOR THEIR WELFARE, CARING FOR THEIR HEALTH, SAFETY, SECURITY AND DIGNITY. THE MIGRANT WORKERS LIVE IN BESIX-MANAGED ACCOMMODATIONS AND EVERYTHING FROM THEIR HOUSING, FEEDING, LAUNDERING, ENTERTAINING, COMMUTING... IS OVERSEEN BY BESIX. THE ARRIVAL OF THE COVID-19 VIRUS HAS REQUIRED MASSIVE ADAPTATIONS.

### WHAT HAVE WE DONE FOR OUR MIGRANT WORKERS?

"First and foremost, we have invested in additional accommodations to spread our workers over a large number of rooms" explains Patrice Thomas, BPS & QHSE Manager for the Middle East, "and we have re-allocated the rooms in such a way that workers are housed together by shift and by project, to avoid potential cross-contamination to colleagues from other sites."

"We have also increased the frequency of cleaning and disinfection processes of facilities and surfaces on sites, in commute shuttles and in the accommodations, to suit the stringent Covid-19 regulations of the UAE. Large amounts of stations with hand sanitizers and hand wash liquid have been installed in various key locations. Unfortunately, all gathering within the accommodations like celebrations or sport activities have been canceled."

"In terms of communication, we have deployed several awareness campaigns, with visuals affixed on walls and notice boards in workers' languages, and conducted regular tool-box talks to educate and repeat the sanitary measures, like the famous mandatory distancing between people, and the compulsory wear of masks at all times."

"In terms of transportation, the number of shuttles to commute between accommodations and sites has doubled to maintain adequate distance between workers on board. Another important measure is the daily fever check-up for all employees to detect any potential case getting on board.

Shuttles are not the only place where fever checks are performed: we have installed thermal screening in accommodations and offices as well, to screen all stakeholders accessing the Project sites."

"Should someone show Covid-19 symptoms, we have deployed strict protocols to manage any potential cases. We direct him immediately to a specific government hospital authorised to test, treat and isolate confirmed cases in the region. All so-called "primary contacts" are immediately quarantined and accommodated to a specific quarantine accommodation that have been set-up for the duration of this crisis, where quarantined employees remain for a period of 14 days under observation. It goes without saying that we provide free medical insurance to all employees, cover all local medical expenses, and cover for normal wages, for the duration of said quarantine."

At the moment of writing this article, BESIX had suffered two losses to Covid-19 among its staff in the Middle East: Thanka Varghese, chief draughtsman, who has been with the company since 1995, and Ashok Gianani, accountant, who joined the company back in 1993.

"The vaccination campaign for our employees and migrant workers began in February 2021. It is taking place directly in our offices for the employees and in the living quarters for the workers. The vaccine is administered for free, on a voluntary basis" concludes Patrice Thomas.



THE VACCINATION CAMPAIGN FOR OUR EMPLOYEES AND MIGRANT WORKERS BEGAN IN FEBRUARY 2021. IT IS TAKING PLACE DIRECTLY IN OUR OFFICES FOR THE EMPLOYEES AND IN THE LIVING QUARTERS FOR THE WORKERS. THE VACCINE IS ADMINISTERED FOR FREE, ON A VOLUNTARY BASIS. //

PATRICE THOMAS, BPS & QHSE MANAGER FOR THE MIDDLE EAST

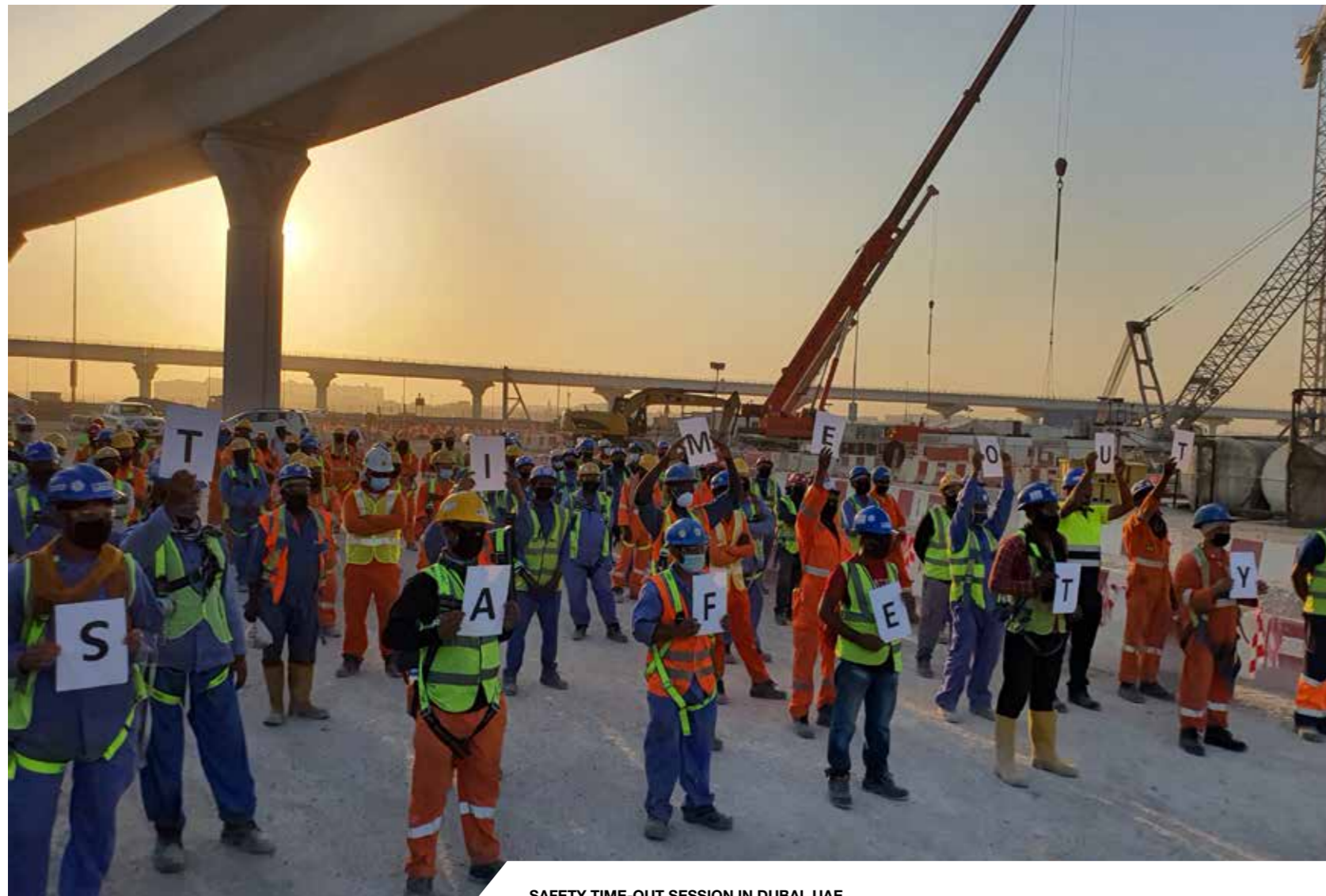




# Quality, Health, Safety and Environment

## WE ARE #SAFETOGETHER

THE MAIN OBJECTIVES OF THE QUALITY, HEALTH, SAFETY AND ENVIRONMENT (QHSE) DEPARTMENT ARE TO DEVELOP A STRONG AND POSITIVE CULTURE IN THESE ABOVE-MENTIONED FIELDS AND TO EXCEL WITHIN ITS DOMAINS. IN THE SPIRIT OF ITS CORE VALUES, BESIX IS #SAFETOGETHER. NOT ONLY REGARDING THE INTEGRITY OF HUMAN LIFE, BUT ALSO WHEN IT COMES TO REDUCING ITS PLANETARY FOOTPRINT AND INNOVATING IN QUALITY.



SAFETY TIME-OUT SESSION IN DUBAI, UAE



**BESIX IS MORE THAN EVER DETERMINED TO STRENGTHEN THE SAFETY PERFORMANCE OF ITS PROJECTS WORLDWIDE. //**

**RIK VANDENBERGHE,  
CEO BESIX GROUP**

## ACCIDENTS

2020 has been a challenging year. The global Covid-19 crisis has brought new risks to BESIX operations, with many new constraints which impacted the organisation, the resources, the working methods and increased the general risk level of its operations.

Despite the impressive ability of BESIX Project teams, Corporate services and Senior Management in adapting to the situation, the accident rate from March 2020 gradually started to increase throughout 2020.

The year 2020 was sadly marked by one fatal accident in the Netherlands, where a worker fell from height after stepping outside the safe zone of a scaffold. BESIX's team have carried out in-depth research into the cause of this accident with all interested parties.

BESIX Group has recorded 25 High Potential incidents in 2020. This represents an increase of 66 % compared to 2019 where 43 % of them are related to working at height activities, 33 % are linked to lifting and rigging operations and 17 % are related to (moving) equipment.

As a result of these incidents, BESIX is more than ever determined to strengthen the safety performance of its projects worldwide, thus preventing such adverse events from occurring in the future. The recent ISO 45001 certification scheme reinforcing its Occupational Health and Safety Management System, its BE SAFE program, its Institution of Occupational Safety and Health core training courses and the deployment of QHSE digital tools available on all BESIX Projects are the cornerstones of the improvement opportunities available at BESIX in 2022.

## EVERYONE IS A SAFETY LEADER

In order to reinforce the idea that everyone at BESIX is a safety leader, executives regularly and actively participate in Project Management Safety Walkabouts to support efforts on project sites. They also chair every root cause analysis review and close out meetings following a High Potential event in order to enhance the transfer of lessons learned throughout the Group and various Boards of Directors.

Furthermore the project managers encourage everyone to assume their responsibility regarding the Life Saving Rules and to act upon breaches in a consistent manner.

## IOSH CERTIFIED COURSES

BESIX Group believes in challenging paradigms in order to further boost health and safety performance and culture. For this reason, they have partnered with the Institution of Occupational Safety and Health (IOSH). IOSH is the world's largest health and safety membership body. With over 44,000 members in 99 countries, IOSH is committed to ensuring that global work practices are safe, healthy and sustainable. The Group has therefore developed 'Working Safely' and 'Managing Safely' at BESIX, two high impact training for both its staff and its subcontractors, offering them guidance and knowledge to further sharpen their skills and, of course, tailored to its business and daily reality.

'Working Safely' is a one-day course for blue collar workers, that aims at boosting safety performance and motivation. How? Simply by showing how everyone can enhance their safety, health and well-being through everyday behaviour. This is a completely different approach to health and



safety training as this high impact program is designed to be fun and inclusive. No jargon, no legalese – just inspirational learning that is enjoyable, stimulating and effective. ‘Working Safely’ provides the knowledge and tools required to work in safe conditions.

‘Managing Safely’ is a practical program for supervisors and managers, full of step-by-step guidance, and a sharp business focus. Through a highly innovative format and content, it engages and inspires operational leaders to embedding safety and health throughout the entire organisation. ‘Managing Safely’ is a blended learning course where participants follow e-learning modules before attending two days of workshops during which concepts are discussed and knowledge is applied. The key is in other words on comprehension and application, enabling participants to recognise how they can influence, control and monitor in order to improve health and safety in the workplace.

Since 2020, BESIX is certified as an approved training provider. The Group is the first building company in Europe to obtain this certification.

## CARING FOR THE PLANET

In the effort to further reduce its planetary footprint, BESIX has engaged in several ambitious initiatives in 2020, such as the CO<sub>2</sub> Performance Ladder. This sustainability instrument was developed in the Netherlands in 2009 to encourage companies to structurally reduce CO<sub>2</sub> within their business operations, projects and value chain. This instrument is used by several BESIX’s clients as a criterion when awarding their projects.

The activities of BESIX Nederland and Franki Grondtechniek have been certified at the highest possible level (level 5) since 2011. As part of its Sustainability Forward program, BESIX decided in September 2020 to further expand the scope of the current certificate to its entire European business unit, in which BESIX Infra, Van den Berg, Franki Foundations and Atlas Foundations also participate. The objective is to acquire this certificate by early 2022.

BESIX also adhered to the Belgian Alliance for Climate Action (BACA), a community of Belgian organisations that tackle their climate ambitions seriously and choose the path of science-based targets. It also intends to reach out to its business partners and encourage them to make sustainability a priority.

## SETTING NEW STANDARDS

BESIX was already ISO 14001, ISO 9000, OHSAS 18001 and VCA\*\* certified in the past. In 2020 the Group has upgraded its Occupational Health and Safety (OH&S) systems to the ISO 45001 standard and has consequently been successfully certified. ISO 45001 is the world’s first international standard for OH&S. It provides a framework to increase safety, reduce workplace risks and enhance health and well-being at work, enabling BESIX to proactively improve its OH&S performance. This standard was developed by taking into consideration other related standards, such as OHSAS 18001, Occupational Health and Safety Management, the International Labour Organization’s ILO-OSH 2001 guidelines and various national standards. It is also consistent with the ILO’s international labour standards and conventions. This standard has been developed under the ISO system with the input of experts from more than 70 countries, and provides now an international framework that takes into account the interaction between an organisation and its business environment. ISO 45001 adopts a risk-based approach that ensures its effectiveness and it undergoes continual improvement to meet BESIX’s ever-changing context.



**IN 2020 THE GROUP HAS UPGRADED ITS OCCUPATIONAL HEALTH AND SAFETY SYSTEMS TO THE ISO 45001 STANDARD AND HAS CONSEQUENTLY BEEN SUCCESSFULLY CERTIFIED. //**

**ALEXIS LAROCHE,  
CORPORATE QHSE MANAGER**



**EXECUTIVES REGULARLY AND ACTIVELY PARTICIPATE IN PROJECT MANAGEMENT SAFETY WALKABOUTS TO SUPPORT EFFORTS ON PROJECT SITES. //**

**JAN VANGEEL, QHSE MANAGER**



**TERRACED TOWER, ROTTERDAM, THE NETHERLANDS**

# BESIX Foundation

## THE PANDEMIC DIDN'T PUT A STOP TO SOLIDARITY!

DURING THE UNPRECEDENTED COVID-19 VIRUS PANDEMIC, SOLIDARITY AND MUTUAL AID HAVE MORE THAN EVER BEEN VITAL VALUES AT THE HEART OF THE ACTION OF THE BESIX FOUNDATION. FROM GRASSROOTS RELIEF PROJECTS TO STRUCTURAL PARTNERSHIPS, THE 2020 FOCUS OF THE BESIX FOUNDATION PURPOSEFULLY AIMED AT COMMUNITIES THAT ARE THE MOST VULNERABLE AND ECONOMICALLY IMPACTED, IN PARTICULAR IN THE DOMAINS OF EDUCATION, CONSTRUCTION AND ENVIRONMENT.

BESIX CLEANUP DAY



THE FOUNDATION SUPPORTS YOUNG WATER SOLUTIONS

*I AM VERY IMPRESSED BY THE SENSE OF COMMITMENT THAT OUR FOUNDATION HAS SHOWN DURING THESE HARD TIMES. VOLUNTEERS KEPT ON WORKING, GRASSROOTS INITIATIVES FLOURISHED, PROJECTS WERE FINANCED AND PARTNERSHIPS DEVELOPED. FOR ALL THIS, THANK YOU AND THANK YOU ONCE MORE! //*

**FREDERIC DE SCHREVEL,  
PRESIDENT OF THE BESIX  
FOUNDATION**



For instance, the crisis has highlighted the extent of the digital divide, present even in developed countries. BESIX Foundation is therefore delighted to have been able to develop in 2020 a sustainable partnership with **Close the Gap**. Close the Gap is an international social enterprise that aims to bridge the digital divide by offering high-quality, pre-owned computers donated by European companies like BESIX to educational, medical and social projects in developing and emerging countries.

In the same trend, 2020 was also marked by the personal solidarity coming from BESIX management. The members of the Executive Committee have financed, at their own expense, an additional budget of 100,000 euros which was made available to five partner associations of the BESIX Foundation. This budget was mainly used to launch IT training projects and to avoid for the most vulnerable people to drop out, which was a key concern as soon as various lockdowns started.

### CLEANUP DAY

In order to raise awareness with employees, subcontractors, partners and clients and to give something back to the communities in which it operates, BESIX organised its annual **CleanUp Day**, between two waves of Covid-19. 1,200 colleagues around the world volunteered to clean up the neighborhood around their project sites and offices. The result was remarkable: the volunteers collected well over 2 tonnes of litter on three continents, litter which otherwise would have found their way to the oceans.

This new edition also motivated colleagues to organise a waste reduction awareness action in an elementary school in Ivory Coast, next to their construction site. Boosted by a prize awarded by the BESIX Foundation for their efforts, the colleagues have then undertaken the **construction of a much-needed kitchen and canteen in the school**. Such grassroots initiatives can only become a reality thanks to the daily motivation of BESIX Group's colleagues active in the field.

## VOLUNTEERING IN MANY WAYS

During lockdown, the BESIX Foundation was able to support associations by organising **donations in various fields**, including unusual ones. An example of that was donation of in-house manufactured protective equipment for caregivers. BESIX engineers put their expertise to work to 3D-print items such as holders for full-face shield, holders for protection goggles and frames for protective visors.

As the pandemic exposed more visibly the general fragility of the social sphere, solidarity initiatives and volunteering have proven increasingly relevant. This is the reason why the BESIX Foundation has reinforced its support to **Opération Thermos Operatie**. **Opération Thermos Operatie** is also a grassroots initiative that brings every winter night warm meals to homeless persons in need in the Belgian Capital. Through 2020, the BESIX Foundation organised additional food delivery evenings as many associations have not yet been able to resume their actions. Distribution is now being organised on a Covid-proof, socially distanced take-away basis but responds to a real and, unfortunately, growing demand.

## BESIX'S OWN PROJECTS AND PARTNERSHIPS

**KiddyBuild** and **Right 2 Learn** are two projects developed by the BESIX Foundation in the last decade. The first one is aimed at encouraging professional vocations among children from underprivileged backgrounds in Belgium; the second one is aimed at migrant workers in the Middle East to master basic computer skills. Both projects have had to put their activities on hold due to the restrictions imposed by the pandemic.

**TeachBuild**, a new project developed by the BESIX Foundation in 2019 to welcome teachers on site to discover the variety of construction trades, was nevertheless able to organise three discovery days at the beginning of 2020.

Even if the amount of funded projects was lower than usual, the BESIX Foundation was still able to support remarkable initiatives and to sign two new significant partnerships.

The first one is with **Young Water Solutions**, which supports young local entrepreneurs who want to contribute to a better quality of sanitary life in developing countries. They develop innovative projects to provide solutions to water supply, sanitation, and hygiene problems, to meet the needs of the communities and the challenges of sustainable development. Candidate-entrepreneurs are supported at all stages, from the launch to the development of their project. This new partnership made the organisation of a national campaign possible in Ivory Coast, a country where Young Water Solutions was not yet active. Eight new projects are planned to be launched in 2021.

The second is the launch of a **Social Impact Bond** in partnership with Oranjehuis in Belgium. This Bond is one of the first social public-private partnerships of the kind in the country. Sponsors are financing the reintegration of some 130 young adults - a third coming out of detention - with predefined success objectives which will be evaluated by an impartial third-party, i.e. the university KUL Leuven. If this project turns out to be successful, the public organisation "Opgroeien Vlaanderen" will refinance the investments to the sponsors. The BESIX Foundation is proud to promote such an innovative approach and to support this very promising project.



COLLEAGUES IN IVORY COAST HAVE UNDERTAKEN THE CONSTRUCTION OF A MUCH-NEEDED KITCHEN AND CANTEEN IN THE LOCAL SCHOOL



THE FOUNDATION SUPPORTS CLOSE THE GAP, A SOCIAL ENTERPRISE FOCUSED ON BRIDGING THE DIGITAL DIVIDE

# Health capabilities

## BUILDING A HOSPITAL: BUILDINGS LIKE NO OTHER



**BERT LENAERTS,**  
DIRECTOR AND  
ADMINISTRATOR OF  
VANHOUT (BELGIUM)



**RENÉ JORDENS,**  
COMMERCIAL  
DIRECTOR AT  
BESIX FRANCE

BESIX AND THE GROUP'S ENTITIES HAVE BUILT NUMEROUS HOSPITAL STRUCTURES THROUGHOUT THE WORLD. BESIX'S LARGEST BUILDING, IN TERMS OF SURFACE AREA, IS IN FACT A HOSPITAL, THE CLEVELAND CLINIC IN ABU DHABI. BUT WHAT DISTINGUISHES A HOSPITAL FROM ANOTHER BUILDING? RENÉ JORDENS, COMMERCIAL DIRECTOR AT BESIX FRANCE, BERT LENAERTS, DIRECTOR AND ADMINISTRATOR OF VANHOUT (BELGIUM), ETIENNE BANSE, MANAGING DIRECTOR OF JACQUES DELENS (BELGIUM) AND ADRIAN JONES, PROJECT DIRECTOR AT BESIX WATPAC (AUSTRALIA) SHARE THE SECRETS OF THEIR TRADE.

### What is the difference between building a hospital and another building? Are there specific characteristics of this type of projects?

**Bert Lenaerts (BL):** The first specificity of a hospital is certainly the complexity of special techniques. On this point, the construction or renovation of a hospital complex is always a real challenge. In addition to the HVAC and electrical installations, which can be found in all types of buildings, there are several technical installations specific to hospitals.

**René Jordens (RJ):** Indeed, there are additional special techniques that are extremely important, such as oxygen, nitrogen and osmosis water networks. In addition, there are numerous bathrooms, one per room, air renewal infrastructures and data transport systems. At BESIX France, we consider that for a normal building, special techniques represent on average 25 % of the cost of the works. For a hospital, it is about 33 %.

**Etienne Banse (EB):** In addition to this extensive network, there are particularly high and precise requirements in terms of water temperature, quality and flow. For all these reasons, at Jacques Delens we always put at least one engineer who is highly specialised in special techniques on this type of site. The fact is that in this field, the slightest error or lack of precision can be fatal for a patient.

HOSPITAL GROUP SUD ILE DE FRANCE, MELUN, FRANCE



CASEY HOSPITAL, MELBOURNE, AUSTRALIA

## BESIX WATPAC IN AUSTRALIA //

In March 2020, BESIX Watpac completed the \$135 million expansion of Casey Hospital in Melbourne, significantly boosting the regional health capacity with a new 12 bed ICU, 128 multi-day beds, 12 day surgery beds and four additional operating theatres. The 13,000-square-metre expansion is one of the first successful public-private partnership (PPP) expansions of an operating hospital in Australia. It was commissioned just as the corona virus pandemic was declared and was placed on standby to support tertiary hospitals in the Covid response.

**RJ:** A further example in this area is redundant energy and water supplies. For example, we must always have two independent sources of electricity supply plus generators. It is the same with water supplies.

**BL:** All this creates an incredible density and complexity of ducts, cables and pipes that overlap and intersect at every point in the building, with outlets in many, many rooms. This explains why the reception phase is always long and very demanding. The client is therefore involved in this verification work as early as possible. It is a meticulous job.

**Adrian Jones (AJ):** Deep engagement with stakeholders is indeed paramount in either a green or brownfield hospital development. These are highly specialised environments containing numerous systems which not only increases the services infrastructure but adds to the complexity. Diligent co-ordination of systems within ceiling spaces, services risers and plantrooms is a high priority, and while most services are allocated zones, there are still many points of crossover and overlap requiring very careful planning.

Specialised equipment must be integrated with structural elements, including post tensioning and reinforcing within the slab as well as services above and below the equipment. Access, to ensure the often large equipment can be transported into the room needs to be addressed very early in the design and planning stage.

### Beyond special techniques, are specific materials used in hospitals? Are there special points of attention during construction?

**BL:** There are indeed many important points of attention. Floors, for example, must be designed and constructed so that their surface is perfectly flat and there are as few differences in level as possible. Wherever patients are transported, shaking should be minimal. In corridors, in rooms, in operating theatres. The quality of the floor is very important.

**EB:** For this purpose, flexible, non-flammable and highly resistant coatings are used. Special coatings are available for this purpose. In reality, we use many materials that differ from those usually used. For example, all coatings must be resistant to dust and dust mites.

**RJ :** A lot of things are actually designed with dust in mind. That is why it is absolutely necessary to avoid building removable false ceilings or the usual baseboards, which are always a nest of dust in hospital areas. We make sure that everything is very smooth and therefore easy to maintain. Hygiene is of course essential, especially in order to reduce the risk of nosocomial infections, i.e. infections contracted in hospital. This starts as early as the construction phase. The construction site of a hospital must be as clean as possible. As far as the materials are concerned, we have talked about

## CLEVELAND CLINIC, ABU DHABI, UAE



the floors, but patient transport also has an impact on the quality of the walls: for example, these are often made with reinforced plaster walling and the corners of the corridors are protected with adapted angle irons so that they can withstand repetitive shocks.

**BL:** Sometimes it's the concrete itself that differs. For example, the concrete structure of the walls, floors and ceilings of the radiology rooms at St. Elisabeth's Hospital in Turnhout was built in such a way that no radiation could pass through them. This requires a special concrete with baritine.

**RJ:** At the Proton Therapy Centre of the Curie Institute in Orsay, we had to build 5-metre thick walls for the room where the cyclotron is installed. This was a requirement for radiation protection.

### Building a new hospital is one thing. Building extensions or renovating an existing hospital must also involve special challenges.

**AJ:** Live operational environments such as hospital extensions or renovations require precision planning to ensure the safety of patients, clinicians and visitors at all times. Construction zones and access points must be clearly delineated to provide separation between workers, plant and equipment, hospital staff and the public to prevent cross contamination. The timing of integrating the technology between the old and new requires careful planning to ensure zero impact on patient care if an unforeseen complication occurs, testing these integration items in an "off line" environment always increases the likelihood of success. Managing noise and vibration from construction is critical so as not to impact patient comfort levels or the operation of sensitive equipment.



CLINIQUES UNIVERSITAIRES SAINT-LUC,  
BRUSSELS, BELGIUM

**EB:** On top of that, this type of work always involves extremely tight planning. The relocation of a department within a hospital has a huge impact on the overall organisation of the institution. One day's delay would affect the whole. All parties involved have a vested interest in ensuring that the planning is perfectly respected. Everyone is therefore focused on the same objective, which certainly contributes to our success in this area.

**RJ:** One of BESIX's most advanced areas of expertise is our organisational capacity, often developed by the Methods and Planning department. This is obviously useful for all types of construction sites. But for a hospital, certainly in the context of an extension or renovation, it is a real asset.

**BL:** Of Vanhout's six most recent hospital projects, four were carried out using the Bouwteam method, also known as "Early Contractor Involvement". It turns out that designing the project together with the client from the outset is very relevant in order to keep to the schedule. All stakeholders are involved at an early stage and are aware of the challenges and problems involved.

**EB:** On several occasions, before starting work, we also had consultations with the client and the medical staff unions. The fact that the end user of the building is involved as early as possible is indeed very useful, because, especially in hospitals, this user is particularly demanding. When we realised the new emergency service at Saint-Luc in Brussels, we were working next to the operating theatres and patients' rooms. In such a context, the work would be impossible without good consultation and consideration of everyone's interests. For our part, for example, we had to work very tight schedules for certain tasks.

**BL :** In the case of renovation or extension work, I would like to add that the planning, which is already often very tight, is also often staggered. This is linked to the fact that we have to adapt the construction site to the essential mission of a hospital that must remain fully operational. This was the case

during the renovation of the Van Lourdes hospital in Waregem. In Turnhout, we opted for the temporary relocation of various hospital departments to high-quality prefabricated buildings. This allowed us to carry out the renovation efficiently and quickly. We always adapt ourselves to the interests of these very special clients!

**EB:** We also adapt our techniques. When we work next to operating rooms like in Saint-Luc, we use techniques that generate the least amount of vibration. We do as much pre-drilling as possible in prefabricated materials. For some unavoidable work on site, we coordinate with the client to find a time of day when we can do what needs to be done. In Bouge, near Namur, we renovated two floors at a time in a nine-storey building. The other floors had to remain operational. As far as phasing is concerned, it's complex. For example, the replacement of the wastewater pipes on the lower floors: we cannot block the use of water on the upper floors for long. Consultation with the client, extreme phasing of the work and effective controls are therefore the key to success.



ETIENNE BANSE,  
MANAGING DIRECTOR  
OF JACQUES DELEENS  
(BELGIUM)



ADRIAN JONES,  
PROJECT DIRECTOR  
AT BESIX WATPAC  
(AUSTRALIA)

04 /

# 110 YEARS OF GLOBAL EXPERTISE

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# OUR AREAS OF ACTIVITY

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.

## 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 challenging 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...



### 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 equipment. This comprehensive design and equipment approach yields considerable cost savings. BESIX executes coastal marine works all around the world: breakwaters, jetties, quay walls, locks, marinas, water intakes, shore protection and refurbishment.



### Sports & Leisure

BESIX builds places that turn people into participants. World-class 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.



### Utilities

The Group is active in the utilities sector, both through BESIX and through some of its specialised entities, such as Van den Berg 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.



### 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 providers.



### 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 BESIX Group companies 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 in the Middle East.



### 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...



### 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, hydroelectric installations... BESIX also focuses on the creation of by-products from waste, such as biogas, biofuel, biosolids and heat recovery. Recoverable resources and energy optimisation are a must in times of rapid demographic changes and a global transition to green energy.



### 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 Socoetra, both figuring among the region's leading roadworks companies.

## CONCESSIONS & ASSETS



BESIX Concessions & Assets devises tailor-made solutions covering the complete infrastructure life cycle. With its broad experience in European and Middle Eastern Public Private Partnerships, BESIX recognises that each project, customer and community has a unique set of challenges and takes pride in being able to form collaborative partnerships to deliver on their aspirations. Together with its Client-Partners and applying its range of financing options, BESIX devises a pragmatic approach to achieve a shared interest over the complete infrastructure lifecycle.

## REAL ESTATE DEVELOPMENT

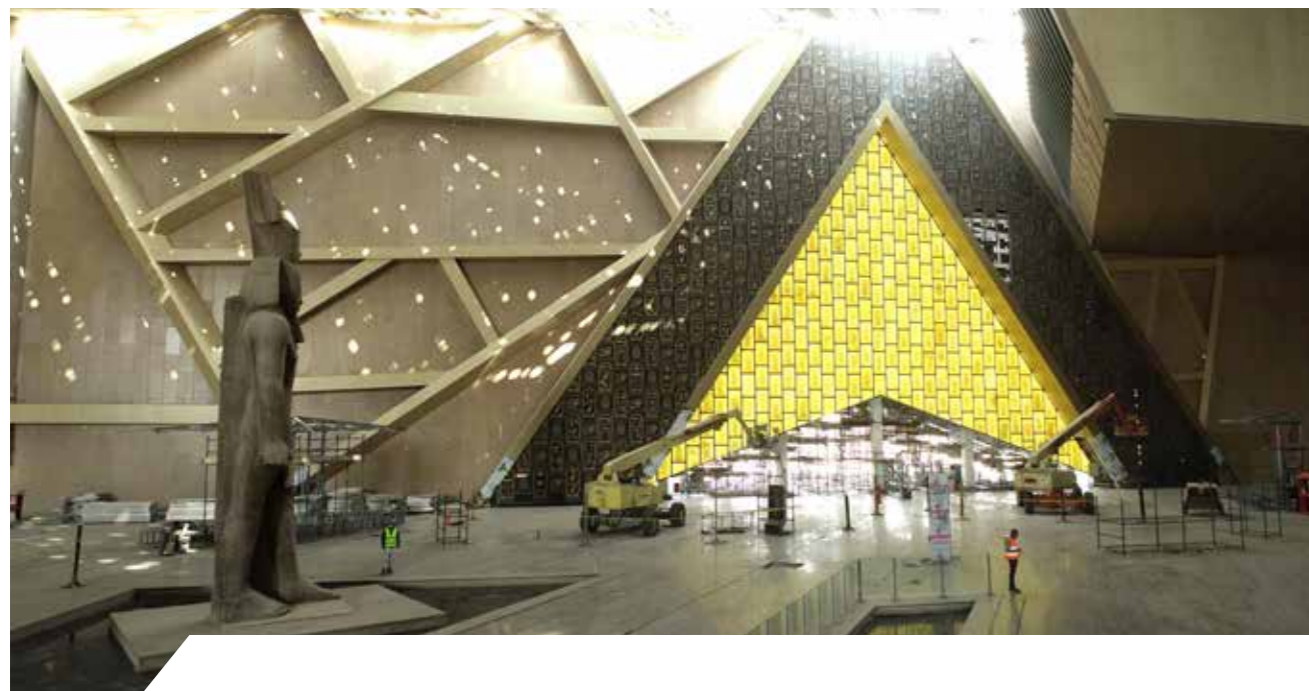


BESIX RED has proven itself a responsible player in revitalising cities and acquiring prime locations across the Benelux, France and Portugal. It covers three lines of activities: Offices, Residential and Retail & Services. In addition to its 30 years of experience, BESIX RED relies on a team of great talents, whether it be architects, engineers or entrepreneurs. They serve the specific interests of clients with high-performance developments: maximising convenience of occupancy and optimisation of the environmental, economic and technical factors.





## THE GRAND EGYPTIAN MUSEUM, A CULTURAL JEWEL DEDICATED TO THE SPLENDOUR OF EGYPTIAN CIVILISATION



IT IS ONE OF THE LARGEST CONSTRUCTIONS IN EGYPT SINCE THE PYRAMIDS. THE GRAND EGYPTIAN MUSEUM IS IN FACT BUILT IN PERFECT ALIGNMENT WITH THE THREE PYRAMIDS OF GIZA, WITH WHICH IT WILL FORM AN EXCEPTIONAL TOURIST COMPLEX OF TRIANGULAR SHAPE, A STONE'S THROW FROM CAIRO. IT WILL ALSO BE THE WORLD'S LARGEST MUSEUM DEDICATED TO A SINGLE CIVILISATION.

THE ARCHITECTURE OF THE BUILDING IMPOSED UNPRECEDENTED CHALLENGES IN TERMS OF CONSTRUCTION, WHICH BESIX AND ORASCOM, IN COLLABORATION WITH THE ARAB REPUBLIC OF EGYPT, MET BRILLIANTLY. THIS INCLUDES THE HALL OF RAMESSES II, THE GRAND STAIRS AND THE FIRST EXHIBITION GALLERIES DEDICATED TO THE TREASURE OF TUTANKHAMUN, WHOSE 5,300 OBJECTS WILL BE ON DISPLAY IN THEIR ENTIRETY FOR THE FIRST TIME SINCE HOWARD CARTER DISCOVERED THE

TOMB IN 1922. IN ADDITION, BESIX AND ORASCOM ARE ALSO RESPONSIBLE FOR THE CONSTRUCTION OF ADDITIONAL EXHIBITION GALLERIES, A CONFERENCE CENTRE, ACADEMIC FACILITIES, A RARE BOOK LIBRARY, AND MANY ADDITIONAL FACILITIES THAT WILL ENCHANT FUTURE VISITORS ON THEIR JOURNEY THROUGH THE HISTORY OF ANCIENT EGYPT.

FOR THE BESIX 2020 ACTIVITY REPORT, MAJOR GENERAL ATEF MOFTAH, GENERAL DIRECTOR OF THE PROJECT FOR THE ARAB REPUBLIC OF EGYPT, DR. ELTAYED ABBAS, ASSISTANT MINISTER OF TOURISM AND ANTIQUITIES AND HEAD OF THE CONSERVATION CENTRE, AND THE BESIX EGYPT TEAM PRESENT THIS EXCEPTIONAL PROJECT: THE GLOBAL LANDMARK FOR EGYPTIAN CIVILISATION AND AN ESSENTIAL PART OF THE WORLD HERITAGE.

GRAND EGYPTIAN MUSEUM, CAIRO, EGYPT



**490,000 m<sup>2</sup>**  
TOTAL SURFACE AREA

**#1**

THE WORLD'S LARGEST MUSEUM DEDICATED TO A SINGLE CIVILISATION

**320,000 m<sup>3</sup>**  
OF CONCRETE

**8,500 tonnes**  
OF STEEL

**200,000 m<sup>2</sup>**  
OF STONES, INCLUDING MARBLE AND ONYX

**95,000,000**  
WORKING HOURS

### CONTRIBUTING TO THE WORLD HERITAGE

#### THE INCREDIBLE CONSTRUCTION OF THE GRAND EGYPTIAN MUSEUM

Installed in January 2018 in the main hall, the 11-metre-high, 3,200-year-old statue of Ramesses II has since majestically watched over the construction of the Grand Egyptian Museum. It was installed there before the completion of the structural work because its size would not have allowed it to enter the building afterwards. The Museum was therefore partly built around him. Since 2020, the Great Pharaoh has no longer been alone. Other exceptional statues of similar age have joined him. A few metres from Ramesses II, seventy-two of them now share the steps of the Grand Stairs. This majestic flight of stairs is an impressive place to stay for immortal pharaohs. It is also flanked by colossal columns in the shape of inverted pyramids, pointing to the ground, up to 30 metres high, covered with fine Egyptian marble and perfectly matching the triangular patterns of the white concrete ceilings. In Ancient Egypt, workers, craftsmen and artists were all designated by the same hieroglyph. The architecture in the Grand Egyptian Museum is both so demanding and beautiful that, here too, construction and art often become one. This only further augments the performance of BESIX and Orascom.

## THE FINAL STRETCH

The year 2020 has had its fair share of challenges and remarkable progress. Works have now entered their final stretch.

Precautionary measures related to the Covid-19 pandemic have of course slowed down activities for several months, but this did not stop the project team from progressing on all fronts. "We have completed the preparation of the galleries dedicated to Tutankhamun, which allowed the Grand Egyptian Museum's Conservation Centre to start installing the 5,300 items of his Treasure", explains Christophe Ledur, Country Manager for BESIX Egypt. "The Tutankhamun Galleries constitute the first phase of the exhibitions, adding to the spaces dedicated to Ramesses II and other stone statues in the Grand Stairs", continues Christophe Ledur. This first phase will be completed and delivered to the client by 30 June 2021.

Meanwhile, the design of the second phase of the exhibitions has been completed. These are the twelve other exhibition galleries, an area of about 20,000 m<sup>2</sup> which will host 12,000 artefacts of various sizes presenting the history of Ancient Egypt. Their design enabled the joint venture to provide the necessary guidelines for the selection of subcontractors

which are involved in the placement of showcases, fit-out, lighting and audio-visual equipment, among other tasks.

## THE VISIBLE AND THE INVISIBLE

Twice the size of the Louvre in Paris, built on a total surface area of around 490,000 m<sup>2</sup>, the complex architecture of the Grand Egyptian Museum presented challenges, some unprecedented. Ceiling heights of up to 24 metres and huge single-piece ceilings made of white concrete. Cantilevers, including an entire floor cantilevered over a length of 20 metres. Pyramid-shaped structures integrated into the walls, combining high-quality materials, fine patterns and plays of light and transparency. The angles of the building are themselves perfectly aligned with the three pyramids of Giza, both in terms of the inclination of the roof and the direction followed by the side walls.

The amount of materials needed to build all this is obviously overwhelming. "We have used more than 8,500 tonnes of steel and 320,000 m<sup>3</sup> of concrete. There are also more than 200,000 m<sup>2</sup> of stunning stones, including Egyptian marble and Iranian translucent onyx", says Pablo Lozano, BIM Coordination Manager for BESIX.



GRAND EGYPTIAN MUSEUM, CAIRO, EGYPT

The excellence of the building, however, does not stop at its visible structures. "In addition to the unique design features that architecture lovers will admire, the Museum is also equipped with considerable invisible infrastructure", explains Sergio Santos, Construction Manager for BESIX. This is the case for the IT and MEP systems, which are omnipresent throughout the building. These are no less complex than the visible architecture and concern, among other systems, public addressing, telecommunication and access control, electrical and back-up power, video surveillance, emergency, fire-fighting as well as ventilation and air-conditioning. "These systems will ensure a unique experience to visitors, as well as the necessary security and latest technologies that a modern museum requires to protect this unique collection of artefacts", adds Sergio Santos.

These visible and invisible parts of the building are themselves coordinated in a BIM model, a digital replica of the Museum. This allowed the design to be further refined, for example, to solve possible problems in advance, and to prepare and support the construction phases.

## THE KHUFU SOLAR BOAT

In 2020, the Egyptian Ministry of State for Antiquities also awarded BESIX and Orascom an additional contract to construct a new building, next to the Grand Egyptian Museum. This will house the Khufu Solar Boat, the world's oldest full-scale ship. Presumably built for King Khufu, it was placed around 2500 BC in a pit at the foot of the Great Pyramid and was only discovered in 1954 by Egyptologist Kamal el-Mallakh. The construction of this additional building started in 2020.

**WE HAD TO LIVE UP TO THE PURPOSE OF THIS MUSEUM, WHICH WILL BE AN INTEGRAL PART OF THE WORLD'S HERITAGE, AND OUR WORKERS AND TEAMS HAVE MADE THIS HAPPEN. //**

**CHRISTOPHE LEDUR,  
COUNTRY MANAGER  
FOR BESIX EGYPT**



BESIX and Orascom will also assist the Supreme Council of Antiquities with the transportation of the ship from the archaeological site of the Giza pyramids to the Grand Egyptian Museum, an extremely delicate operation following a route of 8.5 kilometres. This will be carried out in the course of 2021.

## AWAITING THE OPENING

Pharaohs are now getting ready. Soon, millions of visitors from all over the world will discover their history, their greatness and the beauty of their civilisation in a new light. Many artefacts will be displayed for the very first time, including three quarters of the fabulous Treasure of Tutankhamun which are still unknown to the general public. While waiting for their visitors, just like the statue of Ramesses II, the Pharaohs will continue to be accompanied daily by the active presence of BESIX and Orascom workers. At the end of 2020, these totalled more than 95 million working hours since the start of the project.

The few other visitors are senior officials. "We frequently receive officials such as the Egyptian Prime Minister, the Egyptian Minister of Tourism and Antiquities or foreign representatives such as the Secretary General of the World Tourism Organisation in August 2020", explains Christophe Ledur. "They were all extremely impressed by the excellence and the beauty of the work carried out, of which BESIX and Orascom can be extremely proud. We had to live up to the purpose of this Museum, which will be an integral part of the world's heritage, and our workers and teams have made this happen", concludes Christophe Ledur.

# INTERVIEW OF MAJOR GENERAL ATEF MOFTAH, GENERAL DIRECTOR OF THE GRAND EGYPTIAN MUSEUM PROJECT AND SURROUNDING AREA

AS DIRECTOR OF THE ENGINEERING COMMITTEE OF THE ENGINEERING AUTHORITY OF ARMED FORCES, MAJOR GENERAL ATEF MOFTAH SERVES AS GENERAL DIRECTOR OF THE GRAND EGYPTIAN MUSEUM. IN THIS KEY ROLE, HE SUPERVISES THE EXECUTION OF THE PROJECT ON BEHALF OF THE ARAB REPUBLIC OF EGYPT, WORKING IN CLOSE COLLABORATION WITH BESIX AND ORASCOM CONSTRUCTION.



MAJOR GENERAL ATEF MOFTAH AND CHRISTOPHE LEDUR

## What does the Grand Egyptian Museum represent for Egypt? How was its location chosen?

The Museum in Tahrir Square is 110 years old. It no longer offers enough space to exhibit Egyptian civilisation. Thanks to the Grand Egyptian Museum, we will now be able to present the greatness of our history and the genius of the pharaohs in a comprehensive manner. Egypt wants to both preserve our heritage and present it to the world. The location has been chosen by the State to create a golden cone. It will link the Grand Egyptian Museum and the Pyramids of Giza to form an immense open-air museum. The area will offer comfort and security to visitors and will also include hotels.



## The Grand Egyptian Museum is a particularly complex building. What were its main technical challenges?

The architecture is unique and has imposed many challenges. The Museum has a unique cone shape due to its exact alignment in the extension of the Pyramids. No two angles are the same, no two stones are the same size and there are thousands of them. Added to this is the complexity of the relationship between the materials as well as ambitious cantilevers, including a 21-metre long and 16-metre wide storey. Creativity was often required. The Grand Stairs, which has 108 steps and rises 26 metres, accommodates 72 sculptures, each weighing several dozen tonnes. To install them, it was decided to use the method of the Ancient Egyptians with a ramp on which they were pulled to their places. In 2018, the statue of Ramesses II, 11 metres high and weighing 83 tonnes, had to be handled vertically and was therefore installed during the work. It is a sculpture more than 3,000 years old, which then observed the progress of the work. I was proud to contribute to the architectural design of the Pyramid wall, which is the main façade of the Museum, the Museum and the transport of the Khufu Solar Boat, the Tutankhamun language wall and the world's first hanging obelisk. Each of these designs requires exceptional technical requirements.

**THE FIRST PHASE OF THE WORK WILL BE FULLY COMPLETED BY 30 JUNE 2021. THIS INCLUDES THE CONSTRUCTION, THE EXHIBITION SPACES DEDICATED TO TUTANKHAMUN, THE OBELISK, THE GRAND STAIRS AND THE GREAT HALL OF RAMESSES II. //**



MAJOR GENERAL ATEF MOFTAH, GENERAL DIRECTOR OF THE GRAND EGYPTIAN MUSEUM

## The year 2020 was also marked by important milestones. Which ones do you remember?

The installation of the Obelisk from Tanis is a milestone. We noticed, when the Obelisk was relocated, that the cartouche of Ramesses II was engraved under its base. We decided that the public should see this. We have therefore placed the obelisk on a raised transparent support, under which visitors can pass. On another note, we have obtained three ISO certifications in 2020. These cover the areas of health and safety, respect for the environment and monument conservation.

## What are the next phases of construction?

The first phase of the work will be fully completed by June 30, 2021. This includes the construction, the exhibition spaces dedicated to Tutankhamun, the Obelisk, the Grand Stairs and the great hall of Ramesses II. The second phase will then have to be completed. This includes the installation of the other twelve exhibition galleries, which present the history of the Egyptian civilisation through the ages. These cover around 20,000 m<sup>2</sup> and will contain 12,000 items. Moving these pieces and putting them in their places requires time. We are working on this in close cooperation with the Conservation Centre.

## You accompanied the construction of the Museum. How will you feel on the day of its opening?

My feeling will be indescribable. I will be immensely happy to have been able to help my country to achieve this pharaonic project. My task was entrusted to me by President Abdel Fattah el-Sisi and I am proud of what we have achieved. On a personal level, I will be happy as a citizen of Egypt and the world. I am proud to see this civilisation preserved and proud that Egypt is giving it this special attention.



MAJOR GENERAL ATEF MOFTAH AND ZURAB POLOLIKASHVILI, SECRETARY-GENERAL OF THE UN WORLD TOURISM ORGANIZATION

# INTERVIEW OF DR. ELTAYEB ABBAS, ASSISTANT MINISTER OF TOURISM AND ANTIQUITIES FOR ARCHAEOLOGICAL AFFAIRS

DR. ELTAYEB ABBAS IS ASSISTANT MINISTER OF TOURISM AND ANTIQUITIES FOR ARCHAEOLOGICAL AFFAIRS. AS PART OF HIS DUTIES, HE IS AT THE HEAD OF THE CONSERVATION CENTRE, LOCATED NEXT TO THE GRAND EGYPTIAN MUSEUM. IT IS AT THE HEART OF THE CENTRE THAT THE ARTEFACTS ARE RESTORED AND PREPARED.

## Can you give us an idea of the work carried out by the Conservation Centre?

The Conservation Centre was inaugurated in 2010. We restore artefacts made of a wide variety of materials, including wood, stone, metal and textiles. More than 150 people work in our laboratories. They include restoration experts, archaeologists and administrative departments. The artefacts to be displayed in the exhibition galleries pass through the Centre and they come from all corners of Egypt.

## How would you describe the challenges of the restoration work?

Restoration consists of preserving a piece by trying to intervene as little as possible. In some cases it is preventive restoration so that the artefact does not deteriorate over time. Some artefacts require more in-depth restoration when objects are in a poor state of conservation. This is the case of Tutankhamun's coffin, which arrived in 2019 and whose condition required rapid intervention. We restored the fallen gold leaf and fixed the pieces that had fallen off. To do this, we use products that do not cause long-term damage.

## What are the restoration stages followed from the arrival of the pieces?

The phases differ from one object to another, particularly depending on the materials of the piece. They are first studied on site, before being protected and moved to the Centre. Organic materials, in particular, are immediately isolated and treated against insects and bacteria in order to avoid contagion to other objects. The restoration team will then determine the work that needs to be done. Once restored, they are kept in a suitable environment in terms of temperature, lighting and humidity. We accompany them on their installation in the Museum and analyse all aspects that guarantee their perfect conservation.

## Could you give us an example of an object restored in 2020 that you are particularly proud of?

One of the greatest challenges was the outer coffin and shield of Tutankhamun. The skin covering the shield was in an extremely complex condition. Tutankhamun's fabrics and clothing were also in a poor state of preservation. Unfolding them was an extremely delicate operation. Fortunately, Howard Carter's teams, with the resources of their time, did what they had to do to avoid damaging the pieces. This allows us to carry out our restoration work, which helps us to discover and rewrite the history of Tutankhamun.



## An exhibition about Tutankhamun has enjoyed great success throughout the world in recent years. What will be the difference between this exhibition and the part of the Museum dedicated to this Pharaoh?

Tutankhamun's collection of 5,300 pieces will be exhibited in its entirety, for the first time since its discovery in 1922. While the centrepiece of Tutankhamun's treasure is his mask, all the artefacts are exceptional. The Grand Egyptian Museum will devote six times more space than the Tahrir Square Museum. Many previously unseen objects required titanic restoration work, including jewellery and necklaces.

## For you and your teams, the restoration work carried out must have been exceptional, also on a personal and human level...

It is an unforgettable experience to have the opportunity to see the artefacts in front of me, without separation. It is also extremely rewarding to see them before and after restoration, which is always a team success. These are priceless objects that are entrusted to us and their restoration is always a challenge. Our team will certainly be the proudest people on the planet when this work is displayed to the public.

ON THE RIGHT, DR. ELTAYEB ABBAS



**ONE OF THE GREAT CHALLENGES WAS THE OUTER COFFIN AND SHIELD OF TUTANKHAMUN. THE SKIN COVERING THE SHIELD WAS IN AN EXTREMELY COMPLEX CONDITION. //**

**DR. ELTAYEB ABBAS,  
HEAD OF THE CONSERVATION CENTRE**





## Buildings

# MANHATTAN: FLAGSHIP PROJECT FOR SUSTAINABLE RENOVATION

AFTER 45 YEARS, THE ICONIC MANHATTAN TOWER IN BRUSSELS NEEDED SOME TENDER LOVING CARE. RATHER THAN CHOOSING TO DEMOLISH THE BUILDING, REAL ESTATE INVESTOR VICTORY CHOSE BESIX, IN A JOINT VENTURE WITH LOUIS DE WAELE, TO NOT ONLY RESTORE MANHATTAN TO ITS FORMER GLORY, BUT UPGRADE IT TO A BEACON OF SUSTAINABILITY IN THE CAPITAL OF EUROPE.

AS FROM SEPTEMBER 2020, ITS FIRST TENANTS HAVE BEEN ABLE TO ENJOY THE TASTEFULLY RENOVATED INTERIORS, A NEW GLASS FAÇADE AND TWO EXTRA FLOORS. WE SPOKE TO BEN COOPER, EXECUTIVE DIRECTOR AT VICTORY AND JAN VAN STEIRTEGHEM, GENERAL MANAGER OF EUROPE AT BESIX ABOUT THE CHALLENGES BOTH PARTIES OVERCAME TO DELIVER AN ASTONISHING RESULT AND THE IMPORTANCE OF A GOOD INVESTOR-CONTRACTOR RELATIONSHIP.

### Ben, can you explain why Victory chose renovation for Manhattan instead of rebuilding from scratch?

**Ben:** “We have always had a strong commitment to sustainability, and as the saying goes “the most sustainable building is the one that you didn’t build”. In our opinion, we simply cannot afford not to renovate existing buildings. The UN Environment Programme indicated that in 2018, real estate was responsible for about 40% of all global energy and process related CO<sub>2</sub> emissions, so the responsibility for addressing this seems quite clear. If that isn’t enough, perhaps we can persuade people by highlighting that GRESB<sup>1</sup> suggest that by 2035 50% of all buildings will not be compatible with the Paris Agreement. Of course, renovation comes with more operational challenges than demolition. For Manhattan it would have been much easier to start from scratch, but deciding to renovate the building and retaining the concrete frame saved more than 4,500 tons of embodied carbon and equaled almost 6,000 fewer waste truck and cement journeys. We are proud to call Manhattan a sustainable development.”

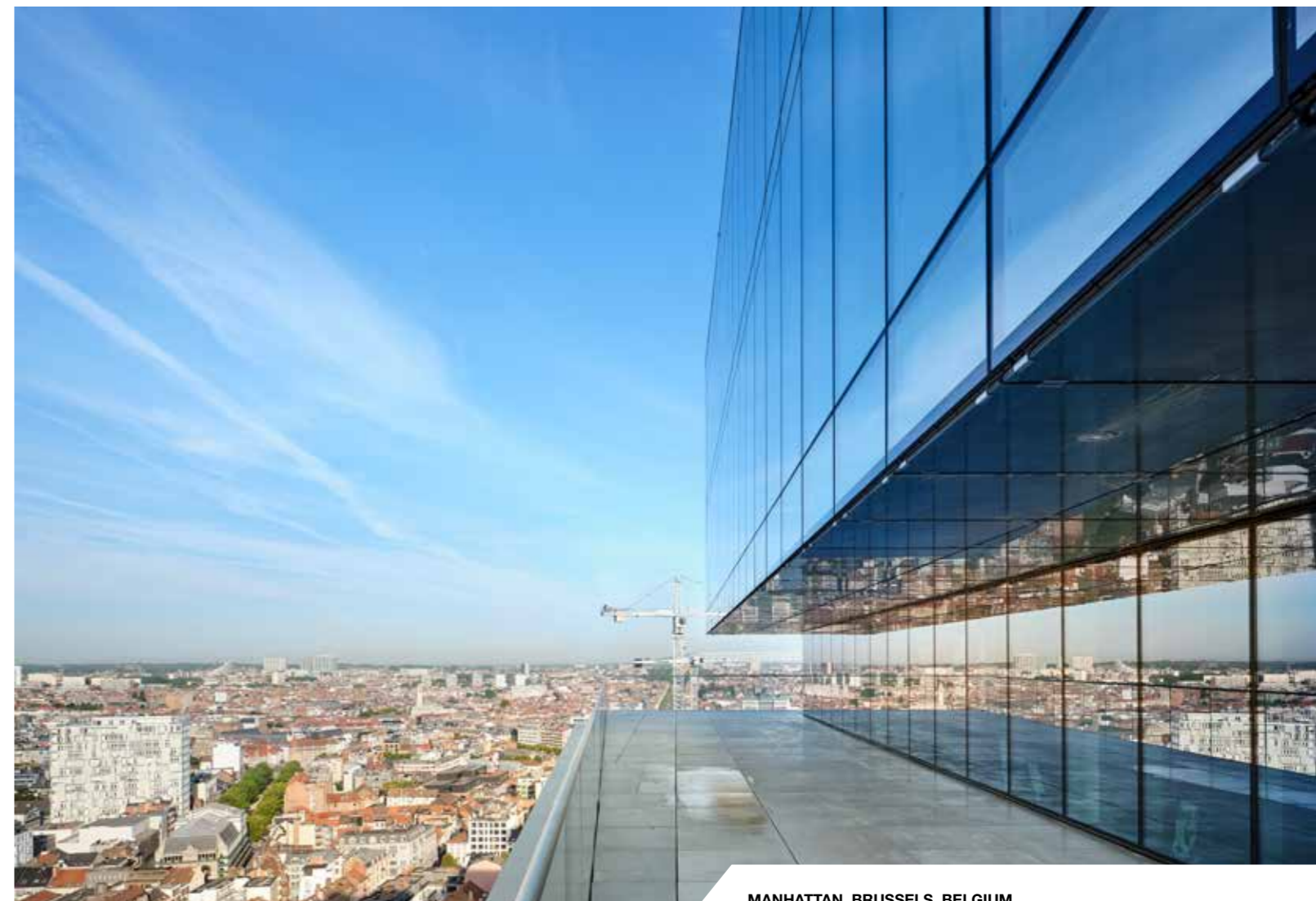
### Jan, can you tell us a little bit more about the specific challenges the project faced?

**Jan:** “In order to significantly reduce the project’s carbon footprint, it was decided to retain and reuse the 28,000 ton concrete frame of the building. This required an in-

depth study of the stability of this existing structure and its foundations and, as is common for a building of this age, a lot of the original structural drawings were missing, and then we needed to integrate these aspects into the new design. We ran into the additional problem that the as-built file did not match the reality of what we encountered on site. More than once, our teams had to go back to the drawing board, which meant wasted time and higher costs. Moreover, the location of the project posed logistical challenges. You can compare this renovation with open-heart surgery: Manhattan is not a stand-alone building, it is part of a complex with two adjoining hotels, one of which had to remain operational throughout the works.”

### What does a renovation like Manhattan require of the investor-developer relationship?

**Jan:** “It requires mutual trust, which is one of the major challenges in our sector. But it does not have to be! Building and maintaining a good partnership is first and foremost an “attitude”, but it also has a rational component: sound agreements and excellence in everything you do make good friends. We have to understand that projects involve great risks for us, but that this is no different for the client. That is why it is so important to have a balanced contract and common goals at the start of the project. These goals are what both parties need to overcome difficulties: what do we want to achieve together and how can we help each other?”



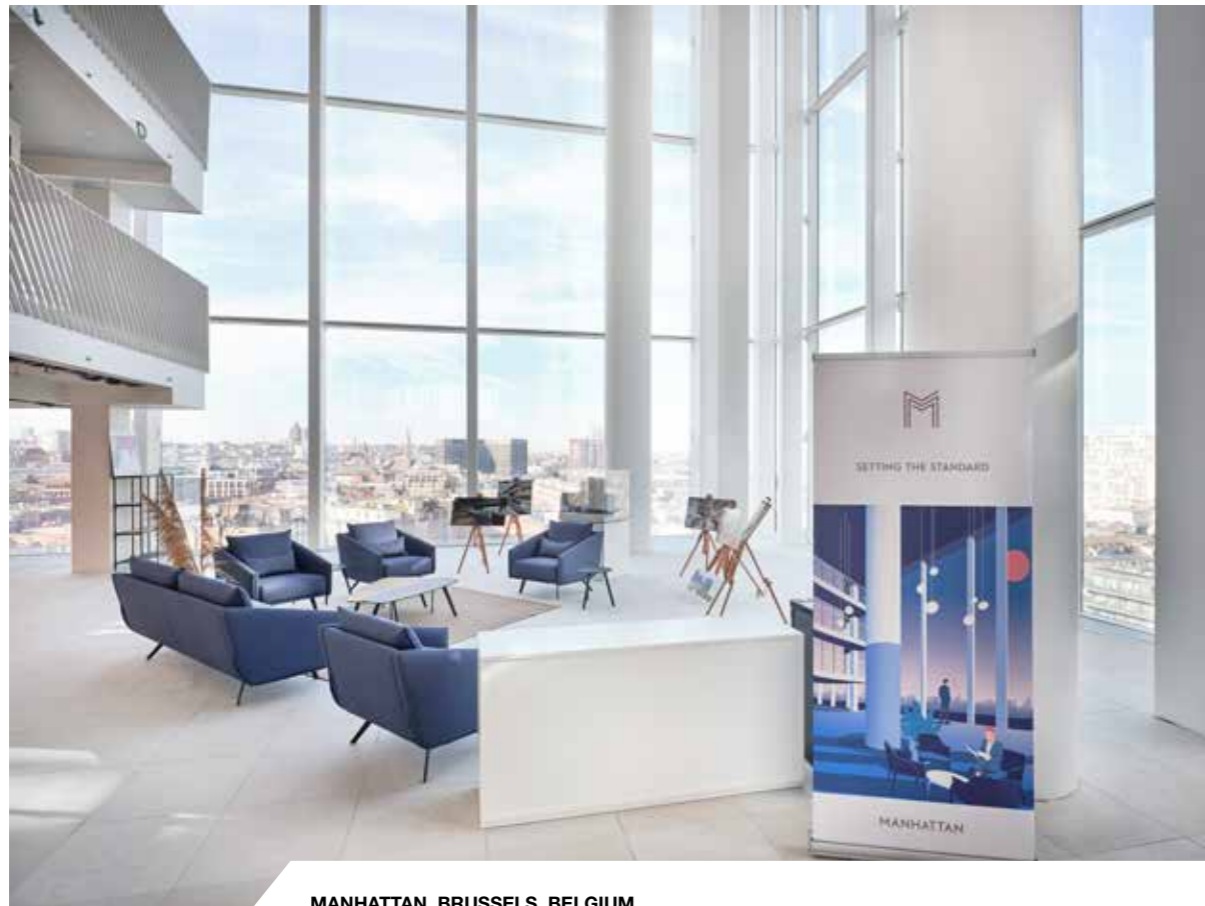
MANHATTAN, BRUSSELS, BELGIUM



**IF YOU WORK WITH BESIX, YOU BENEFIT FROM EXCELLENT DESIGN TEAMS AND HAVE ACCESS TO CUTTING EDGE TECHNOLOGY THAT IS AT THE FOREFRONT OF THIS PROCESS. //**

**BEN COOPER, EXECUTIVE DIRECTOR AT VICTORY**





MANHATTAN, BRUSSELS, BELGIUM

**Ben:** “A renovation takes a different approach in order to manage the construction process. The older and more adversarial approach between investor and contractor is outdated and does not work for this type of work. Investors and construction companies need to work closely together to implement best practice technologies, advanced survey methods and, critically, forward-thinking contracts that better align cost management between investor and contractor. The good news is that all of these tools exist, we as an industry just need to get better at using them.”

**Jan:** “It’s also an aspect that is open to innovation. BESIX has already taken the first steps in this direction by using early contractor involvement, but this only covers the design phase. We want to go further, and that is why we are working towards signing projects according to Integrated Project Delivery (IPD), a principle launched by the American Institute of Architects (AIA). This principle assumes that the current way of drawing up contracts and designing collaborations leads to too many budget and planning problems, mistrust and mutual reproaches. IPD starts from the acceptance that the interests of all parties must first be reconciled: budget, timing, quality level and a payment system in which either everyone wins or everyone loses. After that, you can work together more constructively because each party benefits from solving all problems. This is the same mindset we held on to while building Manhattan and cooperating with Victory.

The collaboration we achieved is not only more efficient, it is at the same time a lot more fun for everyone involved. Our passionate colleagues don’t want to argue with their client, they want to co-create.”

### Ben, for future projects, what would be your main requirements for the choice of the design and construction company(ies)?

**Ben:** “As I’ve already touched on, we’re looking for ways in which we can contract work through more collaborative contracting methods. Contractors need to be flexible, have the ability to be agile with planning and lean in operation. Secondly, we will look for partners with experience in renovation: this work is challenging, so partners should have the nimble, open-minded approach to projects that suits renovation. Lastly, we pay attention to their expertise in technology and design. Renovation requires the investor and contractor to find complex solutions to challenging problems, and technology can help with that. On this project we’ve noticed that if you work with BESIX, you benefit from excellent design teams and have access to cutting edge technology that is at the forefront of this process.”

*THE COLLABORATION WE ACHIEVED IS NOT ONLY MORE EFFICIENT, IT IS AT THE SAME TIME A LOT MORE FUN FOR EVERYONE INVOLVED. OUR PASSIONATE COLLEAGUES DON’T WANT TO ARGUE WITH THEIR CLIENT, THEY WANT TO CO-CREATE. //*

**JAN VAN STEIRTEGHEM,  
GENERAL MANAGER  
BU EUROPE BESIX**



### // Deep-dive into the project

The metamorphosis of Manhattan is impressive to say the least. The BESIX teams added two floors, which enabled the 100m tower to reclaim its spot on the Brussels’ skyline.

The tower was carefully stripped of its façade and re-clad with glass which is solar-reflecting, heat-blocking and thermally insulating. The design by Jaspers-Eyers Architects draws visual interest to the top floors where, from the 18th floor upwards, the original rectangular floor plan was elongated along the south and western sides, creating increasingly cantilevered floors.

As a visitor, you are struck by the winter garden in the middle of the tower, an open space reaching over four floors, attained by stripping away the flooring in this space.

One of the main challenges was renovating the building’s podium levels while the restaurants, supermarket, the Vlerick Business School and one of the two adjoining hotels remained operational. Manhattan’s main operational systems were installed in the basement, and shared by the two adjoining hotels. BESIX had to disconnect everything to allow for a stand-alone system, and reconnect all technical installations from the basement levels through to the tower, whilst safeguarding the operations of the surrounding buildings.

The podium levels, including the two extra floors which were added above the Vlerick Business School, were clad in marble.

To top it all off, tenants have spectacular views over Brussels from the highest terrace in the city on the 27<sup>th</sup> floor.

Manhattan is a flagship project of BESIX’s undeniable expertise and knowledge in sustainable renovation, especially in urban environments.





## Buildings

## AFRICA'S TALLEST TOWER UNDER CONSTRUCTION

ALONG THE BOUREGREG RIVER NEAR RABAT, BESIX AND MOROCCAN CONTRACTOR TGCC ARE BUILDING IN JOINT VENTURE THE FUTURISTIC CENTREPIECE OF AN AMBITIOUS PROJECT. THE MOHAMMED VI TOWER WILL EVENTUALLY RISE UP TO 250 METRES. ITS CONSTRUCTION IS GOING LIKE A ROCKET, THANKS TO THE TEAM'S EXPERIENCE AND AGILITY TO FACE THE CHALLENGES OF A FIRST OF ITS KIND PROJECT IN MOROCCO. UPON COMPLETION, THE TOWER WILL BE PACKED WITH INNOVATIONS AND CERTIFIED WITH THE HIGHEST ENVIRONMENTAL STANDARDS.

### A ROCKET FOR THE MOROCCAN CAPITAL OF CULTURE

The Mohammed VI Tower is being developed by O TOWER, a subsidiary of Groupe FinanceCom. The project will form the high point in the Bouregreg Valley Development Project for Rabat, the City of Light, the Moroccan Capital of Culture. With a total area of 102,800 m<sup>2</sup>, it consists of a tower set on a podium, to resemble a rocket on its launch pad. Inside, four separate architectural programmes are spread over 51 storeys, including offices, high-end apartments, a luxury hotel, lofts and even a viewing terrace at the top.

### EXPERIENCED IN PLANNING, AGILE IN EXECUTION

One of the challenges of the project is to carry out the design and the works at the same time, which means the studies must be executed as quickly as the works. Adding to this is the fact that the Mohammed VI Tower is the first of its kind to be built in Morocco. The region brings its own culture, own supply chains and own normative frameworks for the team to adapt to.

BESIX therefore relies upon experience gained on similar projects in the Middle East. "We mobilised our people who worked on similar projects and attracted renowned suppliers and subcontractors," says Senior Methods Engineer Karim Amghar. "However, it's a whole new ball game being in a new country," he continues. "We started from scratch and invested at first in training and coaching our workforce to master

### Project details

## MOHAMMED VI TOWER

**Location**  
Rabat, Morocco

**Client**  
O TOWER (Groupe FinanceCom)

**External partner**  
TGCC

**Contract type**  
Design & Build

**Construction Period**  
2018-2022

**Architect**  
Rafael de la Hoz & Hakim Benjelloun

MOHAMMED VI TOWER, RABAT, MOROCCO



250 m

HIGH

57

FLOORS (INCLUDING TECHNICAL FLOORS ON THE TOP)

1,800

WORKERS ON SITE DURING THE PEAK OF CONSTRUCTION

3,350 m<sup>2</sup>

OF PHOTOVOLTAIC TILES COVERING THE SOUTHERN FAÇADE

26,000 m<sup>2</sup>

OF CONCRETE POURED FOR THE FOUNDATIONS

60 m

OF DEEP FOUNDATIONS

9,800 tonnes

OF STRUCTURAL STEEL

processes and tools. We have put in some outstanding efforts to make the organisation run like a clock," Karim concludes.

These efforts paid off and allowed to plan the execution as a fast-track project. In early January 2021, the construction entered a new phase, with several activities on-site going on simultaneously and at a rapid pace. "Few could have believed it at first sight, but we now manage to climb at a spectacular pace of one floor each week. The agile way of working and ability to deal with the varying constraints of this project contributed to this progress," explains Bjorn Walgraeve, Project Director at BESIX.

### A STRUCTURE TO WITHSTAND IT ALL

Besides planning and execution, the engineers are dealing with typical and less typical elements of building a 250-metre high-rise.

To withstand the usual elements, such as strong winds or seismic events, the tower is braced 70 % by its concrete core and 30 % by the structure of the steel porticos on its façade. In view of the luxury hotel and the lofts at the top of the tower, a tuned mass damper system will reduce oscillations.

In the case of the Mohammed VI Tower, the specific soil conditions and presence of the neighbouring Bouregreg river are considered as well. "The soil is made of multiple layers of sand and silt without real bedrock and required 60 m of deep foundations," explain Quentin Michel, Head of Technical Office. "It was the only solution to find enough friction bearing capacity for the 104 concrete barrettes under the tower, capped by a 3.5 m thick reinforced raft. Moreover, we dewatered the entire zone to work in the dry and create a fully waterproofed basement, since the water table is above basement level."

### 'LEED'-ING IN INNOVATION

Finally, the project boasts some remarkable innovations, brought by the BESIX Engineering Department. One of which are the stunning façades. They cover an area of more than 70,000 m<sup>2</sup>, with the south façade fitted with photovoltaic panels. Rainwater recovery and wastewater recycling systems are also incorporated, as well as an internal energy recovery system. The building is designed to be certified LEED Gold and HQE, complying with the highest international environmental quality standards.



*THE AGILE WAY OF WORKING AND ABILITY TO DEAL WITH THE VARYING CONSTRAINTS OF THIS PROJECT CONTRIBUTES TO THE PROJECT'S PROGRESS. //*

**BJORN WALGRAEVE, PROJECT DIRECTOR AT BESIX**



## Buildings

# DUBAI UPTOWN TOWER, CONSTRUCTED 4.0

IT WILL BE THE FIRST SUPER TALL TOWER IN THE DISTRICT AND BESIX-SIX CONSTRUCT ARE RESPONSIBLE FOR ITS CONSTRUCTION, WITH A DESIGN & BUILD RESPONSIBILITY ON THE STRUCTURE & FAÇADE. UPTOWN TOWER IS A 78-STORY EYE CATCHER FOR DUBAI MULTI COMMODITIES CENTER (DMCC) THAT WILL BE A LEED GOLD CERTIFIED BUILDING, AND HOME TO A STATE-OF-THE-ART DMCC BUSINESS HUB. CONSTRUCTION BEGAN IN 2019 AND WILL BE COMPLETED IN 2022. FROM THE OUTSET OF THE WORKS, THE PROJECT TEAMS INTEGRATED STATE-OF-THE-ART DIGITAL SOLUTIONS INTO THEIR WORKING METHODS, USING NEW TECHNOLOGIES AND EVEN ROBOTICS.

### // Project details

## DUBAI UPTOWN TOWER

**Location**  
Dubai, United Arab Emirates

**Client**  
Dubai Multi Commodities Center (DMCC)

**Contract type**  
Design & Build

**Construction Period**  
2019-2022

**Architect**  
Adrian Smith + Gordon Gill Architecture



DUBAI UPTOWN TOWER, DUBAI, UAE



**340 m**

HIGH

**22,009**

PROGRAM ACTIVITIES

**3,607**

PEAK MANPOWER

### IMPRESSIVE FIGURES

Designed by Adrian Smith + Gordon Gill Architecture, Uptown Tower at DMCC's Uptown Dubai District will stand at 340 m and feature 188 luxury hotel rooms and suites, exclusive restaurants, health spas, extensive conference facilities, Grade A offices with large efficient floor plates, and 229 uniquely designed branded residences. The development is designed to replicate the brilliance of diamonds through its faceted glass façade to illuminate the interior spaces with natural light while filtering out harsh glare. It will offer a breathtaking view of Dubai's waterfront and iconic skyline.

The super tall tower boasts some impressive figures. From 27,000 tonnes of rebar to 110,000 cubic metres of concrete. The façade will contain a total of 8,572 panels and the entire project will have required 18,938 shop drawings. At its peak, about 3,600 people will work on its construction to deliver the project in less than 38 months.

### EXTREME PLANNING

The design and construction of the structure and façade is carried out by BESIX-Six Construct. BESIX's in-house design office and the extensive experience of its operations teams in the field of skyscrapers are true differentiating success factors. "The latter definitely helped us to manage Covid-19 on site," says Luis Miguel Monteiro, Project Director at Six Construct. "As for every high-rise project, selecting the right methods is key. This has more than ever been the case this past year of construction. To guarantee our productivity on site, we resorted to an extreme planning. It enabled us to

keep on track, especially in areas where we cannot move people around as much as we used to, such as for the structure and façade works," Monteiro explains.

### CONSTRUCTION 4.0

The extreme planning adopted by the project team is also supported by several innovative technologies BESIX has implemented in its working methods to digitalise the construction site. Developed by start-up partners from around the world, these tools do not only contribute to ensuring site efficiency, but they are also indispensable in safeguarding safety on site. They enable superior site control and the ability to assess the construction progress in real-time – both in planning and in execution.

One of which is a solution based on geolocation developed by WakeCap, whose primary objective is to improve the human organisation of the construction site. As Monteiro illustrates: "On a site like Uptown Tower, we accommodate hundreds and sometimes thousands of workers at the same time. Having the capacity to monitor the geolocation of each provides us with valuable information in terms of improving both workers' health & safety, and efficiency in the workplace."

Another cutting-edge technology used on site is Schindler's Robotic Installation System for Elevators (Schindler R.I.S.E). The autonomous and self-climbing robot is used to install the elevator shaft of Uptown Tower, a world's first for a supertall tower to adopt robotics for this purpose.

Other solutions involve digital platforms with technologies focusing on supply chain efficiency (ProperGate), real-time monitoring of work progress (Sablon) and introducing renewable energy into the power generation mix on site (Enerwhere). The latter even resulted in the world's largest solar plant on a construction site. The 540 kWp solar system at the project's site has enabled Six Construct to reduce its carbon footprint and operation costs.

As in other industries, the success of all these technologies strongly depends on the teams implementing them. "Integrating all these technologies, would not have been possible if it weren't for our strong and very dedicated team. They've proven to be very multidisciplinary, innovative and tremendous in pushing these tools in the production process," Monteiro says.



**INTEGRATING ALL THESE TECHNOLOGIES, WOULD NOT HAVE BEEN POSSIBLE IF IT WEREN'T FOR OUR STRONG AND VERY DEDICATED TEAM. //**

**LUIS MIGUEL MONTEIRO, PROJECT DIRECTOR AT SIX CONSTRUCT**





## THE 'STARS' BUILDING LIGHTS THE WAY IN HEALTH

**182** PATIENT BEDS  
**3** ENDOSCOPY SUITES  
**100** SPECIALIST REHABILITATION BEDS  
**444** CARPARKS  
**68** SURGICAL IN PATIENT BEDS  
**0** LOST TIME INJURY  
**7** OPERATING THEATRES  
**1.4** MILLION HOURS WORKED

**SURGICAL, TREATMENT AND REHABILITATION SERVICE (STARS) BUILDING, BRISBANE, AUSTRALIA**

THE COMPLETION OF THE MUCH-AWAITED HIGHLY SPECIALISED SURGICAL, TREATMENT AND REHABILITATION SERVICE (STARS) BUILDING IN A NEW HEALTH PRECINCT IN BRISBANE, AUSTRALIA, CEMENTS BESIX WATPAC'S EXPERTISE IN BUILDING MODERN HEALTH FACILITIES.

The 35,000 m<sup>2</sup> STARS building is the first to be completed as part of the redevelopment of Herston Quarter – an expansive 1.1 billion Australian dollars health and wellbeing precinct, two kilometres north of the Brisbane CBD and adjacent to the existing Royal Brisbane and Women's Hospital (RBWH).

Project Director Adrian Jones said the four-year project had resulted in a connected health environment which was designed to improve both the experience and outcomes of patients recovering from surgery.

"It was designed to swap sterile, clinical environments for a bright and welcoming setting, recognising the benefits of natural light and access to green spaces to improve recovery times. It also highlights the benefit of uninterrupted care where patients can stay in the same place and see the same medical staff in a safe and familiar environment," he said.

### // Project details

#### SURGICAL, TREATMENT AND REHABILITATION SERVICE (STARS) BUILDING

**Location**  
Brisbane, Queensland, Australia

**Client**  
Australian Unity

**Contract type**  
PPP – Design & Construct

**Construction Period**  
2016-2020

**Contract value**  
405 million Australian dollars

"This exceptional facility was delivered on time and on budget and is a great example of BESIX Watpac's capability in the health sector."

The project included the new 182-bed STARS building, Spanish Steps and a sky-bridge linking the building to the RBWH. The works also included a 68-bed surgical and endoscopic inpatient facility with seven operating theatres, an imaging department including MRI, CT and X-Ray facilities, three endoscopy procedure rooms plus recovery spaces. The endoscopy procedure rooms have been designed to allow them to be quickly converted to an operating theatre in case of a major emergency.

The facility also features a range of places for people to interact and includes dining areas that break out on to rooftop decks and courtyards, plus extra retail and dining options.

"STARS successfully integrates the old and new through maintaining heritage structures on site while ensuring that during construction there was no disruption to mission-critical health services and research in relation to power and security services – quite a feat over the building timeframe," Adrian said.

Importantly, the project was delivered lost time injury free with almost 1.4 million hours worked – a remarkable result that the team worked hard to achieve.

"In addition to an open safety culture, the team introduced several innovations that enhanced safety on site," Adrian said. "These included altering methodologies such as switching from in-situ to precast concrete, as well as developing a precast stair box platform that mitigated risks and improved access to live decks. Silica dust, volatile organic compound training and FIT testing were also introduced to reduce risks to workers."



Mark Pratt, Executive General Manager Real Estate Investment at Australian Unity continued: "It's rewarding to realise the vision of a facility that was conceived many years ago. As the first public hospital in Australia to be funded by investors in a real estate investment trust, STARS is an example of how capital and real estate partnerships can support the infrastructure and services that serve our communities".

Herston Quarter is located within the Herston Health Precinct which includes RBWH, the University of Queensland, Queensland University of Technology, and QIMR Berghofer Medical Research Institute.

### // Innovation

Space under the 'Spanish Steps' was re-engineered to extend the existing car park facility and increase the number of lettable car spaces, for better return on investment for Australian Unity. A further area under the stairs was released to house a stormwater retention tank, to avoid excavating the tank into rock. This resulted in significant cost savings and a smarter use of structural space.

### // Building through a pandemic

When the Covid-19 pandemic hit, BESIX Watpac's peak workforce of 380 people on site responded quickly and effectively. Several initiatives were introduced including staggered shift starts and breaks, additional hygiene stations, more frequent cleaning and regular risk assessments. Specific activities were rescheduled where social distancing was difficult. BESIX Watpac worked closely with its supply chain to mitigate delays to materials and sterilising equipment.



Infrastructure

## 420 MW OF CLEAN POWER FOR CAMEROON



1.5 km

LONG DAM

3.4 km

LONG CANAL

5 million

MAN-HOURS WITHOUT MAJOR INCIDENT

### // Project details

## NACHTIGAL HYDRO-ELECTRIC PROJECT

**Location**  
Nachtigal, Cameroon

**Client**  
Nachtigal Hydro Power Company

**Contract type**  
Design & Build

**Contract value**  
398 million euros

**External partners**  
NGE, SGTm

### NACHTIGAL HYDRO-ELECTRIC PROJECT, NACHTIGAL, CAMEROON

COVERING 30 % OF CAMEROON'S ENERGY NEEDS: THAT'S THE SCOPE OF THE NACHTIGAL HYDRO-ELECTRIC PROJECT. IT WILL PROVIDE A NEW SOURCE OF RELIABLE AND RENEWABLE ENERGY AND ACCELERATE THE COUNTRY'S AMBITIOUS DEVELOPMENT GOALS. TO THAT AIM, BESIX IS RESPONSIBLE FOR THE DESIGN AND BUILD OF A DAM AND A 420 MW PLANT VIA A PUBLIC-PRIVATE PARTNERSHIP. TO DELIVER THE ELECTRIFYING PROJECT, THE TEAM TAPS INTO A WIDE RANGE OF EXPERTISE AND SETS A COMMENDABLE AND INCLUSIVE EXAMPLE IN TERMS OF SAFETY.



**THE PROJECT ENCOMPASSES 110 YEARS OF BESIX KNOWHOW AND MORE ON ONE SITE. IT'S EVERY ENGINEER'S DREAM TO BE PART OF IT. //**

**BRECHT INDEKEU, TECHNICAL OFFICE ENGINEER AT BESIX**

### SWITCHING ON CAMEROON'S HYDROPOWER

The Nachtigal amount hydropower project is developed by the Nachtigal Hydro Power Company (NHPC), Africa's largest public-private partnership in the energy. Its shareholders are EDF International, the State of Cameroon, the International Finance Corporation, STOA and AFRICA 50. The consortium awarded the civil works contract to a joint venture consisting of BESIX, French company NGE and Moroccan company SGTm. The facility will increase the country's power-generation capacity by nearly a third and exploit its vast hydropower potential.

### KNOWLEDGE IS POWER

BESIX takes on the design and build of the Nachtigal dam. Located on the Sanaga river, some 65 kilometres north of Yaoundé, the project consists of a 1.5 km long and 14 m high dam, two spillways equipped with radial gates, a 3.4 km canal which deviates the Sanaga river with at end the water intake, penstocks and powerhouse which is equipped with seven 60 MW Francis turbines resulting in a total installed capacity of 420 MW.

To deliver this, a wide range of disciplines is needed. From earthworks and mining over producing regular and roller compacted concrete from excavated material, to constructing reinforced concrete and steel structures, to deviating water flows by building an array of long dikes and installing hydro-mechanical equipment and electric networks. "The project encompasses 110 years of BESIX knowhow and more on a 18 million m<sup>2</sup> stretch of unknown territory," summarises Brecht Indekeu, Technical Office Engineer at BESIX. "It's every engineer's dream to be part of it."

Remarkably among those disciplines, is the fact that the team built their own village on site. Indeed, down to the sewerage, waste management and water treatment installations: a true project within itself. It houses a military base, police station, bank, tennis and basketball courts, a gym, prayer room, minimarket, canteens, offices and a local market.

### POWERED BY DIVERSITY

Cameroonians, Chileans, Belgians, French, Portuguese, Polish, Tunisian, Moroccan, Congolese, Senegalese, Serbian, Ivorian, etc. holding positions from site intendents to financial and QHSE positions: the project unites a most diverse team. Of the 1,500 employees in total (incl. expats, staff and blue-collar workers), 300 reside on site.

In addition, 65 % of the direct jobs during peak construction periods are sourced locally within a 65-km radius of the construction site.

"Each individual, from the blue to the white collar, plays a crucial role on the project. We have a very dedicated team that works extremely hard to develop new skills by training and coaching," explains Mathieu Dechamps, General Manager Business Unit International.

### BE SAFE, A COMMON APPROACH

BESIX has introduced its behavior-based safety program, BE SAFE, on the project. It promotes the company's culture of safety by reinforcing and growing caring values and helping staff as well as subcontractors to work safely. "We do this by positively influencing behaviour at work through frequent and on the spot observations," explains Adil Kennouss, QHSE manager at BESIX. "A select group of people, the so-called ambassadors, give constructive feedback to their peers."

These safety efforts quickly bore fruit, as the team achieved 5 million man-hours without major incident in October 2020. The EDF International management visited the site to celebrate this successful milestone and confirmed the project was EDF's safest internationally!

"By the end of November 2020, the Ambassadors community counted 84 members including subcontractors. "After witnessing the success of BE SAFE, the client and other EPC's have requested to be part of it," Kennouss proudly shared. "We are therefore organising additional Ambassador training sessions in 2021, a great step in continuously improving safety and quality on site."



## BESIX PROVIDES CAPSTONE OF BICYCLE HIGHWAY



BICYCLE HIGHWAY F3, ZAVENTEM, BELGIUM

### // Project details

## BICYCLE HIGHWAY

**Location**  
Diegem – Zaventem, Belgium

**Client**  
De Werkvennootschap

**Contract type**  
Build

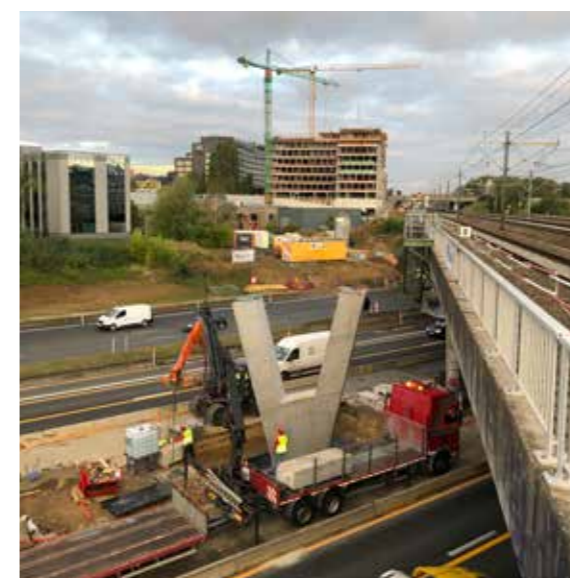
**Construction Period**  
2020-2021

MOTORISTS DRIVING ALONG THE BRUSSELS RING ROAD (R0) IN 2020 COULD NOT MISS BESIX WORKING ON THE FINAL PIECE OF THE BICYCLE HIGHWAY BETWEEN LEUVEN AND BRUSSELS, ALSO CALLED THE 'MISSING LINK'. WHERE CYCLISTS WERE FORCED TO MAKE A 4 KM DETOUR TO CROSS THE RING ROAD, *DE WERKVENNOOTSCHAP*<sup>1</sup> IS PROVIDING A BETTER ALTERNATIVE. THEIR CHOICE OF CONTRACTOR TO BUILD THE BICYCLE HIGHWAY ALONG THE RAILWAY LINE FELL ON BESIX GROUP. THE PROJECT INCLUDES THE CONSTRUCTION OF A BRAND NEW BICYCLE AND PEDESTRIAN BRIDGE OVER THE R0.

The works are part of an overarching programme of several projects around the Brussels Ring Road. Its goal is to improve mobility and quality of life by focusing on alternative mobility: cycling infrastructure and public transport. The project has three focus points: the construction of the 'missing link' between the *Keibergstraat* in Zaventem and the *Lodewijk Vankeerberghenstraat* in Machelen, the new bicycle and pedestrian bridge across the R0 and finally a connection with a nearby industrial area and the train station in Diegem.

### ONE-STOP SHOP APPROACH

Such diverse works in an operational railway environment require flawless cooperation. BESIX Group therefore approached this project according to the one-stop shop principle: subsidiary BESIX Infra took care of the earth-, road- and environmental works, while subsidiary Franki Foundations carried out part of the foundation works. The engineering works were carried out internally by the BESIX Engineering department. "Now that we are taking on more and more pro-



**IN ORDER TO AVOID A TEMPORARY SUSPENSION OF RAILWAY TRAFFIC WE PROPOSED TO THE CLIENT TO WORK WITH A TIMBERED TRENCH. THE RETAINING WALL IS EXCAVATED BY HAND WITH A MINIMUM OF MACHINERY ALLOWING THE RAILWAY LINE TO REMAIN OPERATIONAL. //**

**CHRISTOPH KLINGELEERS,  
PROJECT MANAGER AT BESIX**

### VALUE ENGINEERING

In the initial tender, the retaining wall in the zone between the station and the A201 underpass was planned to be constructed using a secant piling wall. "But such a wall can only be installed during a temporary suspension of railway traffic. Moreover, the necessary machinery takes up a lot of space. To avoid this, we suggested to the client to work with a timbered trench. This involves excavating the retaining wall by hand with a minimum of machinery while the railway can remain operational," Christoph adds. This prompted the team to pay even more attention to safety. "We use Minimel, a specific system that announces the passing of a train with light and sound, so that any work in the immediate vicinity of the tracks can be briefly halted."

jects together, our cooperation is running smoothly. We have become attuned to each other," says Christoph Klingeleers, Project Manager at BESIX.

"Our site starts near Diegem station, along the Brussels-Leuven line. Just beyond the junction of the bicycle highway with the *Lodewijk Vankeerberghenstraat*, we are constructing a partial tunnel with a covered stairwell in concrete with a glass roof and walls as entrance to the station. Cyclists on their way to Brussels or Leuven can, via two new steel ramps, pass through the train station, which will be adapted to allow the bicycle highway to pass through it. A third ramp will allow cyclists to continue in a straight line and pass underneath the A201. This third passageway is situated next to the tracks, where the existing underpass will be widened and renovated", explains Eva Beyts, Technical Office Engineer at BESIX. Once the cyclist has crossed the Brussels Ring Road, two new steel bicycle bridges over the *Lambroekstraat* and *Fabrieksstraat* junctions in Zaventem lead them safely to the end of the route. "Along that whole section, various retaining walls also have to be built, including concrete L-walls, a timbered trench and sheet pile walls."

Working on and around the Brussels Ring Road is not an easy task either. In order to create more work space for safety and logistics, the team occupied one lane left and one right of the central reservation. The concrete works on the R0 were finished in early 2021, and in the summer 2021 the team will return to the Ring to install the new 180-metre bicycle and pedestrian bridge over the course of three weekend nights. "The bridge crosses the R0 in six spans," Christoph explains. "Each night counts as a phase. During one phase, two bridge sections are placed and then welded together during the workweek. In order to place the bridge sections, we will close a maximum of two carriageways out of the four in each direction to make room for a crane that will be placed on the carriageway. A logistical and technical challenge, but I am confident that we will bring the work to a successful conclusion!"

<sup>1</sup>. Flemish Government body that coordinates efforts around mobility



## BUITENRING PARKSTAD LIMBURG: A UNIQUE PIECE OF ROAD CONSTRUCTION

WHEN THE DUTCH PROVINCE OF LIMBURG AWARDED THE CONTRACT FOR THE OUTER RING ROAD BUITENRING PARKSTAD LIMBURG (BPL), IT HAD ONE CLEAR GOAL IN MIND: TO EFFECTIVELY IMPROVE ACCESSIBILITY TO AND WITHIN THE FORMER MINING REGION OF PARKSTAD, WHICH INCLUDES THE MUNICIPALITIES OF BRUNSSUM, HEERLEN, KERKRADE, LANDGRAAF, NUTH, ONDERBANKEN, SCHINNEN AND BEEKDAELEN. CONTRACTORS BESIX NEDERLAND, BOSKALIS NEDERLAND AND STRUKTON CIVIEL WERE AWARDED THE CONTRACT AS THE BPL CONSORTIUM BACK IN 2011, BUT CONSTRUCTION WORK WAS ONLY ABLE TO START ON 11 MARCH 2015 AFTER THE FAVOURABLE RULING BY THE COUNCIL OF STATE.

### 39 BRIDGES, TUNNELS AND FAUNA PASSAGEWAYS

The sheer scale of the project makes Outer Ring Road Parkstad Limburg a unique piece of road construction in the Netherlands. Within the project, 14 km of existing roads were adapted and/or widened and 12 km of new roads were constructed. The BPL Consortium also constructed 39 bridges and tunnels as well as safe passageways for local fauna by means of ecoducts and fauna passages. Noise nuisance for local residents was limited by erecting 21 noise barriers with a total length of 8 km.

### SPECIAL ATTENTION FOR NATURE

The new road cuts through about 38 hectares of protected nature. Within the project scope, 125 hectares were compulsorily compensated in the form of new nature, and 45 hectares of additional nature was also created. The newly realised roadside verges, accounting for 60 hectares, were turned into green areas as well. During the construction of the BPL, the tranquillity of protected animals and the preservation of unique vegetation were strictly monitored. To this end, the entire route, some 26 km in length, was enclosed by fences and largely equipped with amphibian screens. The entire area was searched for protected animal and plant species and some 25,000 animals and plants were relocated to new habitats.



BUITENRING PARKSTAD LIMBURG, THE NETHERLANDS

### MUTUAL RESPECT AND TRUST

Over the past 10 years, cooperation has been vital to the success of Buitenring Parkstad Limburg. This applies both to the internal cooperation between the contractors and to the cooperation between the client and the contractor. Above all, the mutual respect and trust that was built up in this cooperation, led to the successful completion of the project. Ultimately, it is the shared passion of all parties involved that made it possible to deliver this impressive project.

### // A GUIDED TOUR ALONG BUITENRING PARKSTAD LIMBURG

DESCRIBING 39 CIVIL ENGINEERING STRUCTURES IN DETAIL IS NOT POSSIBLE IN THIS ACTIVITY REPORT. THAT IS WHY WE ASKED JEAN-DOMINIQUE DE PRÉ, HEAD OF THE TECHNICAL OFFICE FOR THE CONCRETE DIVISION, TO GUIDE US ALONG THE MAIN ATTRACTIONS ON THE ROUTE.



#### TURBO ROUNDABOUT OVER A76

The turbo roundabout over the A76, which consists of two mirrored viaducts of 32 m wide, presented a logistical challenge as it had to be realised with minimum disruption to road users. Thanks to good work planning, the disruption was limited to 10 night-time road closures.



#### NOISE BARRIER AT BRUNSSUM

Various noise barriers were placed along the Buitenring Parkstad Limburg either in glass or in concrete. The 655 m long canopy at Brunssum is a special variant that protrudes over the road with a maximum span of 4 m.



#### STEEL PLATE TUNNEL RIMBURGERWEG

In addition to the classic viaducts on the Buitenring Parkstad, four steel plate tunnels were installed along the route, of which the one at Rimbürgerweg, with a length of 80 m and a height of 6.5 m, was the largest.



#### FELDBISS ECODUCT - BRUNSUMMERHEIDE

This ecoduct, with a span of 23.5 m and a width of 51 m, was designed to provide a natural, continuous habitat for local wildlife, such as badgers, deer, pine and stone martens.



#### SLID-IN RAILWAY VIADUCT EYGELSHOVEN

One of the greatest technical challenges was to slide this 90-metres-long, 4,000-tonnes tunnel section under an existing railway line. The whole operation was carried out successfully during a 100-hour decommissioning of the railway tracks. We even installed a grandstand so that interested local residents could follow the spectacle from a safe distance!



#### RAILWAY VIADUCT ZUID-LIMBURGSE STOOMTREIN MAATSCHAPPIJ (SOUTH LIMBURG STEAM TRAIN COMPANY)

To give the viaduct of the railway line of the Zuid-Limburgse Stoomtrein Maatschappij, locally known as the heritage railway 'Miljoenenlijn', a unique appearance, it was decided to finish off the edge of the viaduct with perforated steel plates that are equipped with led lighting, which illuminate the artful construction at night.



## Marine Works

# HIGH-QUALITY MARINE INFRASTRUCTURE

**10,000 tonnes**

OF SHEET PILING

**1,080 tonnes**

OF LOAD-BEARING STEEL STRUCTURES OF BRIDGES

**110,000 tonnes**

OF CONCRETE BLOCKS

**10,000**

OF XBLOCPLUS

NEW SHIPPING CHANNEL IN THE GULF OF GDANSK, VISTULA SPIT, POLAND

IN POLAND, BESIX IS CONTRIBUTING TO THE CONSTRUCTION OF A NEW SHIPPING CHANNEL IN THE GULF OF GDANSK. THIS IS A STRATEGIC INVESTMENT FOR THE COUNTRY, AS IT WILL FACILITATE MARITIME TRAFFIC AND GIVE A BOOST TO THE LOCAL PORT, EMPLOYMENT AND THE ECONOMY. BESIDES THE CHANNEL, THE PROJECT ALSO INCLUDES THE TYPICAL MARINE ENGINEERING WORKS IN WHICH THE GROUP HAS EXCELLED FOR OVER 60 YEARS. THAT EXPERIENCE HAS PROVEN INDISPENSABLE TO COMPLY WITH DEMANDING ENVIRONMENTAL REQUIREMENTS.

### Project details

## NEW SHIPPING CHANNEL IN THE GULF OF GDANSK

#### Location

Vistula Spit, Poland

#### Client

Maritime Bureau of Gdynia (Urząd Morski w Gdyni)

#### Contract type

Build

#### Construction Period

2019-2022

#### Contract value

187 million euros



**ON TOP OF BUILDING IN AN EXTREMELY SENSITIVE MARINE ENVIRONMENT, WE ARE UNDER NATIONAL SPOTLIGHT DUE TO THE STRATEGIC AND ECONOMIC IMPORTANCE TO POLAND. //**

**LAURENS SCHOKKING, BESIX RESIDENT MANAGER POLAND**

### A BOOST TO THE POLISH ECONOMY

BESIX tackles the works in joint venture with a familiar partner, NDI Group. Both contractors worked in 2015-2016 on the second container terminal in Gdańsk. They are combining their expertise this time on behalf of the Maritime Bureau of Gdynia (Urząd Morski w Gdyni) in a project worth 187 million euros that is funded by the Republic of Poland. In this first part, the investment includes the construction of the Vistula channel with associated infrastructure and a 190 hectares artificial island. The new shipping channel will go right through the Vistula Spit, a peninsular stretch of land, separating the Vistula Lagoon from the Gdańsk Bay. The project will boost the nearby town of Elbląg's port installations by drastically reducing the distance between the port and the Baltic sea and making it accessible to larger vessels. Moreover, it is expected to positively impact the local province's employment rate and the economy.

### WIDE RANGE OF EXPERTISE

This project encompasses many different sectors of general contracting, such as buildings, roads, dredging, civil works such as bridges and a lock, as well as a multitude of marine works. "That's why we can consider it as quite unique," says Laurens Schokking, Resident Manager Poland.



The channel stretches over 1.5 kilometres with a width varying from 25 to 120 metres. It is equipped with 61-metre long and 17-metre large rotating bridges, while the associated buildings will cover an area of 1,090 m<sup>2</sup>. Located outside the spit in the Gdańsk Bay, the two breakwaters have respective lengths of 900 and 300 metres and form a protective harbour.

The new infrastructure will be completed within 32 months to be operational in June 2022.

### HIGHEST ENVIRONMENTAL STANDARDS

The unique environment requires the contractors to put their expertise in building infrastructure that comply with the highest environmental standards to the test. "For example, we're adapting the planning and works to the birds and bats breeding seasons and to the fish-spawning periods," says Laurens. "Also on a technical level, we are taking measures. We apply construction technologies that drastically reduce the need for drainage construction and the range of water turbidity, as well as working methods and equipment which cause the lowest possible amount of noise, vibrations and waves," he continues. Finally, the construction facilities and operations are also adapted, for instance by strictly restricting them to the working area or using appropriate lighting in order to minimise disturbance for nocturnal animals.

After phase three of the contract has been completed and the channel to Elbląg has been dredged, the approximately 180 hectares artificial island will serve exclusively as a natural area, a sanctuary for the local wildlife and migratory birds.

### INNOVATIVE BREAKWATERS

These environmental efforts also lead to the use of innovative technologies. To construct the eastern and western breakwaters, the JV opted for the cutting-edge XblocPlus. The choice for these blocks was not only a choice in accuracy, efficiency and safety, it also contributed to a more sustainable project.

An upgrade of its worldwide applied predecessor, the XblocPlus is more resistant to climate change and requires less concrete to produce. Along with the fact that 50 % fewer blocks are needed in total to build the same length of breakwaters, it significantly reduces the project's CO<sub>2</sub> footprint. Moreover, the new shape can be installed much easier and faster (over 100 blocks per day!) and has a special surface ideal for marine life to thrive on. In total, 10,000 of XblocPlus or 21,000 m<sup>3</sup> of unreinforced concrete will be used on the Vistula Spit, a first for Poland.



## Environment

# THE BOUS WASTEWATER TREATMENT PLANT

IN SEPTEMBER 2020, THE WASTEWATER TREATMENT PLANT IN BOUS, IN THE GRAND DUCHY OF LUXEMBOURG, TREATED WASTEWATER FOR THE FIRST TIME IN ITS NEW FACILITIES. A REFURBISHED PLANT IN WHICH THE ELECTROMECHANICAL PROCESS WAS INSTALLED BY THE JOINT VENTURE FORMED BY LUX TP AND BESIX ENVIRONMENT.

### IMPROVING PRODUCTION CAPACITY AND QUALITY OF TREATED WATER IN LUXEMBOURG

"The treatment capacity was increased to treat wastewater of about 5,000 population equivalent, compared with 2,000 before the works. And we've improved its quality of treatment to comply with the European environmental norms", says Alain Dostert, Managing Director of Lux TP.

The 3.6 million euros contract, awarded in 2019 by SIDEST, aimed to upgrade the process and electromechanical equipment of the plant. This comprised the installation of the treatment process from A to Z.



WASTEWATER TREATMENT PLANT, BOUS, LUXEMBOURG

"The first stage of the project was to prepare it meticulously. Based on the plans and the process required by the client, we carried out the detailed engineering of the project, which allowed the team led by Manuel Hartmann to determine with the greatest precision all the equipment assembly, draw up the technical sheets and follow the orders up to the installation", says Adrien Theunissen, Senior Manager BESIX Environment. Precise phasing also had to be coordinated with the client and the civil contractor, as the plant had to remain in operation at all times, which the teams of Lux TP and BESIX Environment remarkably respected throughout the works.

Once the new equipment was installed, the tests continued during the last months of 2020 without the slightest hitch. The final equipment has been installed at the beginning of 2021 to allow complete delivery in the second quarter of the year.

### WASTEWATER, A BUOYANT SECTOR

Over the past three years, BESIX Environment and Lux TP have won six contracts for the construction and rehabilitation of electromechanical systems of wastewater treatment plants in Luxembourg. Contracts of ever-increasing importance, while new ones are expected to follow in the coming years.

At least two reasons explain the vitality of the Luxembourg market in this field. There are about 200 wastewater treatment plants in the country, many of which were built decades ago while the population continues to grow steadily. This is a first reason for extensions or rehabilitations. "In many cases, current technologies make it possible to improve their performance, both in terms of production capacity and water quality. This is what we do", explains Adrien Theunissen.

The second reason is linked to the North Sea, into which the rivers of the Benelux region flow. Their waters carry with them the wastewater, discharged after treatment. These have contributed to an ecological imbalance in the sea, known as eutrophication. The European Union made it a 'sensitive area' and called on countries to improve the quality of treated water.

All this has contributed to a strong-willed policy in Luxembourg to improve the country's existing plants.



### // Mamer: the latest contract

The Mamer wastewater treatment plant, a 19 million euros project, is the sixth contract won by Lux TP and BESIX Environment. Awarded by Sidero in 2020, it will double the treatment capacity, from 23,500 to 50,000 population equivalent.

In addition to the modernisation of the electromechanical installations, the project includes the installation of a sewage sludge treatment and biogas production unit, enabling the plant to produce part of its electricity needs.

The companies are also responsible for the coordination of the parties involved on the site, including the civil and temporary works.

### JOINING FORCES

Today, the Lux TP - BESIX Environment team is one of the main players on the market. And yet, not so long ago, this was far from being the case. Before 2018, Lux TP was not active in the water electromechanical field, but the company had a thorough knowledge of the Luxembourg market. "BESIX Environment brought us the electromechanical expertise we didn't have. Our 'one-stop shop' capabilities are one of the strengths of BESIX Group. There are a lot of skills available within the group, and by combining them, we conquer new markets", says Alain Dostert.

The treatment of wastewater in Luxembourg is a textbook case of this. The local BESIX Environment - Lux TP team is itself completed by the stainless steel welding experts of Lux TP subsidiary Mabilux, which specialises in the manufacture and assembly of metal structures.

"We continue to bid for new contracts. The organisation of the project is taking profit of the first experiences and start now to be fine-tuned and standardised. It is turning into a rolling business!" concludes Adrien Theunissen.



## Environment

# DUBAI WASTE-TO-ENERGY, A WORLD-CLASS PROJECT WITH BESIX'S MARK OF EXCELLENCE IN EVERY RESPECT

IT WILL BE THE LARGEST WASTE-TO-ENERGY PLANT IN THE WORLD BUILT IN A SINGLE PHASE. CONSTRUCTION BEGAN IN 2020 AND WILL BE COMPLETED IN A PARTICULARLY SHORT TIME, GIVEN THE SCALE AND COMPLEXITY OF THE PLANT. THE CONCEPTUALISATION OF THE PROJECT AND ITS DESIGN, CARRIED OUT FROM A TO Z BY BESIX AND HITACHI ZOSEN INOVA (HZI) WITH CLIENT DUBAI MUNICIPALITY, AS WELL AS THE SITE PREPARATION, ALREADY CONSTITUTE A TEXTBOOK CASE OF EXCELLENCE. THE CONSTRUCTION, WHICH REQUIRES UNPARALLELED COORDINATION AND SEQUENCING OF WORKS, IS WELL ON ITS WAY TO FOLLOWING THE SAME PATH. BESIX ALSO PARTICIPATES IN THE FINANCING OF THE PROJECT AND WILL OPERATE AND MAINTAIN THE FACILITY FOR 35 YEARS.

### ACCOUNT MANAGEMENT & VALUE ENGINEERING

Originally, in 2016, the project was a tender issued by Dubai Municipality for the construction of the Emirate's first waste-to-energy plant. BESIX and consortium partner HZI submitted the most complete bid from a technical and economical point of view.

"The original EPC contract became a Build-Operate-Transfer contract and the project started in a similar way as an Early Contractor Involvement. The EPC consortium, the developers' consortium and the client worked together to develop the project into a tailor-made plant", explains Project Manager Emmanuel Craenen. "Throughout the process, Dubai Municipality, the Developers' consortium and the EPC consortium worked hand in hand to align the client's and developers' expectations and interests with the project outlines, making technical and technological suggestions to optimise the project and its functional objectives."



SITE OF THE FUTURE DUBAI WASTE-TO-ENERGY PLANT, UAE

"The creation of the project from A to Z with the client prevents any misinterpretation and ensures optimal risk management, both for construction and long-term operation, thus benefiting all parties," explains Emmanuel Gayan, Project Director.

The BIM for the project is a complete model, incorporating the methods and sequencing of the work into the design. It will be used to guide the construction process and the coordination of the works.

### BETTER PREPARE, BETTER EXECUTE

Thanks to an agreement on early works, i.e. before signature of the full contract, BESIX-Six Construct were able to start construction in July 2020, with access to the site and preparation. The first concrete works followed in December.

The site can count on exceptional continuity between design and construction. Part of the design team has been integrated into the construction team. Similarly, part of the construction team was consulted during the design. The key question that both teams were trying to answer at all times was 'how will we build tomorrow the facility we design today'.

The plant will consist of five processing lines, to be delivered in 2023 and 2024. A very tight schedule for a plant of this scale. "We will reach the peak in the number of workers with

### // A BOT contract & a threefold involvement

BESIX is involved in the project in three ways. As designer and constructor of the project, its share in the consortium is 30 %, while Hitachi Zosen Inova (HZI) has a 70 % share.

HZI and BESIX will also, as equal partners, be in charge of the operations and maintenance of the plant for 35 years.

Last but not least, BESIX has participated in the financing. Together with its Ajman-based partner Tech Group, BESIX is contributing 19 % of the equity. The other investors are HZI, Itochu and Dubai-based investors Dubai Holding as well as Dubai.

2,000 people on the site in 2021. For HZI, this peak will be 2,500 workers in 2022. The site requires the use of the largest tower crane in the world, in particular to install the pre-assembled equipment for the treatment process," says Emmanuel Gayan.

"Coordination on site is extremely demanding. We will have to combine very different operations in parallel," adds his colleague Emmanuel Craenen. "While BESIX will be carrying out complex civil works on one side, Hitachi will be installing high-tech equipment on the other."

BESIX is also responsible for the installation of water treatment, fire protection, air conditioning and MEP systems.

### DIGITAL TOOLS

Site management can rely on cutting-edge digital tools. "Digitalisation offers outstanding solutions for managing such a demanding site. In particular, it allows faster and more reliable access to information, which is key to operational excellence", says Emmanuel Gayan.

The team will use the in-house developed Digipro system, which connects available data on quantities, cost control, manpower performance and planning. The combination of these data then allows for digital monitoring of work progress via the 3D model. In terms of manpower performance, the site is also a pilot project with the use of digital, automated timesheets.

"This project needs to become a flagship for the Group at all levels. From a lean design and detailed preparation of the works, the challenge ahead is to complete the works on time, and to the highest level of quality whilst sending the entire team home safe – every day" concludes Emmanuel Craenen.



**WASTE-TO-ENERGY PROJECTS ARE A STRATEGIC FOCUS FOR BESIX IN THE MIDDLE EAST. THE MARKET IS BUOYANT AND THE SECTOR IS FUTURE-PROOF. THIS TYPE OF PROJECT REQUIRES CREATIVITY AND EXTRAORDINARY CAPABILITIES IN TERMS OF COORDINATION, CLIENT-CENTRICITY AND STAKEHOLDER MANAGEMENT. IT REQUIRES A VERY HIGH LEVEL OF EXCELLENCE IN EVERY RESPECT. MOREOVER, WE ARE CREATING SUSTAINABLE SOLUTIONS AS THESE FACILITIES OFFER AN ALTERNATIVE TO DUMPING WASTE IN LANDFILLS, REDUCING GREENHOUSE GAS EMISSIONS AND PRODUCING GREEN ELECTRICITY INSTEAD. //**

**PETER LEMBRECHTS, HEAD OF CONCESSIONS & ASSETS, BESIX MIDDLE EAST**



## Industry

# DELIVERING NEXT-GENERATION MILITARY CAPABILITY

COMPLETED BY BESIX WATPAC IN STAGES TO PROVIDE EARLY ACCESS TO THE MOST CRITICAL FACILITIES, THE \$174 MILLION STATE-OF-THE-ART MILITARY VEHICLE CENTRE OF EXCELLENCE (MILVEHCOE) IS THE MOST ADVANCED MILITARY VEHICLE MANUFACTURING FACILITY IN AUSTRALIA.

Spanning 11-hectares, the facility plays a crucial role in the manufacture and testing of military vehicles to boost Australia's national defence capability and was delivered by BESIX Watpac for the Queensland Government.

The new headquarters for Rheinmetall Defence Australia-New Zealand, the facility enables the company to produce, test and maintain more than 200 Boxer Combat Reconnaissance Vehicles for the Australian Army, along with medium and heavy logistics trucks.

More than a manufacturing facility, the MILVEHCOE features highly specialised and unique elements including an outdoor

vehicle test track, electromagnetic compatibility chamber, and a fully enclosed weapons test firing range.

BESIX Watpac Senior Project Manager David Tracey said the MILVEHCOE showcased the company's expertise in the successful delivery of highly specialised facilities.

"Due to the sensitive nature of the vehicles being produced and serviced at the MILVEHCOE, stringent high-security requirements were incorporated into our design and subsequently into construction," David said.

Larger than four football fields combined and with a peak workforce of 450 on site, robust safety measures and a focus on quality and punctuality ensured issues were addressed promptly and the facility handed over in a logical, staged manner.

"Our staged delivery methodology enabled a fast-tracked handover of the first group of buildings to Rheinmetall so they could move their headquarters to the facility and begin their fit out while BESIX Watpac works continued on other elements."

The 30,000 m<sup>2</sup> production building includes three simultaneous vehicle production lines, a weld shop, armoury, prototyping workshop, turret and simulator assembly, paint booths, heavy maintenance and a large warehouse area.

The MILVEHCOE also features a corporate training centre, administration building, car parking and water storage tanks, along with waste and recycling facilities.



**ONE OF OUR SUCCESS FACTORS HAS BEEN THE PROACTIVE COLLABORATION BETWEEN BESIX WATPAC AND THE PROJECT WORKFORCE TO MAINTAIN PRODUCTION DURING COVID-19.**

**DAVID TRACEY, BESIX WATPAC SENIOR PROJECT MANAGER**

## // Collaborative engagement

Strong outcomes were delivered for local subcontractors and Indigenous workers through a comprehensive jobs and training plan, helping us exceed targets. We conducted on and off-site business and jobseeker events bringing together local sub-contractors and Indigenous workers, which both groups embraced.

## // Safety first

Ensuring the safety of all site personnel meant overcoming challenges associated with the management of a large project footprint and workforce numbers. In order to separate workers and vehicles within this large and complicated site, the BESIX Watpac team developed the "Green Mile" initiative which was a green, hard plastic walkway easily identifiable to workers and visitors which provided a safe pathway around site. BESIX Watpac also initiated very popular monthly safety awards which were voted on by the Safety Committee.

# 39,000+ m<sup>2</sup>

GROSS FLOOR AREA

# 94 %

LOCAL INDUSTRY PARTICIPATION

# 450

PEAK SITE WORK FORCE

## // Project details

# MILITARY VEHICLE CENTRE OF EXCELLENCE (MILVEHCOE)

### Location

Redbank, Queensland, Australia

### Client

Queensland Government

### Contract type

Managing Contractor

### Construction Period

2018-2020

### Contract value

170 million Australian dollars



MILITARY VEHICLE CENTRE OF EXCELLENCE (MILVEHCOE), REDBANK, AUSTRALIA





Sports & Leisure

## ENDURING PARTNERSHIP DELIVERS HISTORIC GRAND FINAL

A LONG AND SUCCESSFUL PARTNERSHIP WITH ONE OF AUSTRALIA'S PREEMINENT SPORTING VENUES HAS REACHED ANOTHER MILESTONE WITH BESIX WATPAC COMPLETING A MAJOR REFURBISHMENT OF THE ICONIC 'GABBA' JUST IN TIME TO HOST AN HISTORIC NATIONAL GRAND FINAL.

### // Project details

## GABBA UPGRADE – STAGE 2

**Location**  
Brisbane, Australia

**Client**  
Queensland Government

**Contract type**  
Managing Contractor

**Construction Period**  
February-October 2020

**Contract value**  
35 million Australian dollars



GABBA STADIUM, BRISBANE, AUSTRALIA



**25 year**  
CLIENT PARTNERSHIP

**185**  
FULL-TIME LOCAL JOBS  
AT PEAK OF PROJECT

**90 %**  
MATERIAL AND EQUIPMENT  
LOCALLY SOURCED

**54**  
APPRENTICES WORKING  
ON PROJECT

The latest refurbishment of the Brisbane Cricket Ground has transformed the stadium, affectionately known as the Gabba, with revitalised bars and eateries, new corporate and media areas, and additional seating that offers increased connectivity with nearby function rooms.

Project Manager Owen Burford said perhaps the most notable improvement was the new entry gates and ticketing areas complete with spectacular, variable colour LED lighting and video signage.

"This sophisticated new addition will significantly streamline the entry and exit points, greatly enhancing the fan experience," Owen said.

Once a modest 13,000-seat sporting ground, the venue has been transformed into a 42,000-seat, state-of-the-art facility by BESIX Watpac over six stages between 1994 and 2005.

"Our enduring partnership with the Gabba has seen our boots on the ground at this beloved local venue in various stages over the past 25 years, and it was terrific to be welcomed back again," Owen said.

Over the years it has hosted world-renowned sporting and cultural events including parts of the Sydney 2000 Olympic Games, international test cricket matches and high-profile performers.

But no one could have anticipated, when works commenced earlier this year, that it would also be hosting the Australian Football League Grand Final in October.

Never held outside Melbourne, a Covid lockdown in Victoria saw the match having to be played elsewhere for the first time in the competition's 122-year history – and it was the Gabba that won the honour.

"When we started works back in February, we were expecting to debut the upgrades at the Twenty20 Cricket Grand Final. Suddenly we were on the really big stage with the AFL Grand Final, the first time it's ever been played outside of Melbourne," Owen said.

"It was a great way to launch the enhanced Gabba and we accelerated works to ensure the Grand Final could take place on time."

The event was a resounding success, with the restricted crowd of 30,000 fans drinking in the enhanced atmosphere and fresh new look of the upgraded stadium.



## Concessions & Assets

# NEW HEADQUARTERS FOR THE LOCAL ANTWERP POLICE FORCE

AS 2017 WAS COMING TO AN END, THE BESIX TEAM FINALISING POST X (SIX PASSIVE OFFICE BUILDINGS) LEARNED THEY WOULD BE STAYING ON SITE A LITTLE WHILE LONGER. AG VESPA, ANTWERP'S INDEPENDENT MUNICIPAL COMPANY RESPONSIBLE FOR REAL ESTATE AND URBAN PROJECTS, AWARDED THE PPP PROJECT TO DESIGN, BUILD, FINANCE, MAINTAIN AND OPERATE A NEW HOME FOR THE OPERATIONAL AND SUPPORTING SERVICES OF THE LOCAL POLICE FORCE TO A CONSORTIUM IN WHICH BESIX WOULD ACT AS CONTRACTOR. THE HISTORIC LOCATION OF THE ANTWERP POSTAL SORTING CENTRE, SITUATED ON THE CORNER OF THE BORSBEEKSEBRUG AND THE INTERIOR SINGEL, IS THE IDEAL BASE CAMP, BOASTING GREAT ACCESSIBILITY WHILE STILL CLOSE TO THE CITY CENTRE.

### FROM A CONTRACTING ROLE TO A FULL PPP RESPONSIBILITY

Originally the building would have been delivered in the spring of 2020, were it not for a full year delay during which the works on-site were halted. Profound issues between the many parties involved in the project (i.e. prospective client, developer, contractor and financiers) lead to a full restructuring of all key contractual agreements, which was reached in July 2020. BESIX took over 100% of the shares in the project company from the prior owner, turning what was 'just' a Build-contract into the biggest PPP-building project ever in its portfolio of concessions. After signing an amended DBFM agreement with the City of Antwerp, a rescheduling of the EPC contract and the reaching of a new financial close for long-term debt funding to the project with three of the major Belgian banks, construction works could finally resume on the site of the Local Police Tower Antwerp in October 2020.

### NOT YOUR AVERAGE OFFICE BUILDING

"Building new police headquarters is more than just piling up office floors", explains Pieter De Wachter, Site Superintendent at BESIX. "The building consists of 14 layers: four below ground and from the third floor up, the building will have two towers, one on the side of the interior Singel and one on the side of the Antwerp ring road, both reaching up to 10 floors." While the Singel tower was fairly straight-forward, the design called for an indoor and outdoor gym hall in the Ring tower as well as a shooting range. With the ever-busy, 10-lane wide Antwerp Ring Road rushing right past this part of the building, all materials were chosen with acoustical values as a top priority. The space created between the two towers on the third floor, the atrium, will be the food court. "It's an impressive space with plenty of daylight, as it is covered in glass roofing with steel beams crossing the entire length", clarifies Pieter. "The building also contains a number of short term holding cells, of which the location remains top secret!"

### LARGE WORKFORCE ON A TIGHT SCHEDULE

"The biggest challenge is undoubtedly to make sure all subcontractors adhere to the tight planning. On the busiest moments, up to 500 pairs of skilled hands are at work on site", explains Ellen De Groof, Assistant Site Superintendent on the project. "To navigate this task, we've decided to implement a LEAN planning. All project and site managers gather once a week with their subcontractor counterparts during a LEAN meeting to discuss the planning. It allows us to avoid possible clashes and to spot potential planning opportunities. In addition, we hold what is called a 'daily stand' with foremen and overseers. On the wall of our meeting room, we put up pictures of issues we spot on site, such as safety, quality, any possible infractions to our Life-Saving Rules, etc. It ensures an open discussion. After these 20 minutes, everyone who leaves the room is aware of the short-term planning, while site management knows exactly what's going on in every corner of the site. These team moments instil a common goal for all parties involved, boosting motivation and commitment across the board."

### A YOUNG AND DYNAMIC PROJECT TEAM

The project and its planning are demanding, but Project Manager Koen Van Lerberghe is confident they can pull it off. "One of the advantages of working for BESIX is the independence and opportunities we are permitted to give to our young professionals. Our youngest Site Superintendent is only 24. It adds a powerful dynamic to the team, which can only help the progress of the project." LEAN is also a potent training tool for these young professionals. "We communicate openly about every aspect of the project, without holding back any secrets about difficulties or challenges. It helps them to become well-rounded site professionals aware of every detail which can make or break a project. Personally, I firmly believe in this human approach."



LOCAL POLICE TOWER, ANTWERP, BELGIUM

### Project details

## LOCAL POLICE ANTWERP TOWER

**Location**  
Antwerp, Belgium

**Client**  
AG Vespa

**Contract type**  
PPP

**Stakeholders**  
BESIX, AG Vespa, City of Antwerp, Local Police Force Antwerp

**Construction period**  
2018 – 2022



PIETER DE WACHTER, ELLEN DE GROOF AND KOEN VAN LERBERGHE



## Real Estate

# MEADOW, A NEW WAY OF LOOKING AT RESIDENTIAL



MEADOW, HERENT, BELGIUM

WITH THE DEVELOPMENT OF THE LARGE-SCALE RESIDENTIAL DISTRICT MEADOW, BESIX RED CONSOLIDATES ITS POSITION ON THE FLEMISH REAL ESTATE MARKET.

THE RESULT OF A CO-CREATION WITHIN BESIX GROUP, THE DEVELOPMENT COVERS A COMPLETELY NEW DISTRICT OF ABOUT 58,000 M<sup>2</sup> IN HERENT, NEXT TO LEUVEN (BELGIUM).

DESIGNED BY BINST AND POLO ARCHITECTS, MEADOW OFFERS A DIVERSE RANGE OF HIGH-QUALITY AND ENERGY-EFFICIENT APARTMENTS, INTEGRATED IN A LANDSCAPED PARK, AND CONTRIBUTES NOT ONLY TO THE WELLBEING OF ITS RESIDENTS BUT ALSO TO HERENT LOCALS'.

**MEADOW IS THE PERFECT EXAMPLE OF A SUCCESSFUL URBAN INTEGRATION WITHIN A LANDSCAPED PARK AND IS EVEN MORE RELEVANT TODAY IN A POST-COVID WORLD. //**

**GABRIEL UZGEN,  
CEO BESIX RED**



### A VISIONARY DEVELOPER

*Meadow* in Herent is another significant example of BESIX RED's strong commitment to Flanders. In this region of Belgium, the Group has already successfully delivered *Dunant Gardens* in Ghent (26,400 m<sup>2</sup> residential) in 2018 and is currently developing *Kaai District* in Aalst (a public part of 24,300 m<sup>2</sup> successfully delivered to the NMBS and a private part of 38,399 m<sup>2</sup> in progress).

Covering an area of about 58,000 m<sup>2</sup>, *Meadow* is located on a wasteland site that was empty until a few years ago. "As a visionary developer, we intend to be precursors rather than followers. Our mission is to identify high-potential sites where we can add value to the neighbourhood. Located on the outskirts of Leuven, close to Brussels, *Meadow* benefits from a prime location close to Herent's railway station, which is attractive for end-users as well as investors", states Gabriel Uzgen, CEO BESIX RED.

The development comprises 400 units including single-family dwellings, social housing, 259 apartments and some com-



**A HUMAN-SCALE DISTRICT DESIGNED BY TOP BELGIAN ARCHITECTS, MEADOW IS EQUIPPED WITH THE LATEST TECHNIQUES AND IS ACCESSIBLE TO A DIVERSE AUDIENCE. //**

**FREDERIK MUYLDERMANS,  
TECHNICAL PROJECT  
MANAGER BESIX RED**



mercial units. Its size allowed BESIX RED to envision a wide typology of dwellings – from 1, 2 and 3-bedroom apartments to penthouses – to meet local demand. "We integrated the living units in a curated landscaped park equipped with several footpaths, an unpaved running track and various small ponds. This way, *Meadow* becomes an open micro-district and also adds value to the wider area: locals can benefit from this new neighbourhood as well and come here for a run or walk and interact with residents", says Frederik Muyltermans, Technical Project Manager BESIX RED. Besides, *Meadow* is a mainly car-free district with separate entrances to the underground parking lots, in order to limit car circulation in the area as much as possible.

"Designed by BINST and POLO architects, *Meadow* is developed throughout four stages, which enables us to constantly adjust the project along the way. The strength of *Meadow* lies as much in its location as in its remarkable, mixed architecture", he clarifies. Characterised by a unique design with continuous terraces circling the buildings, *Meadow's* first phase comprises two buildings of nine 'villa-apartments' each. Its second phase includes 64 smaller units arranged around a landscaped inner courtyard garden, promoting social interaction, while the third phase offers high-end nearly zero-energy apartments outfitted with large balconies and gardens. The fourth phase is a continued, optimised version of the preceding ones. The outcome? A new and mixed neighbourhood in a landscaped park, constituted of multiple buildings and residence types, each with its garden and private area.

### SYNERGY RESULTING IN SUCCESS

Thanks to the twofold identity of 'developer-contractor' (BESIX RED, Vanhout Projects and Vanhout), *Meadow* is a prime example of the successful synergy between BESIX Group's different entities and teams. "The fact that BESIX Group once again operates as a one-stop shop is a major added value. Within one and the same group, we leverage our in-house multidisciplinary expertise and extensive knowhow to deliver successful projects offering true living, working and leisure experiences. The synergy within the group leads to high-quality projects scoring extremely well in terms of technical complexity, sustainability and user well-being – our top priority", says Gabriel Uzgen.



## Real Estate

# LES PROMENADES D'UCCLE: NATURE, JUST A STEP AWAY FROM THE CITY



### LES PROMENADES D'UCCLE, BRUSSELS-CAPITAL REGION, BELGIUM

IN THE SOUTH-WEST OF BRUSSELS CAPITAL REGION, *LES PROMENADES D'UCCLE* IS TAKING SHAPE. BESIX RED DEVELOPS, IN COLLABORATION WITH BELGIAN PARTNER MATEXI, A 42,000 M<sup>2</sup> NEW RESIDENTIAL DISTRICT ON THE ENGELAND PLATEAU IN UCCLÉ. IN-HOUSE COMPANY ENTREPRISES JACQUES DELENS ACTS AS THE GENERAL CONTRACTOR FOR THE FIRST PHASE. PARTIALLY LOCATED ON A NATURA 2000 SITE IN ONE OF THE MOST SOUGHT-AFTER MUNICIPALITIES OF THE BELGIAN CAPITAL, THE NEIGHBOURHOOD OFFERS A UNIQUE LIVING EXPERIENCE IN A RESIDENTIAL, PEACEFUL AND GREEN ENVIRONMENT, THAT WILL WELCOME, ONCE FINISHED, ABOUT 300 NEW FAMILIES.

*Les Promenades d'Uccle* is a true cocoon in the middle of nature. Fruit of an in-depth reflection and continuous dialogue with the local authorities and residents, this project is the perfect balance between BESIX RED clients' needs and urban planning.

#### A CONCEPT PERMEATED BY NATURE

Built around the concept of nature, *Les Promenades d'Uccle* is set in a vast area of 11.5 hectares of which 6.4 are destined for the creation of the district and five protected as a Natura 2000 site. Developed in four phases and consisting of 238 apartments and 60 houses, the new neighbourhood comprises a wide range of housing types and sizes ranging from single-family homes to affordable houses and apartments. A2RC and Espace Architectes conceived a contemporary, mixed architecture with light-filled living spaces larger than the average on the Brussels market and a strong focus on the surrounding green setting. The project's dual but complementary design – a sleek, modern architecture on the one hand and a rather classic one on the other hand – as well as



*LES PROMENADES D'UCCLÉ IS A TRUE COCOON IN THE MIDDLE OF NATURE. FRUIT OF AN IN-DEPTH REFLECTION AND CONTINUOUS DIALOGUE WITH THE LOCAL AUTHORITIES AND RESIDENTS, THIS PROJECT IS THE PERFECT BALANCE BETWEEN OUR CLIENTS' NEEDS AND URBAN PLANNING. //*

**GABRIEL UZGEN,**  
CEO BESIX RED



its varied concept, contribute to a social and generational mix in the district. Small co-ownerships ensure privacy at all times as well as an easy day-to-day management of the residences.

"Gardens, terraces and various footpaths were meticulously developed and integrated in the project to reinforce the sense of nature and spaciousness", explains Laurent Graas, Regional Manager Brussels BESIX RED. "*Les Promenades d'Uccle's* prime location combined with the well thought out landscape design by JNC International, contribute to the project's identity and success", he adds.

*Les Promenades d'Uccle* also sets an example in terms of sustainability with its unique rainwater recovery system, which is a first for Uccle and Brussels Capital Region. "In collaboration with the Municipality and the Brussels-Environment authorities, we set up a network of individual rainwater tanks and private infiltration storm basins for each building. Three additional big infiltration basins deal with the water overflow from the buildings and the roads of the district. Any water excess is diverted to infiltration basins so it does not burden the sewerage system – not even in exceptional weather conditions – and prevents rainwater run-offs towards low-lying neighbouring areas. The water will be reused for sanitary facilities and gardens", clarifies Laurent Graas.

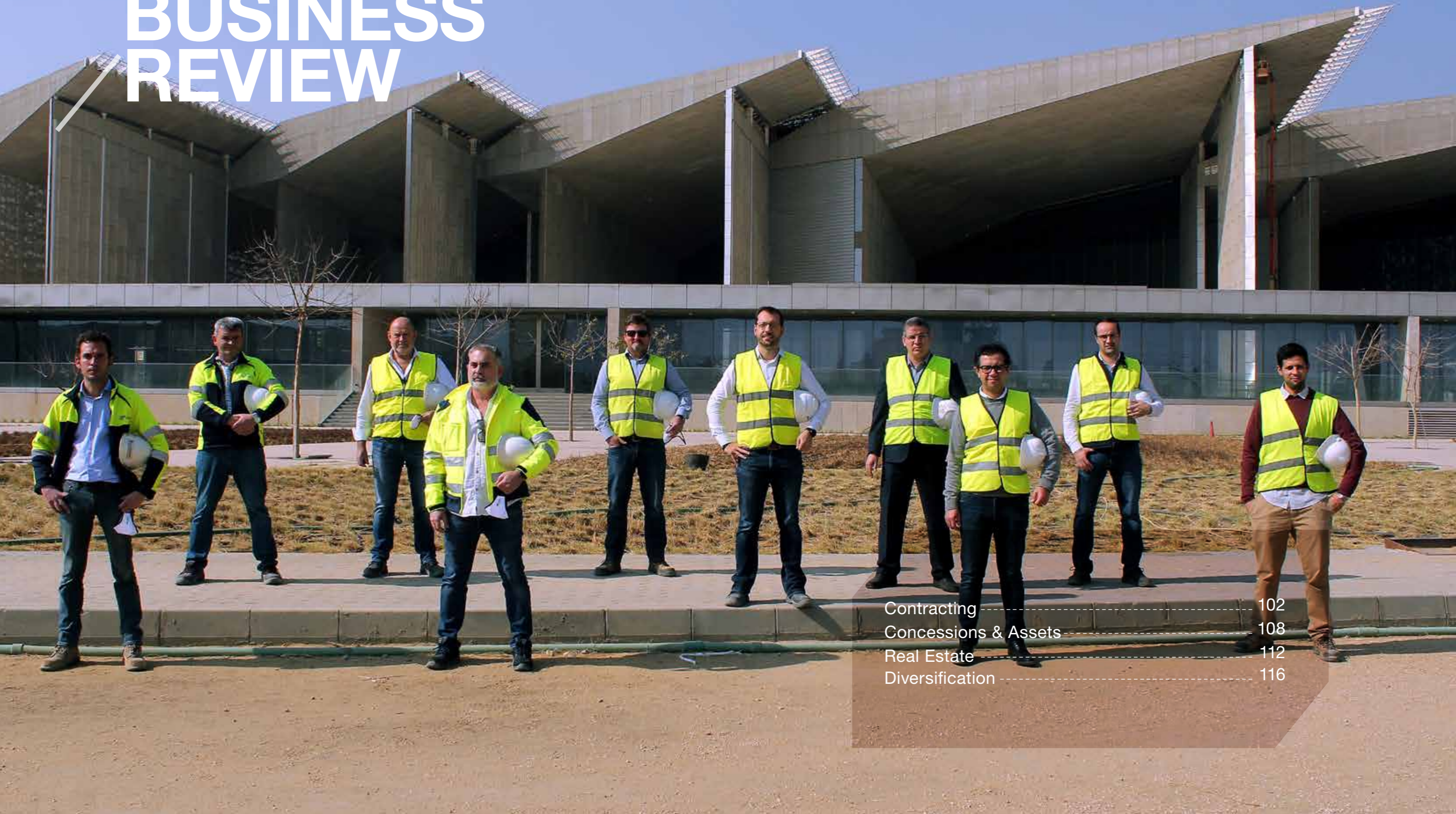
#### TEAM COMMITMENT AND SYNERGY

The creation of this large-scale district was nevertheless not achieved without any challenges. With the first procedures and plans dating back to 2002 and finalisation foreseen in 2025, *Les Promenades d'Uccle* clearly illustrates the team's perseverance. "At the beginning, we faced some challenges, especially some mistrust towards the project from the locals. The constructive and continuous dialogue with the authorities and the local residents, in particular with the municipality, contributed to obtaining the permits and the progress of the project", Laurent Graas says.

This first phase of *Les Promenades d'Uccle* is finalised and completely sold. "The health crisis has significantly accelerated the sales of this project, because of its focus on wellbeing and privileged environment", adds Gabriel Uzgen proudly. The second phase – 12 houses and 69 apartments – is currently under construction and is expected to be completed at the end of 2022. More than 60 % of the units are already sold. "We are now working on six different permits for the final phases – 30 houses and 93 apartments – to be introduced this year and we plan to complete the entire project in 2025", explains Laurent Graas. "Constructed by an in-house contractor, this project illustrates, once again, the multidisciplinary expertise of BESIX Group", Gabriel Uzgen concludes.

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# BUSINESS REVIEW



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# Contracting

THE IMPACT OF COVID-19 ON THE GLOBAL CONSTRUCTION INDUSTRY HAS BEEN SEVERE, WITH CONSTRUCTION ACTIVITY SIGNIFICANTLY DOWN FROM 2019, AND 10% OF GLOBAL JOBS LOST OR AT RISK ACROSS THE BUILDING CONSTRUCTION SECTOR<sup>1</sup>. BY THE END OF 2020, ESTIMATES ANTICIPATED A DROP OF 6% IN CONSTRUCTION MARKET VALUE FROM 2019 LEVELS.

DESPITE THIS DIFFICULT SITUATION, BESIX WAS ABLE TO SUCCESSFULLY DELIVER A NUMBER OF HIGH-PROFILE PROJECTS IN EUROPE AND AUSTRALIA. BESIX HAS ALSO WON SIGNIFICANT CONTRACTS, INCLUDING WORLD-CLASS MARINE FACILITIES IN AFRICA, MAJOR INFRASTRUCTURE PROJECTS IN THE BENELUX, AND VARIOUS ENVIRONMENTAL, CONSTRUCTION AND INFRASTRUCTURE PROJECTS IN AUSTRALIA, THE UNITED ARAB EMIRATES, AND THE REST OF EUROPE. EACH PROJECT, REGARDLESS OF ITS SIZE OR PROFILE, WAS ONCE AGAIN AN OPPORTUNITY TO DEMONSTRATE AND SHARE THE EXCELLENCE THAT PREVAILS WITHIN THE GROUP.



DEEP TUNNEL STORM WATER SYSTEM, DUBAI, UAE

## 2020, A YEAR OF STRESS AND RESILIENCE

In all countries where BESIX is active, the Group had to adapt to the measures put in place to fight the pandemic. This led to delays in construction projects. Once the Group was able to resume activities, every effort was made to ensure workers' and employees' safety on site and in the office, while maintaining BESIX's renowned excellence. Overall, BESIX has been able to consolidate a leading position in its home markets and continues to be seen as a valued long-term partner by its clients.

## EUROPE

Europe was heavily hit by the pandemic. The impact on productivity was particularly severe during the first lockdown, from March to May. Logically, this restriction was felt more acutely in the building sector than in infrastructure works, as larger teams are usually more concentrated in closed spaces on a building site than on an outdoor infrastructure project. Thanks to the experience gained from the first lockdown, the impact of the second lockdown, which started in October, was less significant.

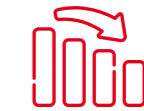
In **Belgium**, large tenders are underway (e.g. Ghent's ring road, new infrastructure for the Belgian Air Force, prisons, etc.), while a number of projects have been completed. In Brussels, the Manhattan building for our client Victory is a forward-thinking skyscraper that is a brilliant example of renovation, and clear proof that the renovation market is gradually increasing to meet the Paris Agreement's objectives. The commuter car park in Aalst was carried out with Jan De Nul for BESIX Real

Estate Development. Despite the restrictions due to the pandemic, the Brussels Air Cargo facilities at the national airport were completed in record time. The Massenhoven bridge now spans the Albert Canal and prepares Antwerp for the Oosterweel Link. The Belgian pavilion of the 2015 World Expo in Milan was rebuilt on the Citadel of Namur.

In **Luxembourg**, the Consdorf wastewater treatment plant is the first in a series of water treatment projects that BESIX has won with its affiliate Lux TP. Similarly, the tender for the much larger Mamer facility was also won by BESIX and Lux TP. For both projects, the expertise of BESIX Environment's engineers was decisive. In the office building segment, the country's potential remains interesting while BESIX is proud to have started the construction of the Icône building, a landmark project for BESIX Real Estate Development designed by the prestigious British architects Foster + Partners in collaboration with Beiler François Fritsch Architects.

In **the Netherlands**, many projects are on the agenda for 2021. The Terraced Tower in Rotterdam should be completed in the spring for the client Provast. In The Hague, BESIX is contributing to the building of the Grotius Towers for the same client. Also in The Hague, the Group is renovating the old Stations Post building, which will serve as the new headquarters of the postal operator PostNL. In early 2021, BESIX will deliver the Theemswegtracé, a railway bridge essential for the development of the port of Rotterdam. Also in Rotterdam, work on the A16 motorway has been in full swing since 2020. Still in the infrastructure sector, 2020 was truly a year of design and preparation, with another major DBFM project: the widening and extension of the A15 motorway in the east of the Netherlands. As for new infrastructure projects,

GROTIUS TOWERS, THE HAGUE, THE NETHERLANDS



*BY THE END OF 2020, ESTIMATES ANTICIPATED A DROP OF 6% IN CONSTRUCTION MARKET VALUE FROM 2019 LEVELS. //*

<sup>1</sup> 2020 Global Status Report for Buildings And Construction, by Global Alliance for Buildings and Construction (<http://globalabc.org/>)

SHINDAGHA BRIDGE, DUBAI, UAE



BESIX will start the construction of the Area Development Oostelijke Langstraat in the south of the country.

Due to persistent problems with legislation on nitrogen and per- and polyfluoroalkyl substances (PFAS), tendering for large infrastructure projects has been quiet for a long time. However, this seems to be changing with many tenders on the agenda in 2021.

In **France**, the construction of the Nice Airport Promenade real estate complex and the Neuilly-Sur-Seine hospital complex in Paris are well underway. Other projects in the capital include the construction of the Deloitte University EMEA building and preparatory works for the Saint-Denis Pleyel station (part of the Grand Paris Express). Many tenders remain in and around Paris, with the Grand Paris Express being the biggest driver in the region. The Group also sees potential for activity in the health sector, which is another BESIX speciality.

Finally, after a period of inactivity in **Italy**, BESIX, together with its long-standing partner Donati, has won the tender for the Valfabbrica infrastructure project in Umbria. The Group is in charge of building tunnels, viaducts and bridges for the national road authority ANAS. BESIX is currently looking at several other opportunities in the infrastructure sector, especially as the Group believes that opportunities will gradually increase as the European Recovery Plan reaches cruising speed.

## INTERNATIONAL

Internationally, BESIX stands out in four areas: marine works, high-rise buildings, water treatment plants and complex projects.

The berth structure for Canada LNG, the world-class marine facilities in Mozambique, and the shipping channel through the Vistula Spit in Poland are good examples of the marine works that BESIX International is working on. In the building sector, the Mohammed VI Tower in Rabat (Morocco) is emblematic of BESIX's expertise in high-rises. As for water treatment projects, the La Mé facility in Ivory Coast will provide drinking water to 1.5 million Ivorians. Complex projects include the construction of the Grand Egyptian Museum in Cairo (Egypt).

Despite the protective measures put in place during the pandemic, BESIX International was able to complete several projects. The La Mé drinking water plant was successfully completed, while the Tutankhamun Gallery in the Grand Egyptian Museum was also finished in 2020. On the tender side, the Norwegian road authority awarded BESIX the contract for the design, permit and further development of the E6 Moelv-Roterud infrastructure project. In Africa, BESIX International added another high-profile project to its order book: the Tower F high-rise in Abidjan (Ivory Coast). Lastly, BESIX has been selected as 'Early Contractor' for the marine facilities of the Goldboro LNG project on Canada's east coast.

## MIDDLE EAST

BESIX-Six Construct have been active in the Gulf Cooperation Council (GCC) area since 1965. The region has recently experienced a slowdown in the property market and a year-on-year decline in the number of contracts awarded. This downward trend follows the drastic fall in oil prices before and during the pandemic. Given the region's heavy reliance on oil revenues for public expenditure, governments are increasingly inclined to fill the funding gap by procuring projects on a Build-Operate-Transfer (BOT) or Public-Private Partnership (PPP) basis.

NEUILLY HOSPITAL, PARIS, FRANCE



PARADIS EXPRESS, LIÈGE, BELGIUM



**DESPITE THE PROTECTIVE MEASURES PUT IN PLACE DURING THE PANDEMIC, BESIX INTERNATIONAL WAS ABLE TO COMPLETE SEVERAL PROJECTS. ✓**

After the major financial crisis in 2008 and the downsizing of the Middle Eastern markets in 2014, BESIX-Six Construct seized the opportunity to realign and focus on key sectors and clients (mainly government-related entities). In addition, given the impact of government spending across all sectors, downstream oil and gas projects have maintained the projected yearly spending. Six Construct has therefore made a concentrated effort in 2020 to penetrate this market amidst uncertainty in all other sectors.

In 2020, BESIX-Six Construct were able to grow their portfolio and relationships with key government clients in the region and secure projects such as the Dibba Bulk Handling Terminal in Fujairah (United Arab Emirates) while reaching key milestones and successfully delivering key projects such as the Refuse Derived Fuel facility in Umm Al Quwain (United Arab Emirates), Pedestrian Bridges in Dubai, new quay walls in Umm Al Quwain and Fujairah, the Dubai Deep Stormwater Tunnel and the Wasl Island beachfront main works (Dubai).

In addition, the main concrete activities were completed on the Shindagha bridge (United Arab Emirates) and the first water was produced in December at the Reverse Osmosis plant for Dubai Electricity & Water Authority.

## AUSTRALIA

After 40 years of delivering award-winning buildings, stadiums, hospitals, schools, airports, and defence-related facilities, mainly in Queensland, BESIX Watpac has expanded its capabilities and reach. Today, BESIX Watpac is an engineering-led multi-disciplinary contractor with operations across the whole eastern coast of Australia.

The impact of Covid-19 in Australia forced the closure of state borders for the first time in 100 years. Despite the challenges of closures and lockdown periods, projects adapted with extraordinary efficiency, implementing comprehensive occupational hygiene and safety measures which kept the industry operating.

The real impact of Covid-19 has been a reduction of pipeline opportunities, particularly in Queensland. Private sector spending slowed while government priorities shifted to public safety and welfare, resulting in cancelled tenders, delayed projects, and redirected budgets.

Against this backdrop, the Australian market continues to be highly competitive. However, a number of opportunities remain in key markets and general activity levels are expected to improve, driven by a willingness of governments to see a robust economic recovery post Covid-19.

In 2020, BESIX Watpac set out to drive operational excellence, strengthened its tendering process, and repositioned the company as an engineering-led multi-disciplinary contractor who places relationships at the heart of business success. BESIX Watpac made significant progress on all fronts, culminating in above-budget financial performance and securing the early works contract on the nationally significant 500 million Australian dollars pharmaceutical facility for biotechnology giant CSL in Melbourne.

BESIX Watpac was successfully shortlisted on a number of marine infrastructure projects across the country while completing projects like Herston Quarter in Brisbane, the Military Vehicle Centre of Excellence (Queensland), Mid North Coast Correctional Facility (New South Wales), Sydney's first high-rise school – Arthur Phillip High School – Deakin University (Victoria) and Eight South Esplanade (South Australia) to the highest quality standards. The company's re-branding to BESIX Watpac has gained traction, with the new leadership team firmly in place and well aligned to take the company strategy forward.

Lastly, BESIX Watpac launched specific engagement programs with a focus on local and Indigenous employment. Great progress has been made across its projects, as Watpac collaborates with its subcontractors to maximise employment opportunities for Aboriginal and Torres Strait Islander peoples.

POLY CENTRE, SYDNEY, AUSTRALIA



BARANGAROO STATION, SYDNEY, AUSTRALIA



THEEMSWEGTRACÉ, PORT OF ROTTERDAM, THE NETHERLANDS



DRINKING WATER TREATMENT PLANT, LA MÉ, IVORY COAST

## // Outlook 2021

As for prospective projects planned in 2021, BESIX will not rest on its laurels in Belgium. The Group will play an important role in the 'project of the century' by building the Scheldt tunnel as part of the Oosterweel Link around Antwerp. As for ongoing construction works in Diepenbeek, BESIX will carry out a number of preparatory works for Infrabel. This project includes a new express tram line connecting Hasselt (Belgium) and Maastricht (the Netherlands). The Group is also building the new Brussels headquarters of the French-speaking national television network, RTBF. Finally, the Société wallonne de Financement has entrusted BESIX with the renovation of the Huccorgne Viaduct on the E42 motorway.

Internationally, the year 2021 will see a significant, planned turnover with several large projects reaching their peak months, such as the Vistula Spit shipping channel in Poland, the Mohammed VI Tower in Morocco and the LNG marine facilities in Mozambique. Tenders include several promising projects, which will reinforce BESIX's presence in Ivory Coast and add marine projects to its order book.

In the Middle East, Six Construct will focus its tendering efforts on four strategic sectors: Infrastructure, Marine, Environment and Special Buildings – the latter including Oil and Gas (Hail & Ghasha, Borouge 4), Food Safety (fish farm), Logistics (Dubai South e-commerce facility) and Health (Cardiology Centre of Excellence).

Given the lack of liquidity in the market, clients have increasingly developed procurement mechanisms to involve greater private sector participation (e.g. PPP, concessions).

It is anticipated that by 2021, notable infrastructure and social services projects such as metros, motorways, schools and hospitals will start to be procured under such models. Six Construct has positioned itself with other global partners to take advantage of this new trend and meet the challenges of 2021, with a focus on Abu Dhabi.

In Australia, the government's economic stimulus packages, geared towards infrastructure development, will provide a number of good opportunities in 2021. Being disciplined and strategically targeting projects where BESIX Watpac can add value and build on critical relationships will be a key priority.

BESIX Watpac will continue driving momentum towards its recognition as an engineering-led multi-disciplinary contractor whose expertise is in de-risking complex projects by leveraging its substantial in-house engineering capability, as well as investigating potential equity investment in PPPs or other diversification opportunities. 2021 will also see the prioritisation of the Corporate Responsibility framework including a company-wide sustainability strategy.

By the end of 2021, BESIX Watpac will see the successful completion of the Sun Metals Zinc Refinery expansion project in Queensland, its new head office at Jubilee Place, Poly Centre which forms part of the transformation of Sydney's Circular Quay precinct, and Adelaide Airport Expansion in South Australia, to name but a few. BESIX Watpac looks forward to being successful on some of the major ongoing bids which will confirm its strengthened market proposition.



# Concessions & Assets



A16 DE GROENE BOOG, ROTTERDAM, THE NETHERLANDS

LOCAL POLICE ANTWERP TOWER,  
ANTWERP, BELGIUM



## BUSINESS REVIEW

In Europe, tendering activity in 2020 shifted from the Netherlands to Belgium, where the first projects of a large pipeline of new infrastructure and buildings PPPs were brought to market. Last year was also marked by BESIX's acquisition of all shares in the SPV of the Post X LPA project in Antwerp, for which it already was the sole EPC contractor. Construction works are progressing well for the A16 "De Groene Boog" project in Rotterdam, and BESIX together with its partners signed the DBFM contract for the Via15 project.

In the Middle East, mainly the UAE, BESIX continues to grow its portfolio of environmental projects in municipal waste water treatment and energy from waste. The projects are either concessions – carrying a price and volume risk – or availability payment based.

While the Covid-19 pandemic did not reflect negatively on infrastructure and environmental PPP projects in Europe and the Middle-East, except for some delays in ongoing tenders, the hospitality assets in Belgium, Poland, Switzerland and Montenegro in which BESIX is a co-developer and investor were hit very hard by the almost complete shutdown of corporate and touristic travel. The combination of swift cost-cutting, partial closures and rescheduling of financing agreement, together with various forms of public support, contributed to limited impact of the crisis on cash flows.

## ONE-STOP SHOP SOLUTIONS

BESIX Concessions & Assets (C&A) creates and offers tailor-made solutions covering the complete scope and life-cycle of infrastructural, environmental or building projects. For PPP (Public-Private Partnerships), DBFM (Design Build Finance Maintain) and BOOT (Build Own Operate Transfer) projects, BESIX C&A has the capacity to completely align with its clients' vision and expectations. BESIX C&A provides customised technical, commercial and financing schemes to meet the client's long-term needs, that is to help them optimise an asset's total lifecycle cost.

More than ever, the market demands solutions that provide not only an asset but a total service: Design, Build, Finance, Operate and Maintain. Through its international network and track record, BESIX C&A can arrange competitive funding by bringing financial parties and investors together and look for the optimal financial structure over the economic lifetime of a project. BESIX C&A can provide such solicited added value, offering a broad multidisciplinary range of solutions along the entire value chain and, when appropriate, inject its own capital to finance initial investments.

BESIX C&A skills nicely add to the BESIX Group's strong engineering, design and planning skills. The group's strong balance sheet allows to aim for sizeable equity stakes in the financing part of the projects, together with a strong presence in the joint ventures that will carry out the EPC (Engineering, Procurement and Construction) and O&M (Operation & Maintenance) works. Whether buildings, infrastructure, civil works, road surfacing, or environmental projects, BESIX can do them all. BESIX' worldwide footprint allows for participation in PPP tenders in its three home markets (Benelux-France, Gulf countries and Australia), but also in other emerging countries that consider PPPs as a true value-for-money proposition for the longer term.

RDF FACILITY, UMM AL QUWAIN, UAE



**IN 2021 THE BESIX C&A EUROPE'S TENDERING ACTIVITIES WILL CONTINUE TO BE MAINLY IN BELGIUM, WHERE A NICE PIPELINE OF LARGE PROJECTS BRINGS GOOD PROSPECTS FOR FURTHER GROWTH. //**



WASTE-TO-ENERGY FACILITY, DUBAI, UAE

## MILESTONES 2020

### THE NETHERLANDS

Together with its consortium partners Dura Vermeer, Hochtief, John Laing and Van Oord, BESIX signed the DBFM agreement for the ViA15 motorway PPP project in the Netherlands. Financial close will be reached in 2021 when the Dutch Ministry of Infrastructure and Environment will have irrevocably obtained the necessary permits to launch the construction of the project. Located near Arnhem, this joint venture dubbed "GelreGroen" will build a 12 km section of the A15, which connects it to the A12, and widen an additional 23 km segment of the A12 and A15. The ViA15 project is the sixth successful PPP project for BESIX, in addition to four operational projects (the Second Coen Tunnel, the Limmel Flood Barrier, the Beatrix Lock, the A6 Motorway) and the A16 motorway still under construction.

### BELGIUM

In Belgium, BESIX acquired all shares in the SPV of the Post X LPA project in Antwerp, for which it already was the sole EPC contractor. End of construction for new Police headquarters of the largest city in Flanders is foreseen for the end of 2022, when the operations & maintenance period of 25 years will start. The iconic development is located next to the Antwerp ring road motorway, in a highly visible place for the thousands of motorists who drive, bike and walk by the building each day. The building, consisting of 14 layers of which 10 above ground, represents a total surface of 78,000 m<sup>2</sup> of offices, interrogation rooms, covered parking spaces for police intervention vehicles, as well as all the necessary training and sport facilities.

Tendering activity is ongoing for two motorway PPP projects in Ghent and in Brussels, as well as for the first large environmental PPP project being tendered for a sludge treatment plant by Aquafin (the Flemish public waste water collection and treatment authority). BESIX also submitted together with its consortium partners the prequalification files for two new prison PPP projects, in Flanders and in Wallonia.

### MIDDLE EAST AND AUSTRALIA

In the UAE, Emirates RDF completed the construction of the country's first Refuse Derived Fuel Facility in the Emirate of Umm Al Quwain (UAE). Emirates RDF is a joint venture formed by BESIX, Ajman-based Tech Group holding company, and Finland-based Griffin Refineries. The facility received the first tonnes of municipal waste during summer, from residents living in the Emirates of Umm Al Quwain and Ajman. The waste is converted into an alternative energy source called Refuse Derived Fuel (RDF), which is used as a fuel in cement

## // Outlook 2021 and beyond

In 2021 the BESIX C&A Europe's tendering activities will continue to be mainly in Belgium, where a nice pipeline of large projects brings good prospects for further growth. Out of Brussels, C&A will also continue to actively consider new sectors, as well as Private-to-Private DBFMO opportunities for which the team was reinforced in late 2020 by creating "C&A New Ventures". The goal is to develop new types of assets such as datacentres, warehouses, heat networks, geothermal energy, green hydrogen production; etc.

In the GCC, BESIX C&A will continue working towards financial close of the huge waste-to-energy project in Dubai. Tendering activity will continue to be mainly focused on the UAE, with projects currently under review for hospitals, logistic platforms, and more solid waste projects.

BESIX C&A will continue to support Watpac in moving up the PPP value chain, from being a mere contractor to an active participant in SPVs through equity stakes. The first bids with Watpac as partner in the SPV were submitted in 2020, the outcome of some is still pending. A few countries in Africa where BESIX is already active, or where it has solid partners, also provide PPP and DBFMO opportunities that will be considered on a selective basis.

factories instead of coal. It simultaneously results in a diversion of at least 90 % of household waste from landfill. In December, BESIX together with Dubai Holding, DUBAL, Itochu Corporation, Tech Group and Hitachi Zosen Innova signed the Concessions Agreement with Dubai Municipality for the Warsan 5,000 tonnes/day waste-to-energy project. Financial close will be reached during the first half of 2021, with project delivery foreseen for 2024.

In Australia, BESIX Watpac participated for the first time in PPP tenders not only as D&C Contractor, but also as a partner in the equity of the project.

# Real Estate

## BESIX RED SEIZED EVERY OPPORTUNITY TO REINVENT ITSELF IN 2020

MARKED BY AN UNPRECEDENTED PERIOD OF UNCERTAINTY DUE TO THE OUTBREAK OF COVID-19, BESIX RED'S MAIN PRIORITY HAS BEEN THE HEALTH AND SAFETY OF ITS TEAM MEMBERS, CLIENTS AND PARTNERS AS WELL AS ENSURING THE CONTINUITY OF ITS ACTIVITIES THROUGHOUT 2020.

THE BESIX RED TEAM HAS PROVEN ITS ADAPTABILITY, DETERMINATION AND COMMITMENT BY TURNING THESE CHALLENGING TIMES INTO OPPORTUNITIES TO RETHINK ITS REAL ESTATE DEVELOPMENT PROGRAMS IN DEPTH, STRENGTHEN ITS RELATIONSHIPS WITH ITS KEY ACCOUNTS, DEVELOP A NEW STRATEGIC AXIS IN ORDER TO POSITION ITSELF AS AN «INVESTMENT ADVISOR» FOR FAMILY OFFICES AND INSTITUTIONAL INVESTORS AND ACCELERATE ITS DIGITAL TRANSFORMATION WITH THE LAUNCH OF BESIX RED 2.0.

*IN THIS VERY PARTICULAR YEAR 2020, WE BRAVED THE STORM TOGETHER. WE WERE ABLE TO SEIZE EVERY 'BREEZE' AND TRANSFORM IT INTO AN OPPORTUNITY. MORE THAN EVER, THE CRISIS PUT PEOPLE AT THE HEART OF THE VALUE CHAIN AND REVEALED THE STRENGTH OF A TEAM. I WOULD LIKE TO THANK AND HIGHLIGHT THE DETERMINATION, COHESION AND ADAPTABILITY OF THE BESIX RED TEAM AND OUR PARTNERS. //*

**GABRIEL UZGEN,  
CEO BESIX RED**



OXYGEN, BRUSSELS, BELGIUM

With financial results below expectations, BESIX Real Estate Development (BESIX RED) nevertheless closes the year with a turnover of 92.8 million euros, a return on equity of 10.4% and a strong pipeline of 27 projects under development representing a future sales value of more than 1 billion euros. Impacted by a slowdown in the process of obtaining permits and urban planning authorisations, the company has taken advantage of this period to reinvent itself and seize new opportunities.

## 2020, A CATALYST FOR TRANSFORMATION

As soon as the health crisis started, BESIX RED set up working groups to thoroughly rethink its development programs for residential, with larger developments offering outdoor space, as well as offices and retail projects.

Despite the challenges, BESIX RED remained fully operational and committed to its clients by organising regular meetings via Zoom and Teams to accompany them as much



ICÔNE, BELVAL, LUXEMBOURG

as possible during this difficult period and investing in new tools to allow them to visit properties remotely, even during lockdown periods.

BESIX RED also took the opportunity to develop a new strategic axis by positioning itself as an "Investment Advisor" for family offices and institutional investors such as European Fund Managers.

Early 2020, BESIX RED 2.0 was also launched and its deployment is ongoing, with the objective of:

- facilitating remote collaboration between team members, with the implementation of Teams, Planner, OneDrive and SharePoint
- simplifying processes and increasing productivity with the development of PFP, a unique and customised platform for project management
- and guaranteeing the continuity of its activities with its customers by adopting a digital signature tool for secure remote transactions.

## COMMERCIAL AND OPERATIONAL RESULTS

The company's turnover of 92.8 M € was driven by the sales of residential properties (Sluishuis in Amsterdam, Les Promenades d'Uccle, So Stockel, The Cosmopolitan and Oxygen in Brussels, Esprit Courbevoie in Louvain-la-Neuve, Dunant Gardens in Ghent and Meadow in Herent), but also offices and retail, mainly located in Luxembourg with the Quatuor project and in Brussels with Oxygen's commercial and office space.

This proves that BESIX RED's diversification strategy, both geographical and sectoral, helps to mitigate the risk and remains a sustainable growth lever.

Despite the difficult context, BESIX RED was able to deliver more than 80,000 m<sup>2</sup> of residential and tertiary projects in 2020, including :

- Oxygen (Brussels): a mixed-use project of more than 11,100 m<sup>2</sup> in Auderghem comprising 89 apartments, a commercial ground floor and an office space hosting the regional headquarters of KBC
- Quatuor (Luxembourg): 4,600 m<sup>2</sup> office space sold to Monceau Assurances
- Soho (Luxembourg): the third phase of this residential project of 4,212 m<sup>2</sup> comprises 35 apartments
- Esprit Courbevoie (Louvain-la-Neuve) : the first phase of this new district residential covers 22,500 m<sup>2</sup>, which corresponds to 215 units
- Kaai District - Public Part (Aalst) : 24,300 m<sup>2</sup> project delivered to NMBS and including 900 parking spaces for commuters as well as offices and a bicycle parking

It maintained the continuity of the construction works of :

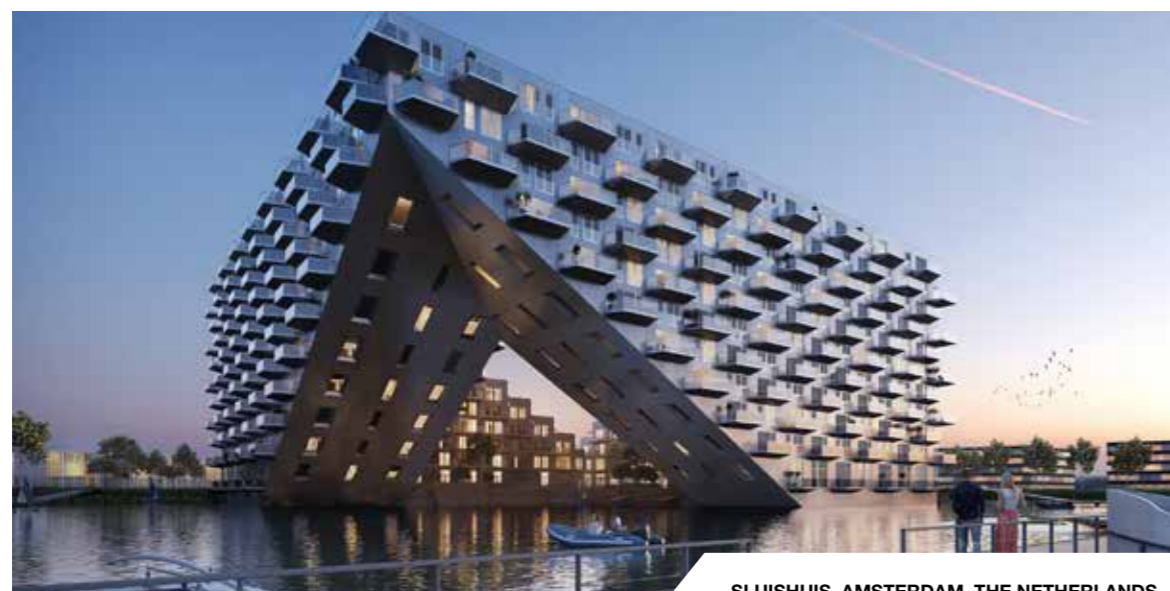
- Sluishuis (Amsterdam): an architecturally ambitious residential project of 39,500 m<sup>2</sup> comprising 450 units in the new district of IJburg
- Meadow (Herent): the second phase of this residential project in the village of Herent, near Leuven, comprises 7,500 m<sup>2</sup> with 64 units
- So Stockel (Brussels): the first phase of this residential project, close to the green promenade, counts 15,000 m<sup>2</sup> including 138 units

It has been able to launch the construction of the following projects:

- Les Promenades d'Uccle (Brussels): a residential project of which the second phase includes 12,800 m<sup>2</sup> with 81 units
- Esprit Courbevoie (Louvain-la-Neuve): the second phase of this new district connected to the Louvain-la-Neuve train station includes 201 residential units and 8,500 m<sup>2</sup> of offices
- Icône (Belval, Luxembourg): this landmark project includes nearly 17,300 m<sup>2</sup> of office space and an additional 1,500 m<sup>2</sup> of shops and restaurants.



KAAI DISTRICT, AALST, BELGIUM



SLUSHUIS, AMSTERDAM, THE NETHERLANDS



ESPRIT COURBEVOIE, LOUVAIN-LA-NEUVE, BELGIUM



DUUO, LISBON, PORTUGAL

BESIX RED has also made progress in the elaboration of programs for the purpose of permit submission of significant and large-scale projects such as Cours Saint-Michel in Etterbeek, Le Côté Verre in Namur, Faïencerie and Walferdange in Luxembourg.

The company was also very pleased to see its iconic landmark, The Cosmopolitan, making it to the final stage of the prestigious MIPIM Awards. At the end of the year, the same project was selected for the next EU Prize for Contemporary Architecture - Mies van der Rohe Award, which will take place in 2022.

## OUTLOOK

BESIX RED's growth perspectives are positive with several transactions in the process of being finalised in several European cities and a pipeline of 27 projects (more than 724,000 sqm), corresponding to more than one billion euros in commercial value.

In addition to its consolidation strategy in Belgium and Luxembourg, BESIX RED wants to seize the opportunities for expansion on a pan-European scale. In Portugal, the group's first residential project in the country, named DUUO, has obtained its architecture licence and is about to be commercialised. New projects are actively being studied on the Dutch market. In France, the company is looking into the possibility of acquiring or partnering up with other real estate developers.

Finally, leveraging on its expertise and new strategic axis as "Investors Advisors", BESIX RED intends to accompany upstream more family offices and institutional investors such as European Fund Managers in their real estate investment projects, taking a joint stance and sharing the development risk, and success.

# Diversification

## Flamant

[www.flamant.com](http://www.flamant.com)

Flamant creates inspiring interior collections that turn every house into a welcoming home, offering furniture, decorative items, textiles, wallpaper, and its own range of Flamant Paints. With seven company-run stores in Belgium and France, many partner shops on every continent and an online shop, it has a global presence. The focus is on three core activities: Retail, e-Commerce, Wholesale & Franchise.

2020 was a very eventful year for Flamant, with the temporary closure of shops, reduced sales to wholesale customers and enormous pressure on all employees. But it was also the year that Flamant showed its strength as an agile company, turning threats into opportunities. As a medium-sized business, Flamant was able to get all departments on the same page to switch gears quickly in March. The company invested heavily in e-commerce to weather the pandemic and managed to come out at the other end with a positive balance. The exponential growth in online shopping proved to be a blessing for Flamant, with the online shop becoming the company's best-selling shop in 2020. The unique global situation shifted people's focus to their home environment and interior design – with people buying decoration rather than clothing – while demand for functional and aesthetic solutions for teleworking increased. Strategic marketing support for the online component helped attract many new customers. And thanks to a 360° Virtual Showroom, wholesale customers got the chance to discover and purchase new collections remotely. In the coming years, the company wants to combine the strong growth of e-commerce with the expansion of brick-and-mortar shops.

### // Milestones in 2020

- // In September 2020, Flamant opened a 300 m<sup>2</sup> shop in Aix-en-Provence: the second French and seventh company-run shop.
- // Both in Belgium and in France, all shops had to be closed twice to stop the spread of coronavirus, and the newly opened shop in Jordan also had to close its doors for a while. As soon as shopping was allowed again, there was a strong focus on creating a safe and pleasant shopping experience via a Safe Shopping Plan.
- // The Flamant online shop became the company's best-selling shop of 2020, thanks to strong marketing support in SEA and SMA, and due to the rapidly changing consumption pattern of our target audience from the first lockdown onwards.
- // With its #donatecheer end-of-year campaign, Flamant collected 203 kg of old Christmas decorations for 35 local care organisations. In the same period, Chief Creative Officer Alex Flamant went on a PR tour of all Flamant shops to further strengthen the connection with the customer.



## OPENING OF A 7<sup>th</sup> FLAMANT SHOP, IN AIX-EN-PROVENCE

7<sup>th</sup>

SHOP FOR  
FLAMANT

2<sup>nd</sup>

FLAMANT SHOP  
IN FRANCE

**Location:** Aix-en-Provence, France

**Period:** Opened in September 2019

With a 300 m<sup>2</sup> shop on the corner of Avenue Victor Hugo and the famous shopping boulevard Cours Mirabeau, Flamant opened its second shop in France in September 2020. Flamant now has seven company-run shops and distributes its products through more than 500 points of sale worldwide. In 2020, an important layer was added: the Flamant online shop. While he invested heavily in e-commerce during the coronavirus pandemic, CEO Kurt Moons remains convinced of the added value of the physical shopping experience: "Our data showed that we had been very successful online in the south of France for several years. A brick-and-mortar shop was the logical next step." The Belgian interior brand set up shop in a historic building with a large courtyard garden in the centre of Aix-en-Provence, where the local sales team now welcomes interior design enthusiasts who are looking for that unique Flamant style: Belgian quality with worldly influences.

## LN24

[www.ln24.be](http://www.ln24.be)

LN24 is the first 360° continuous news media on television and on the internet (website, app and social media) in French-speaking Belgium. LN24 covers political, economic, cultural and sports news at national, European and international level. It decodes current events and major social phenomena, while giving priority to live coverage when the news requires it.

LN24 celebrated its first year in 2020 in the turbulent context of the Covid-19 crisis. LN24 has demonstrated the relevance of its model and its complementarity with other media by providing qualitative, non-anxious, complete and contextualised information, helping to fight against Fake News. LN24 thus increased its reputation and audience in a collapsing advertising market, by accelerating its revenue diversification strategy.

### THE LARGEST TELEVISION NEWS PROVIDER IN BELGIUM

- // 13 newscasts, including three in the evening, with the first and last also broadcasted on Facebook Live;
- // On average a minimum of eight hours of live news programmes produced per day;
- // A unique Digital Lab in Belgium, launched in 2020, which offers an innovative approach to digital media storytelling on current affairs.

### A UNIQUE BUSINESS MODEL

- // Cost control thanks to automated, mobile and agile technical solutions;
- // LN24 Brandhouse: launched in 2020 and offering studio rental & communication consultancy, allowing LN24 to benefit from revenues not only from advertising.



### CONTENT WITH A SOCIETAL DIMENSION

- // "PME Positive" is an initiative that offered advertising space to SMEs in the midst of the pandemic;
- // "Ici et pas ailleurs" is a talk-show that supported the Belgian tourism sector during the 2020 summer.

### // Milestones in 2020

- // LN24 has established itself as a reference source of continuous news. A "small" 100 % Belgian 24-hour news channel that has grown its audience faster than similar channels in other countries in just over a year;
- // Every week, more than 2.7 million people watch LN24 on television, 400,000 visitors on ln24.be and a committed community of almost 200,000 subscribers on its social networks;
- // An average audience of 0.65 % across its sociodemographic category (+4) and of 0.9 % in the GS 1-4 (25-54 years) target group in 2020;
- // An audience profile mainly made up of social groups 1 to 4 typical of 'quality media', different from traditional audiovisual media;
- // A high level of credibility with opinion leaders, while being a media brand that is now known by all audiences in French-speaking Belgium.

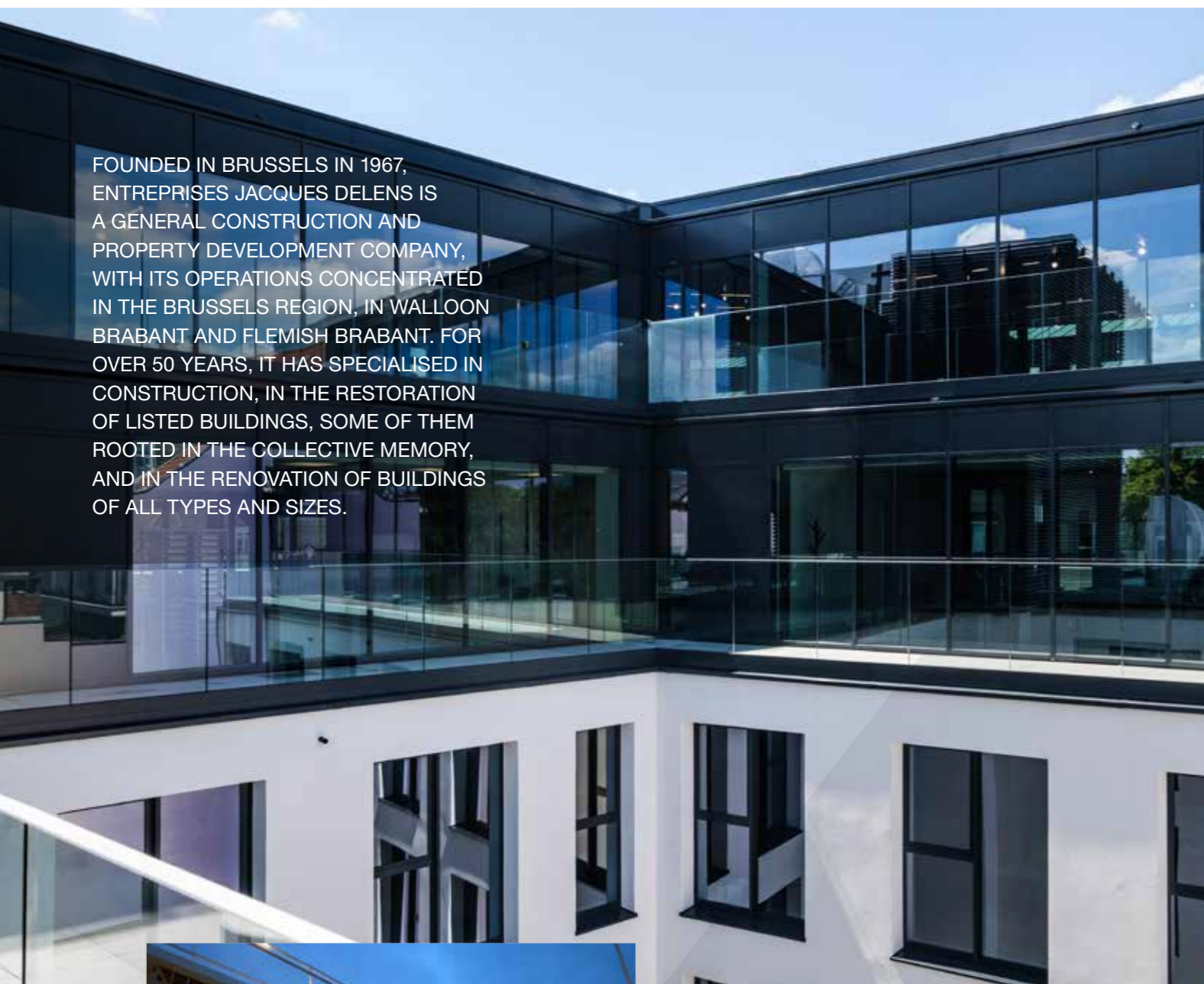
06 /

# REGIONAL & SPECIALISED ENTITIES IN EUROPE

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FOUNDED IN BRUSSELS IN 1967, ENTREPRISES JACQUES DELENS IS A GENERAL CONSTRUCTION AND PROPERTY DEVELOPMENT COMPANY, WITH ITS OPERATIONS CONCENTRATED IN THE BRUSSELS REGION, IN WALLOON BRABANT AND FLEMISH BRABANT. FOR OVER 50 YEARS, IT HAS SPECIALISED IN CONSTRUCTION, IN THE RESTORATION OF LISTED BUILDINGS, SOME OF THEM ROOTED IN THE COLLECTIVE MEMORY, AND IN THE RENOVATION OF BUILDINGS OF ALL TYPES AND SIZES.



BREDERODE, BRUSSELS



ESPRIT COURBEVOIE, LOUVAIN-LA-NEUVE

With its three construction entities (Jacques Delens, Sud Construct and Corebat), Jacques Delens operates in both public and private markets, including the renovation and modernisation of care units, office development and renovation, and the construction of luxury housing.

The year 2020 has imposed two major challenges on the company.

The first of these was of course the Covid-19 pandemic. The company and its entities have adapted their organisation on site in order to guarantee the safety of workers. This was a success as no Covid-19 outbreaks have developed on any of the construction sites. However, this did not prevent the results from being severely affected by the lockdowns and the economic downturn.

The second challenge faced by the company was, in parallel with the Covid-19 crisis, a recomposition of its managerial organisation. During the year, a new team

was progressively put in place. The considerable efforts made throughout the year by all Jacques Delens' teams are beginning to bear fruit, particularly in terms of efficiency and quality, which was necessary and is encouraging.

Despite these challenges and the continuation of the worksites under difficult conditions, the company delivered some outstanding and ambitious projects. This is mainly due to the quality of the work carried out by its teams, helping to build new confidence and promising a return to positive profitability.

 [www.jacquesdelens.be](http://www.jacquesdelens.be)



## // Flagship project

### BRÉDERODE II

**6** FLOORS / **5** BASEMENT LEVELS

**Work surface:** 12,800 m<sup>2</sup>

**Concrete:** 600 m<sup>3</sup>

**Steel:** 60,000 kg

**Natural stone façades:** 1,160 m<sup>2</sup>

**Period:** April 2018 - June 2020

**Description:** Entreprises Jacques Delens, in joint venture with Galère, carried out the major renovation of the Bréderode II office building (Brussels, Belgium) for Befimmo. The renovation work, including special techniques, was carried out for a total amount of 15 million euros (excluding VAT).

Once renovated, the building was rented in its entirety by Befimmo to McKinsey. Following the signing of this lease contract, Jacques Delens received the order for additional works for an amount of 8 million euros, bringing the total amount for the complete renovation of the building, including interior finishing, to 23 million euros.

The additional works consisted mainly of interior partitions, lighting, floor and wall coverings, painting and major modifications to the HVAC installations.

The work was carried out with the help of a BIM model developed on the basis of the architects' model, an "as-built" BIM file.

The main challenge of this project was to meet the tight schedule. To do this, Jacques Delens was able to count on a fully committed site team, on the implementation of the LEAN planning and on a perfect collaboration with the project owner Befimmo, the authors of the project and the design offices.

The building was delivered on time, respecting the quality criteria required by McKinsey, to the complete satisfaction of the project owner and its tenant.

## // Projects in 2020

### FALCON //

#### Groot-Bijgaarden, Belgium

Renovation of an existing office building (8,800 m<sup>2</sup>) including complete interior finishing, special techniques, new roof cladding, adaptation of the façades and redesign of the surroundings.

### ESPRIT COURBEVOIE //

#### Louvain-la-Neuve, Belgium

New construction of housing, student flats, offices, shops on the slab of the SNCB car park.

### HAMOIR //

#### Uccle, Brussels, Belgium

Construction of a building of 23 flats on six floors, including 47 parking spaces on two floors in the basement.

### ROYAL LOUISE //

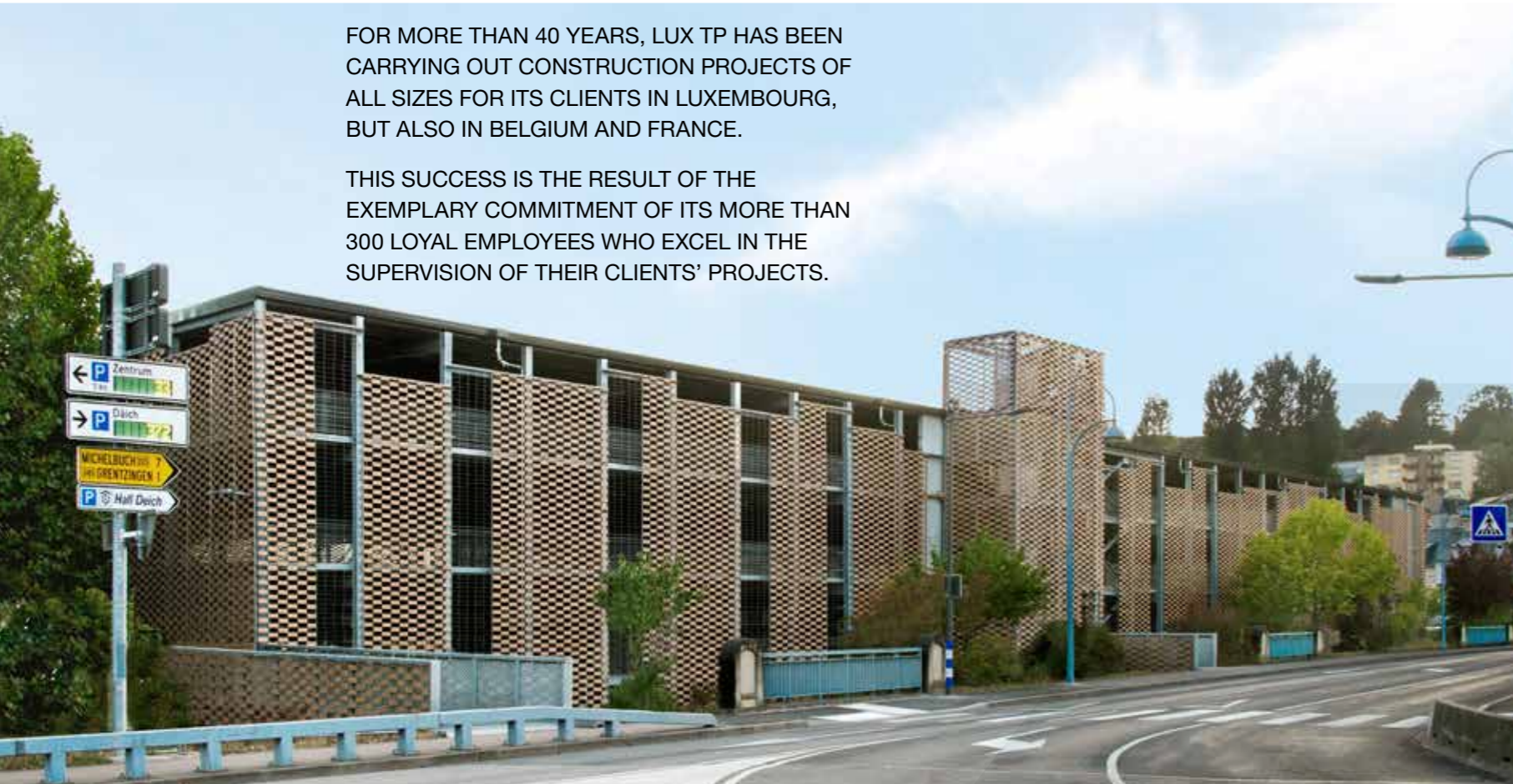
#### Ixelles, Brussels, Belgium

Construction of a residential complex consisting of 77 flats and 90 underground parking spaces.



FOR MORE THAN 40 YEARS, LUX TP HAS BEEN CARRYING OUT CONSTRUCTION PROJECTS OF ALL SIZES FOR ITS CLIENTS IN LUXEMBOURG, BUT ALSO IN BELGIUM AND FRANCE.

THIS SUCCESS IS THE RESULT OF THE EXEMPLARY COMMITMENT OF ITS MORE THAN 300 LOYAL EMPLOYEES WHO EXCEL IN THE SUPERVISION OF THEIR CLIENTS' PROJECTS.



PUBLIC PARK HOUSE,  
ETTELBRUCK (LUXEMBOURG)



Choosing both the right projects and the right partners and subcontractors is another key element in successfully carrying out projects of all kind, from the most modest to the most ambitious. Respect, flexibility, a proactive approach and a positive attitude are the core values of Lux TP.

Its construction sites include buildings, roads, engineering structures, car parks, wastewater treatment plants, residences, conversions, railways and outdoor installations, among others.

Customer satisfaction and respect are essential cornerstones of the company's corporate culture and philosophy.

To this end, its competent and motivated employees do their utmost to achieve its objectives for quality, health and safety, and environmental protection objectives. Lux TP is ISO 9001, ISO 14001 and ISO 45001 certified.

The acquisition of MABILUX is bearing its first fruits, as demonstrated by the Deichwiesen car park project. The metal framework and cladding were placed by MABILUX, with the detailed finishing carried out by Lux TP.



## // Flagship project

### PUBLIC PARK HOUSE

# 424

SPACES

**Location:** Ettelbruck, Luxembourg

**Period:** January 2019 - December 2020

**Description:** The project consists of the design and construction of an above-ground car park of approximately 424 spaces, to the right of the Deichwiesen car park site, and the redevelopment of the area under the new construction.

The construction has been designed in such a way as to allow for the addition of an extra floor at a later date.

The Park House site lies in a flood zone. A particular requirement was to guarantee maximum operation of the Park House during periods of high water. The ground floor level (200.40 MSL) was chosen to limit its flooding in order to better protect the technical installations and limit subsequent cleaning operations.

## // Projects in 2020

### CHRIPLAN // Luxembourg-Gasperich, Luxembourg

**Construction of an office building**, in the shape of a quadrilateral, with the sides approximately parallel to the boundaries of the parcel, except at the rear boundary. There are four floors above ground and four basement floors.

### WASTEWATER TREATMENT PLANT // Mamer, Luxembourg

**Renovation, modernisation and expansion of the electromechanical equipment:** equipping the wastewater treatment plant with cutting-edge technologies to increase its capacity and improve energy efficiency and treatment quality.

### ICÔNE // Belval, Luxembourg

**Administrative centre.** Located on the Franco-Luxembourg border, the Icône building is a collaborative office project that echoes Belval's rich industrial heritage.

### LUXEMBOURG RAILWAYS STORAGE AND MAINTENANCE CENTRE //

Howald, Luxembourg

Construction work for a new marshalling yard.





FOUNDED IN 1928, VANHOUT IS A GENERAL CONTRACTOR THAT HAS GROWN INTO A DIVERSIFIED CONSTRUCTION GROUP. THE VANHOUT GROUP COMPRISES THE FOLLOWING COMPANIES: VANHOUT, HBS (FINISHING COMPANY), VANHOUT PROJECTS (PROJECT DEVELOPMENT), COMTIS SERVICES (TECHNICAL AND STRUCTURAL MAINTENANCE), COMTIS INSTALLATIONS (HVAC INSTALLATIONS), ENERGIECONCEPTEN (SUSTAINABLE ENERGY), ISOFOAM, ISOCHAPE AND ISOPEARLS. RECENTLY THE NEWLY-FOUNDED COMTIS ENERGY WAS ADDED TO THE LIST.



LOUISE MARIE,  
ANTWERP



FIERENS BLOCKS, ANTWERP



VELODROME, HEUSDEN-ZOLDER

The Covid-19 pandemic made 2020 an exceptional year for Vanhout Group. During March, April and May, its contracting activities were seriously disrupted by the imposed measures. Despite this disturbance, the turnover of Vanhout group was down by only 10 %.

A reorganisation of Vanhout and Vanhout Bilzen was carried out in mid-2020 to increase profitability in the competitive market. The ISO and VCA audits were successfully passed. After a two-year process, Vanhout was awarded the contract for the cycling track in Heusden-Zolder. It also received confirmation of the contract to renovate the new headquarters of the Belgian Building Research Institute. In the residential sector, Vanhout remains active with new housing projects for BESIX Real

Estate Development and Vanhout Projects in Herent and for Ultrium in Antwerp. Its subsidiaries have weathered the pandemic well and maintained their profitability. In between the two lockdowns, Vanhout Projects welcomed Minister Matthias Diependaele to its Collegium project in Zottegem. The Minister's alma mater is being converted into 68 luxury apartments. Energieconcepten, which was hit hard by the lockdowns, saw its loss of sales in the private sector offset by the installation of solar panels as 1,060 panels were placed on the roof of the Sint-Anna residential care centre in Herentals. Internally, Vanhout Group launched its cafeteria plan as a way to encourage sustainable mobility.



## // Flagship project

### LOUISE MARIE

207

APARTMENTS AND  
PENTHOUSES

2

BUILDINGS

**Location:** Antwerp, Belgium

**Period:** 2019 - end 2021

**Total value:** 34 million euros

**Parking:** three underground levels with 258 parking spaces on a surface of 9,582 m<sup>2</sup>

**Description:** On the site of the former Louise Marie children's hospital, on the corner of Karel Oomsstraat and Desguinlei, Vanhout is carrying out a new residential project with Cores.

Under the name Louise Marie, the project comprises 207 apartments and penthouses, spread over two buildings connected by an acoustic glass screen. Louise Marie is set to be an architectural gem with an interplay of light, glass and water that also continues between the buildings.

## // Projects in 2020

### VELODROME // Heusden-Zolder, Belgium

Large modern sports complex at the Circuit Zolder with, as its key feature, a new Velodrome for international cycling championships. The velodrome will be able to host European, World and other international championships. The Wielerdroom consortium has been commissioned to realise this ambitious 15,000 m<sup>2</sup> project by 2023.

### BELGIAN BUILDING RESEARCH INSTITUTE // Zaventem, Belgium

Attractive renovation project for the new BBRI headquarters in Zaventem. A sustainable, future-oriented renovation project in terms of energy performance, circular economy and greening of the urban environment. The building will be ready by the end of April 2022.

### FIERENS BLOCKS // Antwerp, Belgium

Renovation, new construction and long-term maintenance of the Fierens social housing blocks. The two blocks will be converted into 122 affordable homes with communal areas and eight retail spaces. There will also be a courtyard with views of the street and rooftop gardens. The project will be completed in 2022.

### AP COLLEGE // Antwerp, Belgium

Over the next two years, Vanhout will transform one of the two large halls on the Antwerp slaughterhouse site into a modern school building with classrooms and laboratories. A new nine-storey tower is also under construction on the same site.



WUST IS A GENERAL CONSTRUCTION COMPANY OPERATING IN WALLONIA AND THE GRAND DUCHY OF LUXEMBOURG. IT BUILDS RESIDENTIAL COMPLEXES, OFFICES, INDUSTRIAL HALLS AND RETAIL OUTLETS, EDUCATIONAL, HEALTH AND MEDICAL CARE BUILDINGS, SPORTS AND LEISURE FACILITIES. IT ALSO UNDERTAKES RESTORATION AND RENOVATION WORK AND INDUSTRIAL SERVICES. ITS SUBSIDIARIES AND ITS REAL ESTATE DEVELOPMENT DEPARTMENT COMPLETE ITS RANGE OF SERVICES.



DOMAINE DU PARC, VERVIERS



AXS, NAMUR



WEISWAMPACH LAKES HOTEL COMPLEX, LUXEMBOURG

2020 was marked by the Covid-19 pandemic. Even so, Wust has ended the year with positive results. 2021 looks promising, with the signing of major orders, including the AXS real estate project in Namur and the Weiswampach Lakes hotel complex in Luxembourg.

Among the main completed projects were the Domaine du Parc nursing and care home in Verviers, the Val d'Orbais in Perwez, built in a temporary consortium with Jacques Delens, and the Athénée d'Ans-Aller. The projects initiated by the Real Estate department are being successfully continued in Belgium and Luxembourg.

Large-scale construction sites are underway: Legiapark in Liège, consisting of buildings intended for biotech companies, undertaken in Bouwteam mode, and Solarec in Baudour, which includes an extension to the factory and the construction of a proprietary wastewater treatment plant.

2021 will undoubtedly be a challenging year, particularly in terms of continuing and firmly anchoring the expansion of activities in the province of Hainaut. The BESud project, the driving force behind the strengthening of collaboration between the Walloon entities of BESIX Group, will certainly be one of the keys to its success.

 [www.wust.be](http://www.wust.be)



## // Flagship project

### DOMAINE DU PARC

**148** / **26**  
ROOMS / APARTMENTS

**Location:** Verviers, Belgium

**Key figures:** 148 rooms for the nursing home part, 26 apartments in serviced residences, 2,000 m<sup>2</sup> on each of four levels, i.e. a total surface area of 8,000 m<sup>2</sup>.

**Period:** 2017 - 2020

**Description:** WUST has completed the construction of the nursing and care home in the Domaine du Parc in Verviers. Developed in Bouwteam mode for Entour'Agés, it is the centrepiece of the Domaine du Parc project, enabling people of different generations to evolve together in the privileged environment of the Peltzer Park, also remodelled for this purpose.

In addition to the construction of the nursing home, WUST contributed to the overall development of the project through its Real Estate Department. Four apartment blocks will complete the complex. One of them, Le Chêne, has been finalised and the second, Le Châtaignier, is in progress.

## // Projects in 2020

### AXS // Namur, Belgium

**Construction of a 39,000 m<sup>2</sup> real estate project**, consisting of a 102-room hotel, five office buildings, a 222-room student residence and a 388-space basement parking lot. This project is being carried out in a temporary consortium with Baltisse.

### WEISWAMPACH LAKES HOTEL COMPLEX // Weiswampach, Luxembourg

**Structural work for the hotel complex.** This project will include a hotel as well as various facilities: wellness, office, restaurant and bar. This project is being carried out for Lamy Construction SàRL.

### GALERIE LÉOPOLD // Spa, Belgium

**Complete and identical restoration of the Galerie Léopold II and the Marie-Henriette Pavilion in Spa**, carried out as part of a temporary consortium for the City of Spa.

### SOLAREC // Baudour, Belgium

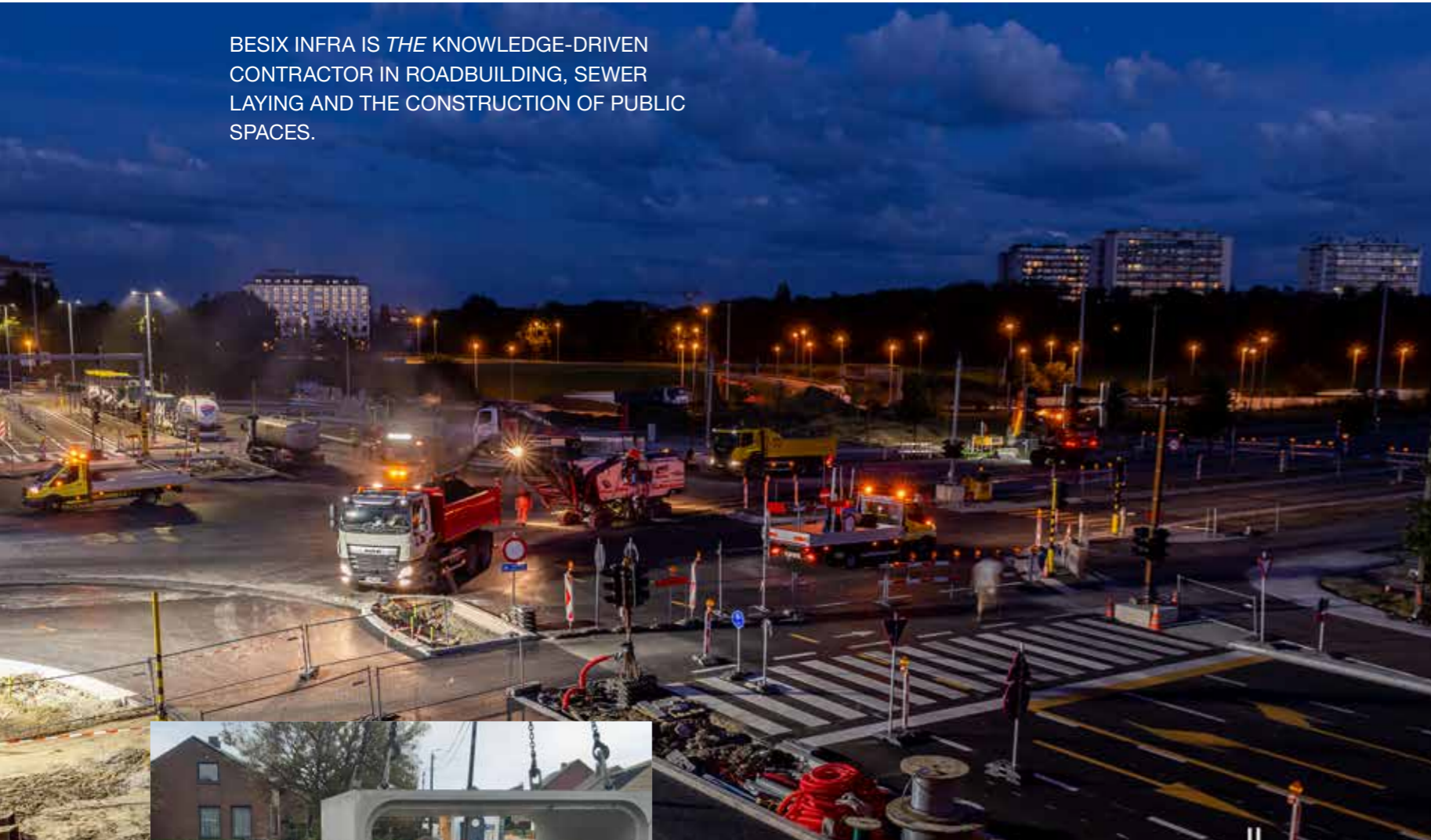
**Building the extension of the Laiterie des Ardennes factory in Baudour to accommodate a mozzarella production unit.** The second part of the project consists of the construction of a proprietary wastewater treatment plant. These construction sites are being carried out in a temporary consortium for customer Solarec.

### LES HEURES CLAIRES - SERVICED RESIDENCES // Spa and Limburg, Belgium

**Construction of serviced residences, in the form of extensions to the current buildings, for the Intercommunale des Heures Claires.** The Spa site will have 39 units over six levels. In Limburg, 44 service apartments will be created next to the Léon d'Andrimont nursing home.



BESIX INFRA IS *THE* KNOWLEDGE-DRIVEN CONTRACTOR IN ROADBUILDING, SEWER LAYING AND THE CONSTRUCTION OF PUBLIC SPACES.



PLANTIN EN MORETUSLEI, ANTWERP



PROVINCIEBAAN, BEKKEVOORT

BESIX Infra is one of the top 3 players on the Belgian public and private infrastructure markets.

The facilities in Bilzen and Burcht have their own concrete and recycling sites. Its subsidiary Belasco, in Bilzen, Ghent and Puurs, also has its own asphalt production facilities.

BESIX Infra is profiling itself not only as operating to market standards, but increasingly as a genuine partner in terms of communication, neighbourhood consultation and limiting nuisances.

The year 2020 was dominated by the Covid-19 pandemic. From the outset, BESIX Infra continued to work (with appropriate measures), as its core business

happens largely in open air. Despite more difficult working conditions, such as delivery problems, BESIX Infra was able to complete a number of large projects. After two years of hard work, the reconstruction of the *Plantin en Moretuslei* boulevard in Antwerp was completed. In Ghent, the *Groen Staakstraat* was delivered and major infrastructure works in the village centre of Strombeek-Bever were completed. A number of new projects were also launched, including the reconstruction of the N111 in Stabroek, the construction of the new screw pumping station at the Royers lock and the disconnection of the Wolfshaegen pumping station in Huldenberg.

 [www.besixinfra.com](http://www.besixinfra.com)



## // Flagship project

### PLANTIN EN MORETUSLEI

**Location:** Antwerp

**Period:** January 2019 - December 2020

**Description:** After two years of hard work, the infrastructure works on the Plantin en Moretuslei were completed at the end of 2020. This multidisciplinary project was divided in stages to limit the nuisance on this important access road to the city. The project also included the renovation of the Borgerhout access complex on the Antwerp Ring and the renovation of the Singelkruispunt. In the summer of 2020, the reconstruction work on the intersection with the Provinciestraat was carried out day and night, a complex operation involving the relocation of the tram tracks, in order to make the intersection much simpler for users. Everywhere, the asphalt has been renewed, new cycle and pedestrian paths have been created and the intersections have been made safer. Underground, the sewer system has been replaced.

## // Projects in 2020

### RECONSTRUCTION OF N111 // Stabroek, Belgium

BESIX Infra is responsible for the complete reconstruction of the N111 in Stabroek, including the laying of new sewers. The clients are the Flemish Roads and Traffic Agency (AWV), Aquafin and the municipality of Stabroek.

### BICYCLE HIGHWAY F3 // Brussels, Belgium

BESIX and BESIX Infra are building a bridge over the Ring to complete the last section of the F3 bicycle highway between Brussels and Leuven. The client is the government mobility agency 'De Werkvennootschap'.

### REFURBISHMENT OF THE PROVINCIEBAAN // Bekkevoort, Belgium

Construction of a separate sewer system, safe crossings, new bus stops and separate cycle paths. A new conduit has been laid under the intersection with the Klipgaardestraat, allowing the Begijnenbeek stream to flow freely and minimising flooding.

### PUITVOETSTRAAT // Sint-Niklaas, Belgium

BESIX Infra is installing a separate sewer system, with one set of drainage pipes for rainwater and another for waste water. The above-ground infrastructure will also be completely renewed.



FRANKI FOUNDATIONS HAS SPECIALISED IN DEEP FOUNDATIONS FOR OVER A CENTURY, DELIVERING MORE THAN 500 PROJECTS EACH YEAR IN DIFFERENT SECTORS: HOUSING, OFFICE CONSTRUCTION AND INFRASTRUCTURE WORKS, AS WELL AS PROJECTS IN INDUSTRIAL ENVIRONMENTS LIKE PETROCHEMICALS, THE NUCLEAR SECTOR OR HIGH VOLTAGE POWER LINES.



AMPSIN-NEUVILLE LOCK, BELGIUM



A16 DE GROENE BOOG, ROTTERDAM, THE NETHERLANDS

Proud of its Belgian roots, Franki Foundations also has several subsidiaries abroad: Atlas Foundations in France, Franki Grondtechnieken in the Netherlands, Franki Foundations UK and Martello Piling in the UK.

Without a doubt, 2020 was a special and difficult year around the world. Like many other sectors, the company had to put a large number of its sites on hold, for shorter or longer periods, before adapting to new ways of working. Additionally, many decision-makers, especially in France and the United Kingdom, preferred to postpone their projects until the general situation became clearer.

This of course had a significant impact on the company's activities, which decreased by some 30 %. Fortunately, Franki Foundations was able to start some significant projects, such as De Groene Boog in the Netherlands and GBL5 in Belgium, which allow the company to look forward to 2021 with confidence.

Other major infrastructure projects are on the horizon, both in Belgium and the Netherlands. In France, as expected, Atlas Foundations' activities on Le Grand Paris have declined, following the halt of special foundation work on this major infrastructure project. This evolution has forced the company to align its structure to the transition to the more current market. In the United Kingdom, uncertainties related to Brexit and Covid-19 weighed on business volume despite a strong order book at the beginning of the year. This situation should evolve favourably in 2021.

 [www.ffgb.be](http://www.ffgb.be)



## // Flagship project

### AMPSIN-NEUVILLE LOCK

**16,000** / **11**  
M OF PILING PRODUCED / MACHINES MOBILISED

**Location:** Ampsin, Belgium

**Period:** 2018 - 2021

**Description:** Since 2018, Franki Foundations has been responsible for the foundation work for the expansion of the Ampsin-Neuville lock site.

For this, Franki-Duchêne commissioned the company to carry out various foundation works. Two major challenges have been met. Firstly, the installation of provisional and final piles and tie rods to reinforce the existing lock walls during the renovation. Secondly, the creation of secant pile walls on the new river bank alignment to widen the river course.

Its subsidiary BE Inject contributed to this project by performing injections into the walls of the lock site.

The foundation work is scheduled for completion in mid-2021.

## // Projects in 2020

### CONSTITUTION // Brussels, Belgium

**Diaphragm and secant pile walling for the Toots Tielemans metro station, for the extension of metro line 3 in Brussels city centre.** This project, which the company will carry out in partnership with Soiltech for the TOOTS (BESIX-JDN-Franki Construct) temporary consortium, presents the logistical challenge of ensuring a continuous supply of concrete, essential for ensuring the quality of diaphragm walling, to a downtown location. The teams have started working at the end of 2020 to prepare this ambitious project.

### GROENE BOOG // Rotterdam, the Netherlands

**'De Groene Boog' consists of a new motorway and an energy-neutral tunnel in northern Rotterdam.** This project will require more than 14 piling machines for various technologies, including screwed tube piles, large diameter bored piles, screw combination piles, and deep micropiles.

### HORIZON PROJECT // Donges, France

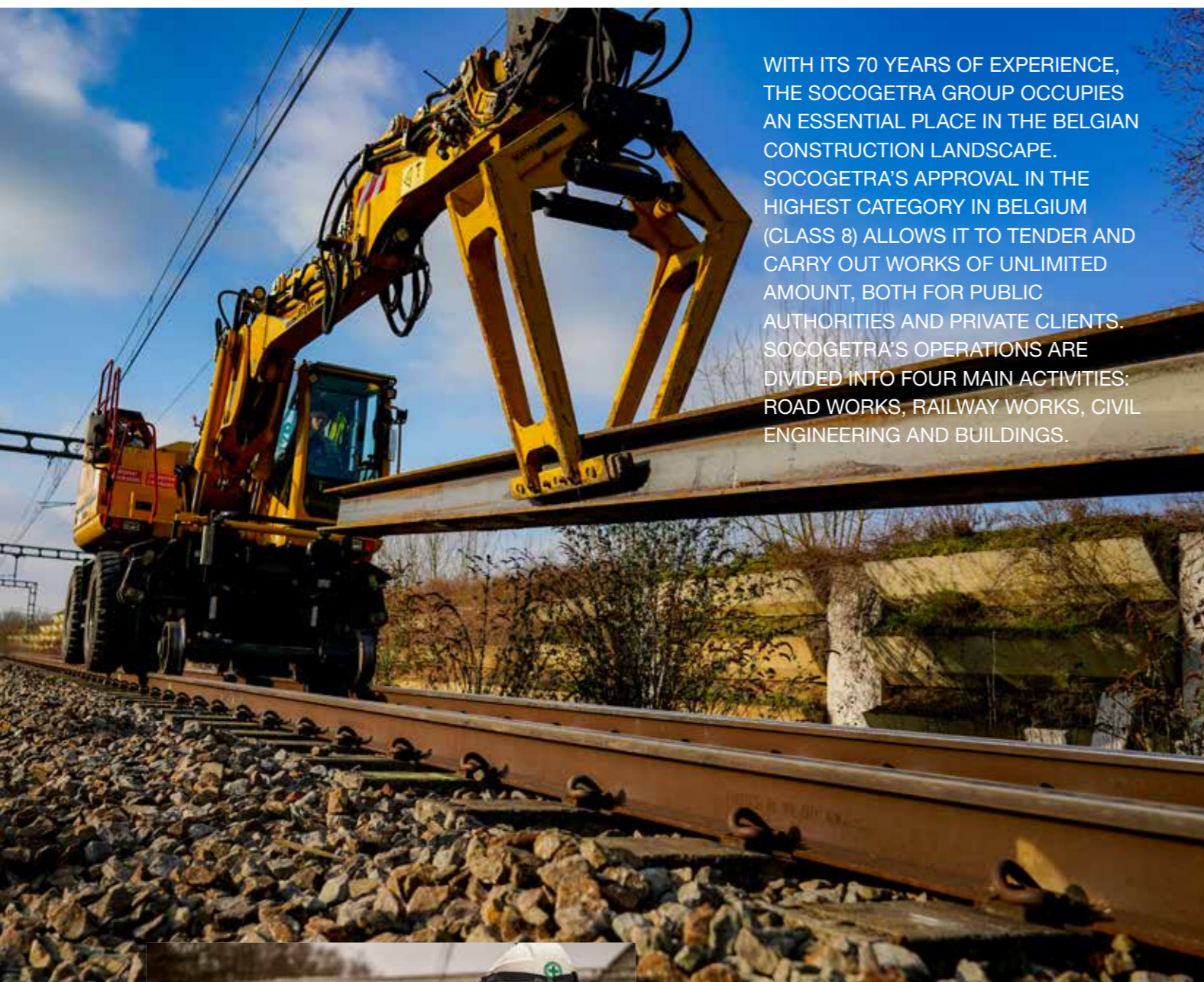
**Franki Foundations is providing core auger piling and cased bored piles for a large-scale project at the Donges refinery, for customer Kinetics Technology, as part of Total's Horizon project.**

### OLYMPIA PROJECT // London, United Kingdom

**Martello is contracted to install piles inside the existing Olympia Conference Centre for the redevelopment undertaken by Laing O'Rourke.** The Martello contract comprises the installation of 21 lined rotary bored piles to a depth of up to 41 m in headroom restrictions of 4.5 m.

### M11 MOTORWAY // Essex, United Kingdom

**Franki Foundations UK have been contracted by Graham Construction to install piles for a new bridge and associated gantries for a highways project on the M11 motorway.** Franki completed the bridge abutment piles in December.



WITH ITS 70 YEARS OF EXPERIENCE, THE SOCOGETRA GROUP OCCUPIES AN ESSENTIAL PLACE IN THE BELGIAN CONSTRUCTION LANDSCAPE. SOCOGETRA'S APPROVAL IN THE HIGHEST CATEGORY IN BELGIUM (CLASS 8) ALLOWS IT TO TENDER AND CARRY OUT WORKS OF UNLIMITED AMOUNT, BOTH FOR PUBLIC AUTHORITIES AND PRIVATE CLIENTS. SOCOGETRA'S OPERATIONS ARE DIVIDED INTO FOUR MAIN ACTIVITIES: ROAD WORKS, RAILWAY WORKS, CIVIL ENGINEERING AND BUILDINGS.



RER LINE 161, BRUSSELS-OTTIGNIES

Through its subsidiaries, Socogetra owns and operates various plants and entities that produce construction and asphalt materials. It also owns and operates quarries. Materials from these quarries are used in the asphalt and concrete plants in Belgium and the Grand Duchy of Luxembourg. Bagetra, a subsidiary based in Mons in the province of Hainaut, complements these activities in the fields of civil engineering and industrial building.

Socogetra group's results for 2020 are in line with its objectives despite the health crisis and the obligation to suspend activities for a few weeks in the spring. The group could count on close-knit teams and staff who, as soon as they resumed work, redoubled their efforts to achieve the ambitious results targeted for 2020. Covid-19 will ultimately have no impact on Socogetra's results, something the company is very proud of.

The order book is again well-filled, which ensures very good prospects for the future. Socogetra's industries have good earnings forecasts: the railway activity will continue its momentum with new projects for clients Infrabel and Tuc Rail, while more than ten wastewater treatment plants are on the order book. At this stage, announcements of additional infrastructure financing are expected, which should enable the road works department to develop further.

In 2020, Socogetra launched the RER Lines 161/124 project and further strengthened its partnerships with Infrabel and Tuc Rail with several successful projects, such as the Thuin or Roux bridges, as well as a large number of modernisation sites on the Belgian rail network. In 2020, the company experienced strong activity in the civil engineering field in the province of Hainaut for among others, chemical and petrochemical industries.

As for industries, GNB Beton finalised the purchase of two new production plants. It once again increased its results on its two other sites in Bastogne and Arlon, reaching record production levels. The two quarries produced more than 2.3 million tonnes of stone and the asphalt mixing plants over 320,000 tonnes of asphalt.

2020 will not have been easy for anyone in the world, but despite this, Socogetra and its subsidiaries have closed the year with good results. The company's teams have demonstrated perfect cohesion and have shown daring, mutual aid and courage. Strength comes through unity!

 [www.socogetra.com](http://www.socogetra.com)



## // Flagship project

### RER L161 & 124

**Period:** January 2020 - February 2022

**Budget:** 13 million euros

**Description:** Socogetra is working to improve mobility around Brussels.

In 2020, Socogetra started major work on RER lines 161 and 124 for Belgian network managers Infrabel and Tuc Rail.

On line 161, the project extends from the Josaphat tunnel in Brussels to Ottignies station. In total, there are no less than 16 sites on which widely varying assignments are undertaken: building underpasses, installing noise barriers, parapets, green walls along the tracks, etc.

In other locations, the company is working on the construction of several portions of the track slab for the new tracks on which the RER will run.

On line 124, Socogetra is building new platforms at Braine l'Alleud and Nivelles stations.

## // Projects in 2020

### INFRABEL // Sclaigneaux (Andenne), Belgium

Creation of an overpass at Sclaigneaux station and connection with the adjacent roads.

### TUC RAIL // Genval, Belgium

Construction of a car park and renovation of the platforms at Genval station.

### MINISTRY OF DEFENCE // Florennes, Belgium

Delivery and installation of a Mid Runway Energy Absorber (MREA) system on the main runway at the Florennes Base for the future reception of the F-35s. The technology of the proposed equipment allows the successive stopping of F-35s or F-16s automatically, without human intervention or technical adjustment related to differences in characteristics (mass/speed) between these two aircraft. This is a real asset for the Belgian air force, in a period of fleet transition.

### INASEP // Walcourt, Belgium

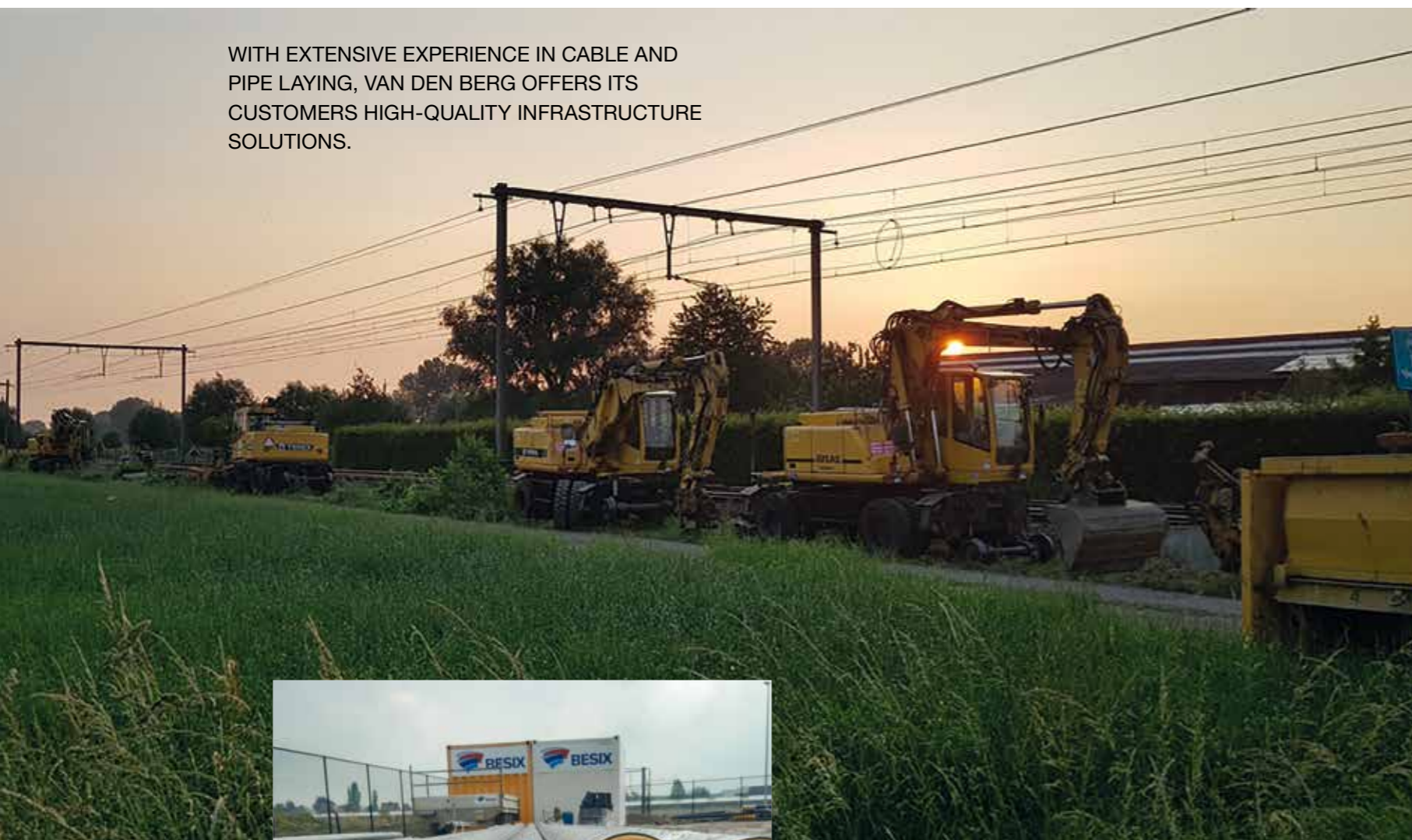
Construction of a wastewater treatment plant. The wastewater will be treated in oxidation ponds (activated sludge) using bacterial biomass.

### FERRERO // Arlon, Belgium

Demolition of an old factory building, earthworks and surroundings of a new one, with the laying of conduits, water pipes, access roads and a parking lot.



WITH EXTENSIVE EXPERIENCE IN CABLE AND PIPE LAYING, VAN DEN BERG OFFERS ITS CUSTOMERS HIGH-QUALITY INFRASTRUCTURE SOLUTIONS.



EUROPEAN TRAIN CONTROL SYSTEM, BELGIUM

DISTRICT HEATING NETWORK, HOOGSTATEN

Underground and above-ground cable and pipe-laying, horizontal directional drilling, high voltage posts and substations, networks and structured cabling systems, fibre optic networks, heating networks, signalling and monitoring systems, house connections, technical tunnel installations and traffic technologies: Van den Berg's expertise is strong, broad and constantly being refined.

Van den Berg operates in a rapidly evolving market with new technologies appearing all the time. In response, the internal organisation has been upgraded. The 'Technical Installations' business line has been organised to enable Van den Berg to offer its customers turn-key solutions. This reflects a growing need and demand from the market to act as a general contractor for complete water, heat, energy and tunnel technology installations. In the

'Rail Technical Infrastructure' business line, the company has strengthened its position in the growing market for complex signalling and infrastructure works with the acquisition of Appermont Gebroeders.

The increasing complexity of this market represents an opportunity for Van den Berg. Faced with strategic choices, the company is continuously investing in new employees in order to be able to provide lasting and recurrent added value.

 [www.besixvandenber.com](http://www.besixvandenber.com)



## // Flagship project

### 'DE KLUIS'

**Location:** Hoogstraten, Belgium

**Description:** 'De Kluis', prototype for an innovative, sustainable industrial estate.

For Fluvius, Van den Berg has installed a district heating network on the new industrial estate in Hoogstraten. District heating is an energy concept whereby hot water is brought from a central boiler room to the customer. A network of well-insulated pipes carries the water into homes or businesses, to provide heating and sanitary hot water.

As well as building the heating network, Van den Berg offers a complete solution that includes a disconnection function at both boiler room and user level.

## // Projects in 2020

### DIGITAL METERS // East and West Flanders, Belgium

Fluvius has appointed the 3DM consortium (Van den Berg, Jacobs and Engie) as its partner for installing digital gas, electricity and water meters in East and West Flanders. By the end of 2024, 80 % of Flemish households should have digital meters.

### OOSTERWHEEL PROJECT // Antwerp, Belgium

This project consists of the design and construction of the technical tunnel installations for the entire Oosterweel project. Van den Berg is responsible for the ventilation, pumps and fire detection systems. Oosterweel is a typical one-stop shop project in which other BESIX Group entities will also participate.

### EUROPEAN TRAIN CONTROL SYSTEM (ETCS) // Flanders, Belgium

In 2020, the first major works were carried out for installing the signalling of the ETCS safety system. This project is still in the expansion stage and should reach cruising speed in the coming years.

07 /

# BESIX FINANCE

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# Comments on the financial performance

2020 HAS BEEN A PARTICULAR YEAR. ON ONE HAND, BESIX'S BUSINESSES HAVE BEEN HIT BY THE WORLDWIDE ECONOMIC SLOWDOWN INDUCED BY THE PANDEMIC; ON THE OTHER HAND, THE COMPANY HAS FACED OPERATIONAL CHALLENGES ON A COUPLE OF PROJECTS FOR WHICH NECESSARY PROVISIONS HAVE BEEN TAKEN IN THE CONTEXT OF SOUND RISK MANAGEMENT. CONSEQUENTLY, REVENUES REMAINED AT A HIGH LEVEL AND LOSSES HAVE BEEN LIMITED, INDICATING THE GROUP'S RESILIENCE AND ABILITY TO OVERCOME CHALLENGES.

Moreover, the success of the Group's diversification strategy in recent years is confirmed by the above-target results in 2020 for BESIX Watpac in Australia, for BESIX Middle East's water and waste concessions (PPP), and for the specialised contractors in the Benelux, as well as by the good results of BESIX Real Estate Development.

BESIX recorded consolidated revenues of 2.7 billion euros, an EBITDA of 75.3 million euros, and a net result before tax and excluding goodwill depreciation of 16.3 million euros.

The company reported a consolidated net cash position of 57.5 million euros (excluding IFRS16 and PPPs non-recourse financing) and shows a strong solvency ratio of 22.1 %, well above the sector average.

Acquisitions in 2020 were very limited, consisting of no more than a number of transactions involving our regional and specialist companies.

No divestments took place in 2020.

2020 was also a dynamic year on the sales front. BESIX Group goes into 2021 with a strong order book of 4.2 billion euros, slightly lower than the record set by the group the years before.

The orderbook shows a good diversification in terms of geography and activity.

Western Europe (including our regional companies) accounts for 59.1 % of our orders, the Middle East for 13.2 %, and Australia for 12.5 %, while our international operations (Africa, Canada and North Europe) count for 15 %.

Building construction accounts for the largest portion of the order book with 49.2 %, followed by civil engineering with 31.7 % and maritime works with 5.1 %.

## PERFORMANCE BY ACTIVITY AND BUSINESS UNIT CONTRACTING

The Contracting activities demonstrated a high level of resilience during the Covid-19 pandemic. A major impact of the pandemic was a slowdown in private sector spending as government priorities shifted to public safety and welfare, leading to the cancellation of tenders, postponement of projects and redirection of budgets. Adapting to local health measures, BESIX Group teams have focused on operational excellence to face the crisis that has severely affected the construction sector worldwide.

**Western Europe:** the strong recovery and delivery of key projects in the second semester contributed to significantly mitigating the consequences of the first lockdown.

**Australia:** despite a market contraction, BESIX Watpac has grown, taking full advantage of the integration of the Group's capabilities to successfully strengthen its local competitiveness. The entity ended the year above its targets and is proud to have delivered several complex healthcare and educational facilities.

**Middle East:** the fall in oil prices has seriously affected the Gulf countries' financing capacity and property market, with consequent negative effects on the construction industry. BESIX was no exception in 2020 but could rely on its PPP capabilities and quality projects to mitigate the downturn.

**International:** BESIX Group made steady progress on all fronts, with first-class marine, building and infrastructure projects across Africa, Canada and Eastern Europe, enabling the Business Unit International to record positive results.

For their part, the Regional and Specialised contractors, mainly active in the Benelux, contributed 0.9 billion euros to the Group's revenues (12 % below budget, mainly due to Covid-19) and 1.2 billion euros to the order book.

## REAL ESTATE DEVELOPMENT

BESIX Real Estate Development closes 2020 with a turnover of 92.8 million euros and a return on equity of 10.4 %.

Impacted by a significant delay in building permit deliveries, the team at BESIX RED turned the challenging times of 2020 into opportunities in order to accelerate the business' digitalisation journey with the launch of BESIX RED 2.0: rethinking the programmes of its real estate developments; strengthening its partnership policy with key accounts; and focusing on a new strategic pillar as Investors Advisor to institutional and private investors.

## CONCESSIONS & ASSETS

With a net result of 17.8 million euros, Concessions & Assets was again very profitable, with solid and sustainable results in 2020.

BESIX Middle East's Concessions for the operations and maintenance of municipal wastewater and solid waste treatment facilities, a field in which the company is continuing to grow its business, are contributing very positively to the Group's results.

In Europe, Concessions & Assets is continuing to expand its DBFM (Design, Build, Finance & Maintain) portfolio, primarily in the area of large infrastructure projects (tunnels, motorways and river locks).

By contrast, the hotels in which BESIX Group is a co-shareholder in four different European countries naturally had a very difficult year due to travel restrictions and the almost complete shutdown of the tourism sector.

## BALANCE SHEET

At the end of 2020, the balance sheet totalled 2.8 billion euros, in line with last year. During 2020 we have paid particular attention to timely billing and receipt of outstanding amounts which has led to a healthy working capital.

## EVOLUTION OF NET CASH POSITION

BESIX Group's consolidated net cash position amounted to 57.5 million euros at the end of 2020 compared with 180.8 million euros at the end of 2019.

This decrease is mainly due to an extremely favourable working capital in Australia at the end of the year, which has come back to a normalized level, and to some extent to capital expenditure and currency translation.

This means that the solvency ratio is at 22.1 % at the end of 2020.



BESIX Group ensures it can rely on a large set of financing instruments available, providing significant headroom.

## CONCLUSION

The diversity and quality of the BESIX Group's order book in 2021 are promising for the years to come. However, the human, social and economic consequences of the Covid-19 pandemic still call for a prudent approach and management.

A number of opportunities remain in key markets and overall activity levels are expected to improve, driven by governments' willingness to see a robust economic recovery post-Covid-19.

In all its markets and in each of its sectors, BESIX Group is ideally positioned to contribute to the post-Covid-19 economic recovery, combining its recognised expertise in construction, real estate development and concessions with cutting-edge sustainability solutions: these are illustrated by BESIX's state-of-the-art expertise in renovation, smart buildings, energy efficiency of buildings and infrastructures, CO<sub>2</sub>-neutral constructions, and first-rate technology in water and waste treatment.

## AUDITORS REPORT

The auditor Mazars Bedrijfsrevisoren - Réviseurs d'Entreprises has issued an unqualified opinion on the statutory and consolidated financial statements as of December 31, 2020.

## FINANCIAL STATEMENTS

The statutory and consolidated financial statements, together with the report of the board of directors and the audit report, will be filed with the Belgian National Bank as prescribed by governing law. Interest-ed persons can obtain a copy of these documents on demand at the company's address.



# CONSOLIDATED BALANCE SHEET

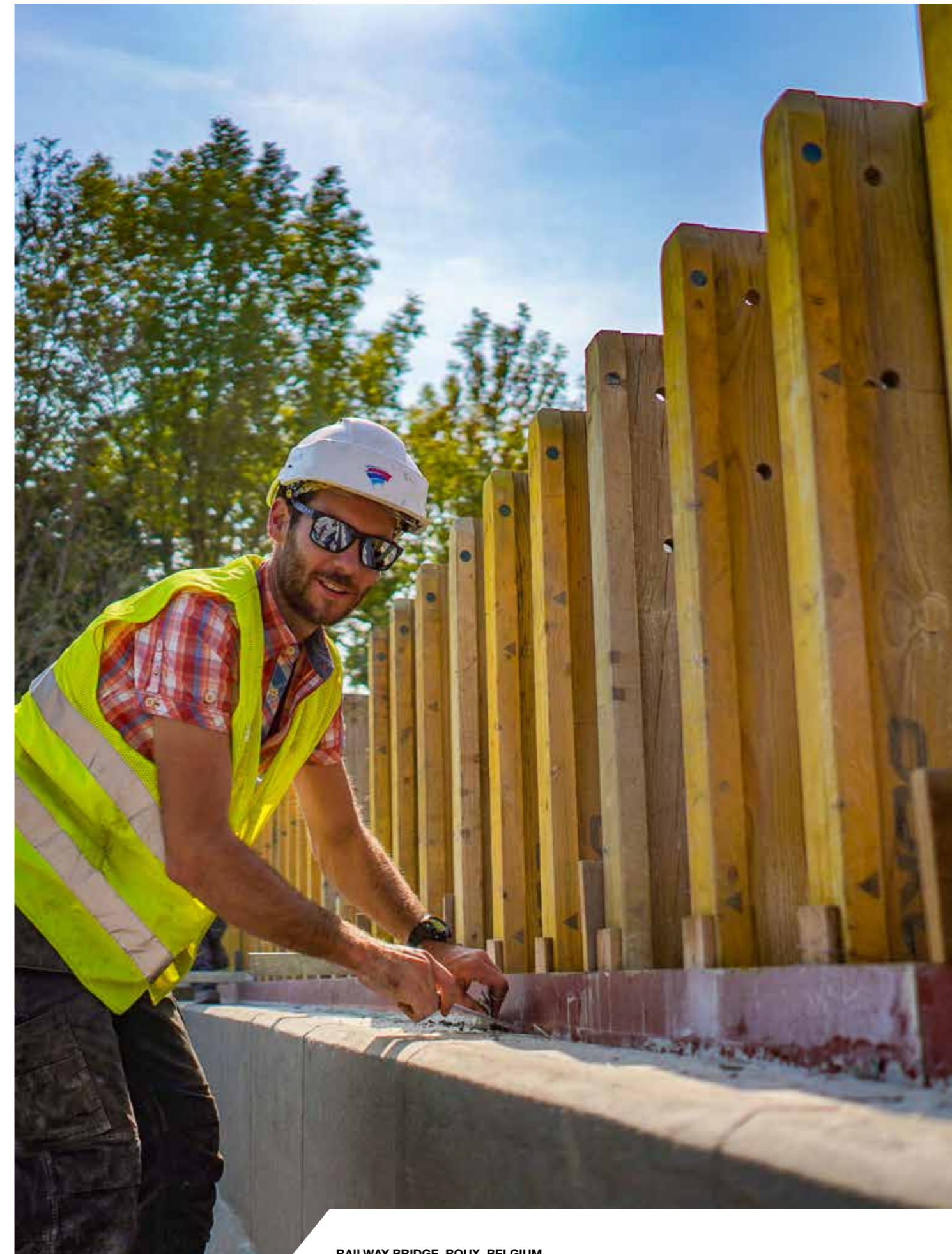
(in EUR '000)	31/12/2020	31/12/2019
<b>// ASSETS</b>		
<b>NON-CURRENT ASSETS</b>	<b>663,278</b>	<b>624,202</b>
Intangible assets	59,859	64,089
Goodwill	29,196	29,156
Tangible assets	276,322	285,726
Investments in associates	81,930	95,479
Receivables	176,671	114,880
Other assets	12,017	11,443
Deferred income tax assets	27,283	23,429
<b>CURRENT ASSETS</b>	<b>2,166,585</b>	<b>2,263,484</b>
Inventories	31,895	35,203
Construction contracts in progress	332,264	287,414
Real estate held for sale	253,927	240,762
Trade receivables	717,031	782,069
Other receivables and other assets	309,608	282,831
Cash and cash equivalents	521,860	635,205
<b>// TOTAL ASSETS</b>	<b>2,829,863</b>	<b>2,887,686</b>
<b>// EQUITY AND LIABILITIES</b>		
<b>EQUITY</b>		
<b>SHAREHOLDERS EQUITY</b>	<b>622,635</b>	<b>698,461</b>
Capital	32,000	32,000
Retained earnings	615,903	655,659
Hedge reserves	-26,813	-14,583
Translation differences	1,545	25,385
<b>MINORITY INTEREST</b>	<b>2,068</b>	<b>2,242</b>
<b>// TOTAL EQUITY</b>	<b>624,703</b>	<b>700,703</b>
<b>LIABILITIES</b>		
<b>NON-CURRENT LIABILITIES</b>	<b>488,478</b>	<b>458,819</b>
Borrowings	336,973	284,904
Provisions	75,343	78,707
Other liabilities	56,620	73,021
Deferred income tax liabilities	19,542	22,187
<b>CURRENT LIABILITIES</b>	<b>1,716,682</b>	<b>1,728,164</b>
Borrowings and bank overdraft	232,782	209,334
Trade payables	826,722	860,944
Advances received on contracts	134,212	133,070
Billing in excess on construction contracts	237,577	274,072
Current income taxes payable	32,009	18,388
Provisions	56,985	55,713
Other liabilities	196,395	176,643
<b>// TOTAL EQUITY AND LIABILITIES</b>	<b>2,829,863</b>	<b>2,887,686</b>

# CONSOLIDATED INCOME STATEMENT

(in EUR '000)	2020	2019
<b>// CONSOLIDATED INCOME STATEMENT</b>		
<b>SALES</b>	<b>2,759,590</b>	<b>3,332,046</b>
<b>COST OF SALES</b>	<b>-2,594,338</b>	<b>-3,105,881</b>
of which depreciation	-59,982	-60,207
of which provisions	10,864	-7,584
<b>GROSS PROFIT</b>	<b>165,252</b>	<b>226,165</b>
<b>GENERAL &amp; ADMINISTRATIVE EXPENSES</b>	<b>-191,473</b>	<b>-223,319</b>
of which depreciation	-15,129	-15,588
of which provisions	1,167	-1,509
<b>OTHER INCOME / EXPENSES</b>	<b>6,831</b>	<b>19,203</b>
<b>OPERATING PROFIT</b>	<b>-19,390</b>	<b>22,049</b>
Financial income	17,882	13,662
Financial charges	-15,935	-12,427
Results from associates	19,572	24,809
<b>PROFIT BEFORE INCOME TAXES</b>	<b>2,129</b>	<b>48,093</b>
<b>INCOME TAX EXPENSE</b>	<b>-11,818</b>	<b>-5,605</b>
of which current taxes	-13,466	-16,491
of which deferred taxes	1,648	10,886
<b>CONSOLIDATED PROFIT</b>	<b>-9,689</b>	<b>42,488</b>
Minority interest	-78	-309
<b>GROUP CONSOLIDATED PROFIT</b>	<b>-9,767</b>	<b>42,179</b>
Earnings per share – basic (in EUR)	-3,45	14,89
Earnings per share – diluted (in EUR)	-3,45	14,89
<b>// CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME</b>		
<b>PROFIT FOR THE YEAR</b>	<b>-9,767</b>	<b>42,179</b>
<b>OTHER COMPREHENSIVE INCOME</b>		
Cash flow hedges	-3,757	-3,489
Fair market value - available for sale	0	0
Actuarial impact provision for employee benefits	-9,989	-2,537
Currency translation differences	-22,951	7,716
<b>Other comprehensive income for the year, net of tax</b>	<b>-36,697</b>	<b>1,150</b>
<b>ATTRIBUTABLE TO</b>		
Owners of the parent	-46,465	43,329
Minority interest	0	0
<b>// TOTAL COMPREHENSIVE INCOME FOR THE YEAR, NET OF TAXES</b>	<b>-46,465</b>	<b>43,329</b>

# CONSOLIDATED CASH FLOW STATEMENT

(in EUR '000)	2020	2019
Operating result	-19,390	22,049
Adjustments for:		
Depreciation	75,111	75,795
Result on disposal of (in)tangible assets	-6,396	-16,810
Result on disposal of other long term assets	0	0
Result on disposal of investment in associates	-444	203
Provisions	-12,032	9,093
Allowances	594	95
<b>OPERATING CASH FLOW BEFORE CHANGES IN WORKING CAPITAL</b>	<b>37,443</b>	<b>90,425</b>
Income taxes paid (net)	-5,775	-7,025
Changes in working capital	-81,061	34,452
<b>CASH FLOW FROM OPERATING ACTIVITIES</b>	<b>-49,393</b>	<b>117,852</b>
<b>TRANSLATION DIFFERENCE CASH AND CASH EQUIVALENTS FOR ENTITIES REPORTING IN FOREIGN CURRENCY</b>	<b>-20,041</b>	<b>13,595</b>
Purchase of intangible assets	-8,383	-2,701
Purchase of tangible assets	-60,338	-66,121
Purchase of other long term assets	-7	-24
Acquisition and capital increase / (decrease) investment in associates	-2,430	-1,478
Proceeds from sale of intangible assets	0	0
Proceeds from sale of tangible assets	8,441	22,799
Proceeds from sale of other long term assets	468	2,506
Proceeds from sale of investment in associates	47	4,814
Dividends received from investment in associates	28,559	26,778
(Acquisitions)/Disposal of subsidiaries – net of cash	1,126	-1,330
<b>NET CASH FROM INVESTING ACTIVITIES</b>	<b>-32,517</b>	<b>-14,757</b>
<b>CASH FLOW FROM FINANCING ACTIVITIES</b>		
Proceeds / (repayments) of borrowings	22,846	226
(Proceeds) / repayments of long term receivables	-5,319	-26,963
Interest paid (net)	-8,669	-2,716
Fair Market Value - Cash and Cash equivalent	0	0
Change in consolidation methods	68	180
Dividends paid to Group shareholders	-20,000	-40,000
Dividends paid to minority interests	-320	-380
<b>NET CASH FROM FINANCING ACTIVITIES</b>	<b>-11,394</b>	<b>-69,653</b>
<b>(DECREASE)/INCREASE IN CASH &amp; CASH EQUIVALENTS</b>	<b>-113,345</b>	<b>47,037</b>
<b>MOVEMENTS IN CASH &amp; CASH EQUIVALENTS</b>		
Cash at beginning of the year	635,205	588,168
(Decrease)/Increase	-113,345	47,037
Cash at the end of the year	521,860	635,205



RAILWAY BRIDGE, ROUX, BELGIUM



INSIDE THE GRAND EGYPTIAN MUSEUM: THE 11-METRE-HIGH, 3,200-YEAR-OLD STATUE OF RAMESSES II