



## 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