

Duo towers

Boulevard du Général Jean Simon, Paris (FR)

greisch

Optimisation and detailed design of the composite structures of the towers

Owner
Ivanhoé Cambridge Europe

Architect
Ateliers Jean Nouvel

Cost of the works
€ 380 M excl. vat

Studies
2017 - 2021

Execution
2014 - 2021

CM



The Duo Towers, designed by Ateliers Jean Nouvel, rise to 125 and 175 metres respectively in the heart of the 13th arrondissement of Paris. Bateg, a subsidiary of Vinci Construction, has entrusted Bureau Greisch with the task of carrying out optimisation and detailed design of the composite structures of the towers from the 17th level for Duo 1, and the 25th level for Duo 2.

To optimise the structure, it was necessary to limit the floor-to-floor heights as much as possible while keeping the heights in the offices in line with current standards.

This means reducing the space required for false ceilings and floors as much as possible, the challenge being to integrate the technical systems (HVAC, electricity, etc.) into the space required by the metal support elements. The solution adopted was to create composite elements (concrete floors and steel beams) to optimise each material and to allow the webs of the beams to be pierced and the technical ducts to be passed through.

The problem of the flexibility of composite floors leads to increased verification of comfort in terms of frequency and vibration of the floors. Numerous models taking into account the transverse and/or longitudinal cracking of concrete have been produced in order to optimise the materials and comply with the standards in force.



As the façade columns are inclined, the side thrust forces must pass through the structure to be transmitted to the core. In addition, particular attention was paid to checking compliance with standards in terms of acoustic criteria and fire resistance.

The mission also includes the dimensioning of the structure of the caps at the top of the towers, topped by a monumental oculus-shaped glass roof.

Photovoltaic panels will be placed at the top of the largest tower, and thermal panels on the lower tower.