



Testimonio II Project

Study of the retaining structures and of the project's impact on the nearby structures
2018 - 2019



MONACO

Client

VINCI CONSTRUCTION
GRANDS PROJETS

Partners

SETEC MONACO

Terrasol fees

240 000 €

Highlights

25-floor tower with 13 parking levels

Several 3D numerical models



The Project

In 2016, TERRASOL started its studies regarding both the retaining structures of the Testimonio II project - a 25-floor tower with 13 parking levels - and its impact on the nearby structures.

The Owner of this project is SAM TESTIMONIO II (represented by MARZOCCO group and VINCI IMMOBILIER).

The architects of the project are ALEXANDRE GIRALDI and ARQUITECTONICA, and the works are executed by SATRI and VINCI CONSTRUCTION. VINCI CONSTRUCTION MONACO entrusted TERRASOL with the geotechnical studies during the execution phase.

The project is located in Monaco in a steep hillside composed mainly of screes overlying the marly bedrock in which are anchored the retaining walls and the barrettes that support the structure. The project footprint is constrained and the new tower is surrounded by sensitive structures.

Our Services

To date, TERRASOL has built three 3D finite element models (using PLAXIS 3D software), in order to study successively:

- Compliance with deformation thresholds of nearby structures as part of the initial solution: lightweight embankment in the Aval Florida area;
- Impact of the first alternative solution (vertical soil-nailing wall) in the Aval Florida area;
- Impact of the removal of the counter-wall from the "armrests".

Due to the project's complex geometry and its location at the foot of the hillside, a strong 3D effect leads to vertical shear stresses in the armrests. It has therefore been necessary to consider sliding between the side panels using interfaces between the volume elements representing the wall.

These models, which are exceptionally large (more than a million nodes), required several months of work, powerful computers, and the anticipated use of the 2018 version of PLAXIS 3D software to make the system's numeric resolution possible.

Key features

- Study of the retaining structures and the project's impact on neighbouring structures
- Study of several alternative solutions proposed by the contractor
- Several numerical models using PLAXIS 3D (more than a million nodes each)

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