



Engineering Structures for Life



BUILDINGS - HOSPITALS

New Façade for IPO Porto

ABOUT

Resulting from a close cooperation with the portuguese architects [AND + RE](#), GEG won the public tender for the design of the new façade for IPO (Portuguese Oncology Institute of Porto) Porto building.

The aim of the engineering and architecture design was the creation of a façade that would respond to the identified energy improvement measure, but also, at the same time, to go further, promoting a coherent integration of the necessary technical systems: photovoltaic, structure ,... The purpose was to turn the intrinsic complexity of the program into an understandable, intuitive, pleasant and intelligible volume.



The proposed intervention aimed the execution of a ventilated glass façade with the inclusion of photovoltaic panels in the south elevation.

This intervention is based on the construction of an exterior glazed skin, with the addition of technical walkways that allow the façade maintenance. The added structure respects the geometry and minimizes the impact on the structural behavior of the existing building. It is proposed a light structure with the necessary strength to support the actions, especially the wind, that will transmit the forces to the building existing structure at the most

FACTS

Year: 2018

Client: IPO Porto

Services: Structural Engineering, Detailed design

TEAM

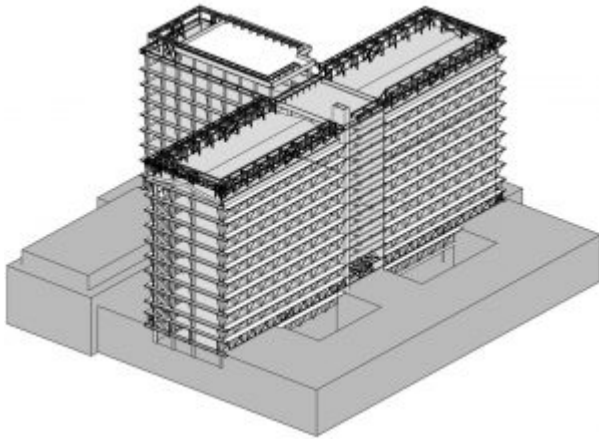
LOCATION

Porto, Portugal

appropriate points.

Considerable constructive aspects have been taken into account in the design, namely:

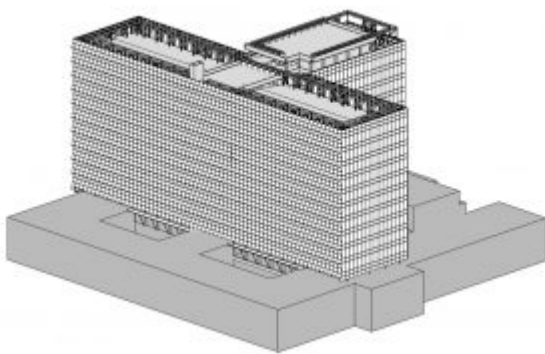
- Existence of a hospital in operation;
- Simplification in the constructive process and possibility of repetition;
- The configuration of the new structure is strongly conditioned by the characteristics of the existing structure.



The façade reflects the necessary conditions to achieve the promotor's ambitions, assuming as an architectural object based on performance, in all its aspects, namely: energy, environmental, iconographic and plastic.

A structural analysis was made of the existence structures, as the formal structure and metric. After this interpretation, we proceeded to its three-dimensional modeling to simulate the solutions to be adopted.

As a first step, a volumetric simplification was adopted in the search for formal architectural contemporaneity. Buildings will inevitably take on a new language despite maintaining their internal functional characteristics. Whatever the option of integrating photovoltaic panels or not, the facades will be composed of a ventilated facade system as the energetic improvement that implies.



One of the main challenges in this project has been the effective and coherent integration of photovoltaic panels into a formal image that fits the intended objectives.

In addition, the architecture through the design of different slopes in facade segments with different objectives intended to optimize the functions of each section. Thus the south façades will have transparency sections with thermal glass with a slope contrary to the sun in the sense of diminishing the solar incidence. On the other hand the photovoltaic panels will be tilted in the opposite direction for an optimization of solar incidence as direct as possible on the panels.

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