



Engineering Structures for Life



BUILDINGS - HOTELS

Douro Royal Valley Hotel & Spa

ABOUT

Douro Royal Valley Hotel & Spa is a five-star hotel located in Baião, on the bank of Douro River, in Portugal. The hotel has 63 rooms and 6 suites. The hotel also houses the Porto School Hotel, providing residence for 34 students. The building is located in a terrain with 15.200 m². The difference of 44 m height between the lowest level (near the Douro River) and the highest level (near the national road EN108) demonstrates the steepness of the terrain. The hotel progresses on terraces along this terrain with a total of 10 levels (but not exceeding 4 levels in the vertical alignment).

Structural and geotechnical solutions

For the geotechnical and structural approach, the main challenge was the interface between the building and the terrain, with the use anchor walls with almost 80 m length and 20 m height. Economic comparisons were developed, taking in consideration between two types of solutions, slabs with piles creating voids under the slabs on top of the walls and landfills on top of the retaining walls. A detailed study of the earthworks including temporary stabilizations was developed.

GEG was responsible for all engineering design and coordination, working closely with the client in order to meet all its requirements.

FACTS

Year: 2013-2014

Client: JASE – Touristic Enterprise

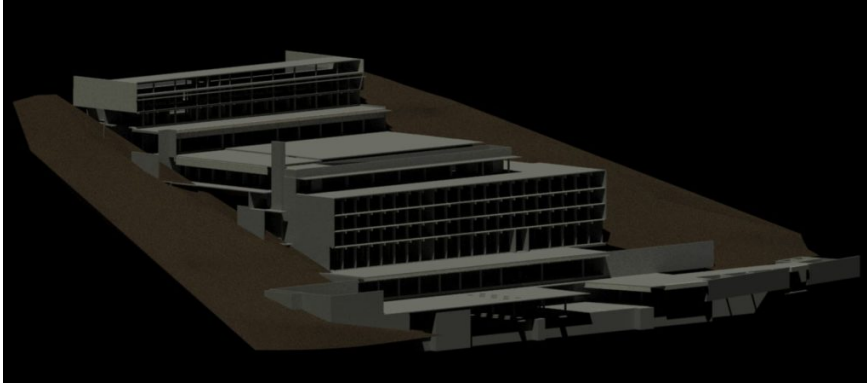
Services: Detailed design, Structural Engineering, Foundations design, Mechanical, Electrical and Plumbing design, Telecommunications & Security, Fire safety design, Acoustics, noise & vibration design, Sustainable buildings design, Solar Energy, Coordination of the engineering disciplines, Consulting and on-site technical support

TEAM

José Vaz Pinto

LOCATION

Baião, Portugal



Sustainable solutions

All the engineering disciplines developed sustainable economic and environment solutions. HVAC stands out for its innovative sustainable approach. Taking the advantage of being next to the Douro River, the mechanical system uses Chillers that dissipate or absorb the energy from the river water, once the river water temperature variation during the year is much lower than the air temperature variation. These chillers are far more effective than the traditional ones, and the investment is only a little bit higher when comparing with the traditional system.

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