Type of Work: **5 Star Luxury Plus Hotel**

Value of Works: **€31.300.000**

Year: **2023 - In Progress**

Design State: **Completed**

Construction State: **In Progress**

Project Description:

This project involved the structural restoration of a 17th-century historic palace, transforming it into a 5-star hotel while preserving its architectural heritage. Key tasks included seismic assessment (LC3 level), reinforcement of tuff masonry with steel elements, reduction of seismic mass using lightweight materials, and installation of new steel floors, staircases, and elevators. A pushover analysis confirmed improved seismic safety, increasing the vulnerability index from 0.27 to 0.43, in full compliance with NTC 2018. The project also aims for LEED Gold certification.

Roles / Responsibilities:

- **Carried out a detailed structural assessment of the existing 17th-century masonry structure, analyzing building usage.**
- **Evaluated vertical and horizontal loading conditions, including dead loads and live loads, in accordance with NTC 2018 and Eurocode provisions.**
- **Developed site-specific seismic response spectra (SLO, SLV, SLD, SLC) based on the location in Naples to guide seismic retrofitting strategies.**
- **Performed wind load analysis considering the coastal exposure of the site to assess additional environmental impacts on the historical structure.**
- **Assisted in the development of a high-fidelity numerical model using structural analysis software to simulate behavior under combined loading conditions.**
- **Supported the implementation of seismic improvement techniques including insertion of steel frames, crack stitching, joint repointing, and lightweight material replacement to reduce mass and improve performance.**
- **Contributed to the design and modeling of structural elements such as steel floors, internal staircases, and elevator shafts, ensuring full compliance with preservation and seismic regulations (NTC 2018).**

Numerical Model: