



Type of Work: **Residential & Mixed-Use Development**

Value of Works: **€300.000.000**

Year: **2023 - In Progress**

Design State: **Completed**

Construction State: **In Progress**

Project Description:

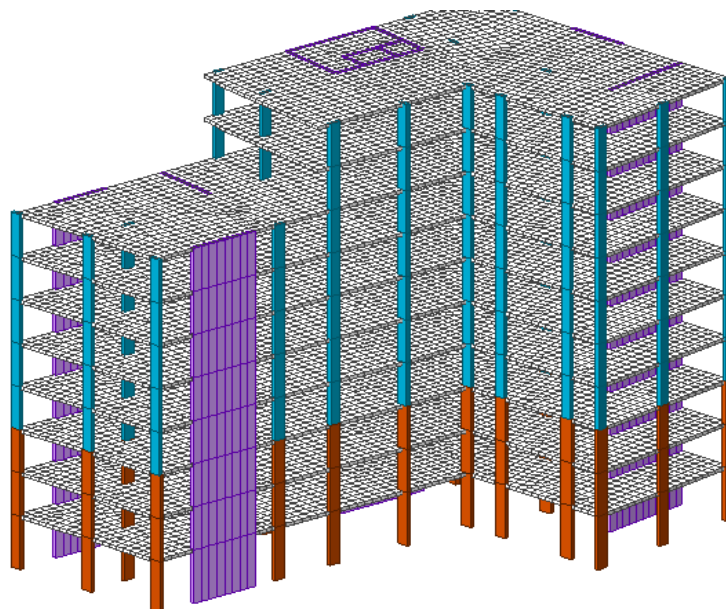
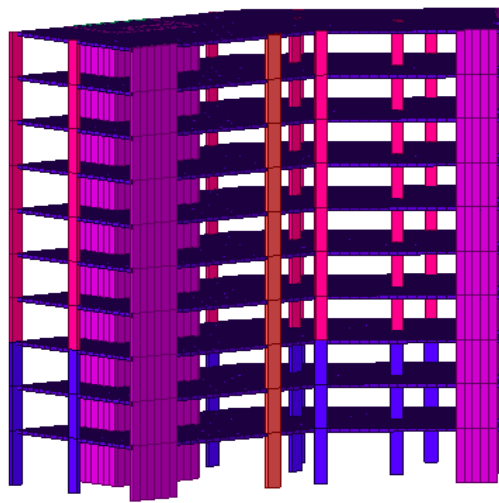
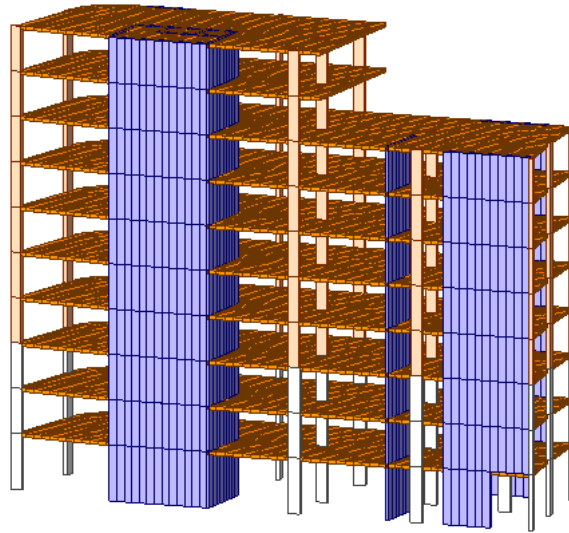
Contributed to the structural design and verification of key components in a large-scale residential redevelopment covering 150,000 m². Tasks included the structural analysis of retaining walls, foundations, and reinforced concrete elements, as well as coordination for seismic and wind load considerations. Supported the integration of new structures within heritage-protected buildings, ensuring compliance with urban planning and sustainability requirements.

Roles / Responsibilities:

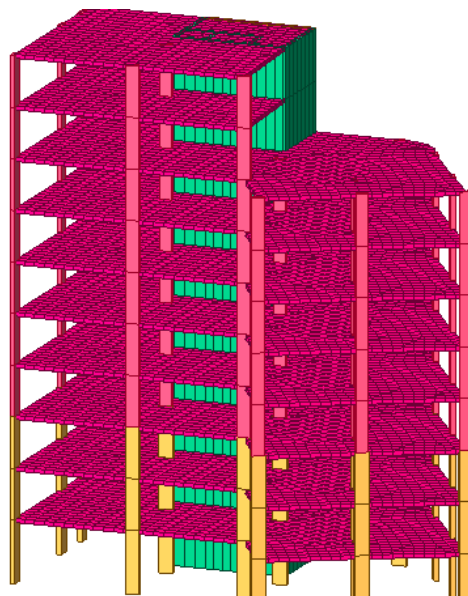
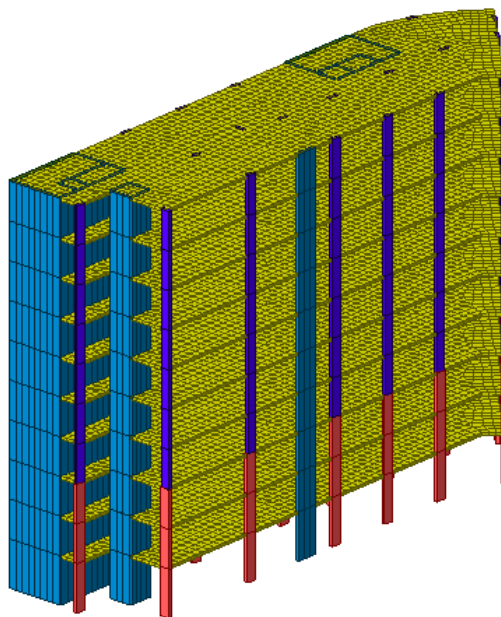
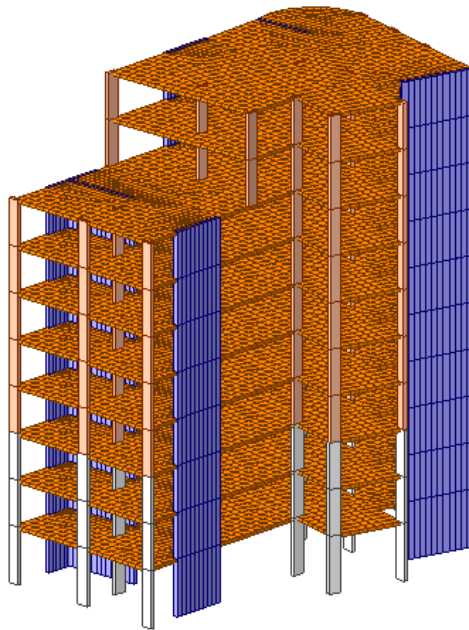
- **Conducted a comprehensive structural analysis of the buildings involved (S1 and S5), each comprising 10 above-ground stories and 2 basement levels. Assessed building usage, geometry, orientation, and layout to understand structural demands and configuration.**
- **Evaluated applicable loading conditions by calculating permanent (dead) loads and variable (live) loads according to Eurocode and NTC 2018 standards, based on the building's functional categories.**
- **Developed seismic hazard inputs for structural analysis, including site-specific response spectra (SLO, SLV, SLD, and SLC limit states) based on the location (San Siro, Milan), in compliance with national seismic zoning.**
- **Performed wind analysis by determining basic wind speed and calculating corresponding wind pressures using Eurocode procedures, considering local topography and building geometry.**
- **Created detailed numerical models in MIDAS Gen, taking into account the presence of seismic isolators at the base of the superstructure. Due to seismic isolation, the buildings were modeled as separate independent dynamic systems (basement, isolated interface, and superstructure).**
- **Modeled the basement structures independently and applied reaction force mapping from the superstructure to simulate realistic interaction and ensure accurate load transfer.**
- **Ensured compliance with seismic performance objectives, including base shear distribution and displacement capacity at the isolator level.**
- **Coordinated the structural modeling approach with architectural and geotechnical inputs, especially for foundation modeling and soil-structure interaction considerations.**

Numerical Model:

S1 Building FEM.



S5 Building FEM.



Basement FEM.

