CONSTRUCTION PROJECT AND CONSTRUCTION MANAGEMENT

ines
ingenieros consultores

C/ Nuñez de Balboa, 120, 3º
28006 Madrid, España
Tel.: +34 915237633

ines@inesingenieros.com
www.ines.es

BUZESTI Office Building

Bucharest, Romania.

CLIENT	**Tiriac Inmobiliaria**
DATE	**2015**
LOCATION	**Bucarest, Rumania**
FIELD OF ACTION	**Construction Project and Construction Management**

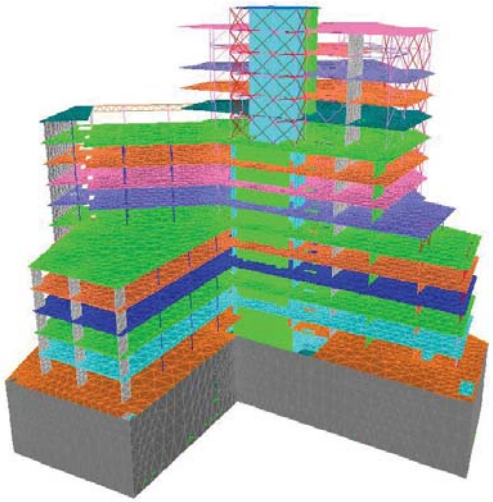
INES developed the full structural design of this 17 story high building which houses working spaces, restaurants, commercial areas and an underground car park. The buil-ding has a V-shape plan view, with two main alignments meeting at an angle close to 90 degrees.

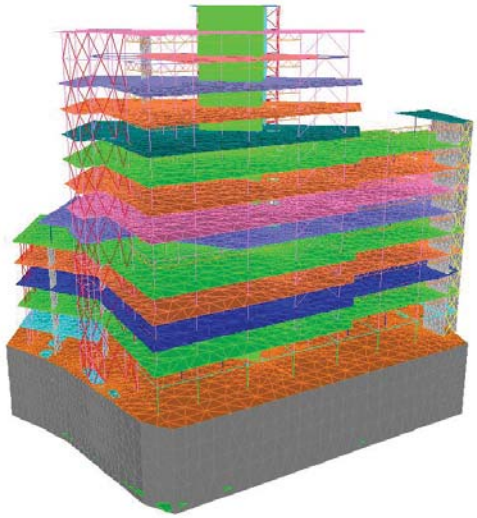
The high seismicity in the region, together with the lack of a regular building geometry imposed by the architects, presented a big challenge from the structural design point of view and required implementation of di-fferent horizontal and vertical cross brac-ings.

The building is composed of 12 floors above ground level with a constant inter-story height of 3.57 m, except for the height be-tween ground level and mezzanine, which is 3.92 m. Concrete slabs are 0.25 m thick except for the ground floor and mezzanine, which are 0.30 m thick. Columns have shear caps 0.50 m thick.

BUZESTI Office Building

Bucharest, Romania.





Beneath ground level there are 4 underground floors which count with a constant inter-story height of 2.90 m except for the height between ground level and basement 1, which is 3.05 m. The concrete slabs are 0.25 m thick, and columns have shear caps 0.50 m thick.

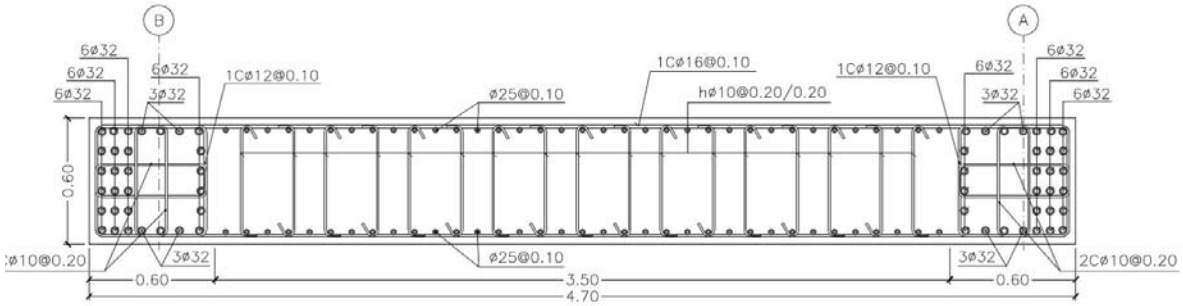
For containing the soil a concrete retaining wall with a thickness of 0.80 m has been defined, which is brace during the construction phase using a system of temporary struts, and during the final situation by the different basements slabs.

The building foundation, according to the geotechnical report, has been defined by a slab foundation 1.50 m thick, which also works as a anti-flotation slab, since during the geotechnical campaign a phreatic level above the basement 4 has been detected. Furthermore the slab foundation works as floor deck for the basement 4.

The slabs vertical supporting is composed by a concrete columns grid, which have rectangular section underground and circular section above ground, and a series of shear walls. These shear walls are defined as concrete shear walls in some cases, and as X or K steel bracing frames in others.

The concrete shear walls and the steel bracings have a dual function, on one hand they transmit de vertical loads to the foundation, and on the other hand they are part of the anti-seismic system of the building.

As indicated above Buzesti office building is located in a high seismic region, therefore, the building has been designed in accordance with local standards in seismic sub-



ines
ingenieros consultores

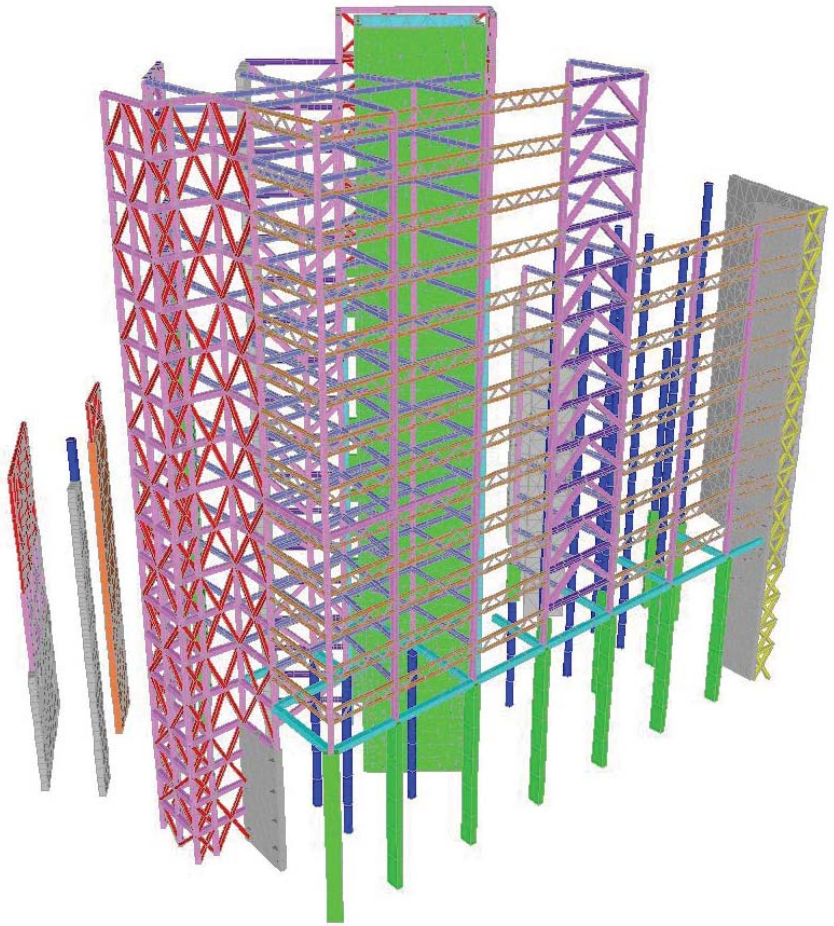
C/ Nuñez de Balboa, 120, 3º
28006 Madrid, España
Tel.: +34 915237633

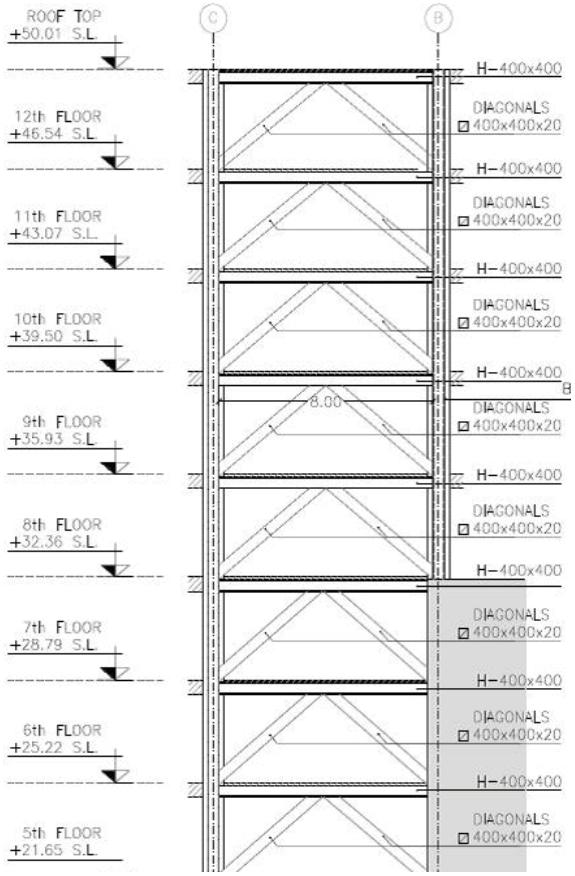
ines@inesingenieros.com
www.ines.es

CONSTRUCTION PROJECT AND CONSTRUCTION MANAGEMENT

BUZESTI Office Building

Bucharest, Romania.





ject. The local seismic standard requires keeping drifts below limits that take into account the fragi-lity of non-structural elements.

Therefore the structural system must fulfil the standards requirements besides to be coordinated with the architectonic necessities.

Between the most important architectonic necessities are to minimize the number of structural elements in the principal façade, to maximize the free space in the floors and the definition of a spacious lobby with double height.

Taking into account these factors, the anti-seismic system is composed of interior concrete shear walls, a concrete central core, interior steel bracing frames, exterior steel bracing frames (external core lift) and a series of trusses which give rigidity to the columns portico.

ines
ingenieros consultores

C/ Nuñez de Balboa, 120, 3º
28006 Madrid, España
Tel.: +34 915237633

ines@inesingenieros.com
www.ines.es