

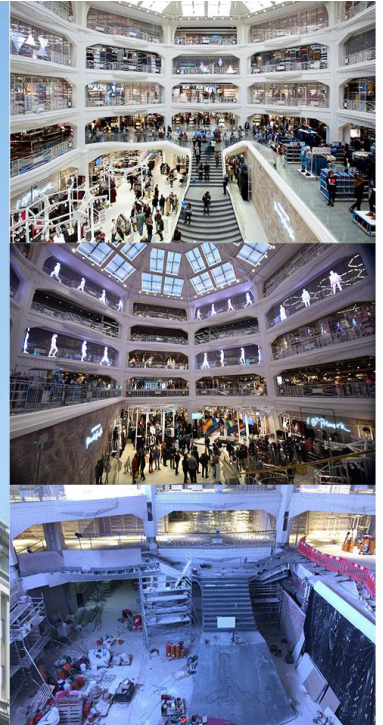


Restoration of nº32 in Gran Vía Street

Madrid, Spain / 2014-2015

Structural type
Owner
Client
Constructor
Scope
Architect

reinforced concrete structure with ribbed floor slabs
Pontegadea
Longshore
IC
detailed design and construction support
RCCyP



Description of the structure:

The design and construction of the structure was carried out between 1920 and 1924. It consists of a 6-story building designed by the architect Teodoro de Anasagasti. The structure was built to house the "Grandes Almacenes Madrid - París" (Department Store Madrid-Paris).

The modification of the floor plans of, up to a maximum of nine in the bays of the Gran Vía Street façade, was carried out by the architect Fernando Cánovas del Castillo, designed and executed between 1958 and 1965. Nowadays the building is modified from a tertiary use of offices to a commercial use.

In general, the horizontal structure is solved with structural concrete with beams with a total depth of 0,8 m and a width of 0,3 m, which support one-directional ribbed slabs with cast-in-place joists 0,10 m wide and 0,325 m deep and a top slab with a thickness that varies between 0,08 to 0,10 m.

The ceiling of the fourth plant has an octagonal cupola, structurally solved with steel profiles, forming trusses that connect the center with the vertices of the octagon. Plants 7, 8 and 9 are executed as steel structures, with slabs formed with metal girders.

The vertical structure is formed by reinforced concrete columns, with different cross-sections, squares, rectangular, and Greek cross-shaped in the interior areas, shielded on the façade and with an octagonal shape under the cupola.

Works executed:

Our participation, at a first stage, consisted in analyzing the structure of the building and its foundations, reaching the following conclusions:

- a.) The original horizontal structure (beams and slabs) do not require any sort of reinforcement because, although there has been a nominal increase of the service loads, according to the current CTE (Technical Building Code), there has also been the reduction of an important part of the dead loads.
- b.) It is not necessary to carry out any intervention on the foundation structure (footings) nor on the ground itself, even considering that there has been a significant increase of the loads due to the increase of the number of stories at the end of the 1950's, due to the magnificent characteristics of the foundation ground.
- c.) It was necessary to reinforce a certain number of columns, in order to meet the safety requirements in the current codes and good construction practice, especially when the idea is to prolong the service life of the whole building, making it comparable to a newly executed structure. These reinforcements have been executed in all cases with steel structures, considering, at least one of the following procedures:
 - a. Cross-section increase and displacement compatibility.
 - b. Discreet or continuous confinement of the column.
 - c. A combination of the two procedures indicated above although in different areas of the column.



C/ Barquillo 23, 2º | 28004 Madrid | España
T. (+34) 917 014 460 | F. (+34) 915 327 864
www.fhecor.com | fhecor@fhecor.es