

Puerta de Europa, Madrid, Spain



Client

Kio España/Prima Inmobiliaria

Value

€156 M / 26,000 million Ptas /
£97.6 million

Schedule

July 1989 – April 1993

Assignment

Project Management

Architect

John Burgee Architects



Located on Paseo de la Castellana, the les Champs Élysées of Madrid, Puerta de Europa ("Gateway to Europe") is a mixed-use complex containing office and residential buildings. Included in this unique undertaking was the development of Plaza de Castilla, a circular landscaped public area alongside the office towers, as well as an underground vehicular tunnel.

Bovis International de España provided project management services for the caisson foundation, reinforced concrete core, steel erection, vertical and horizontal post-tensioning, and curtain wall installation of the \$182 million office buildings.

The two 27-storey, 322,580 sf mirror-image towers are the first leaning office buildings in the world. Designed by architect John Burgee of New York, each tower leans at an angle of 14.3° toward the other, evoking an image of a gateway to Europe.

To aid in resisting lateral forces transverse to the direction of the buildings' lean, giant X-braces were built into the front and back sloping faces of both buildings. A horizontal post-tensioning system in the concrete slab at the ground floor will keep the legs of the Xs from spreading out.

Logistically challenging, these buildings were constructed atop below-grade operating subway lines and span a pedestrian subway access tunnel that crosses directly under the site.

The residential portion of the project included managing the superstructure of three 10-story apartment buildings, with a total gross area of 680,709 sf. Each building features retail/commercial space on the ground floor.

Three levels of underground parking garages, totalling 677,419 sf and containing 2,300 spaces, were also constructed below the residential buildings.

In addition to modifying utility services, a 3,600' tunnel was constructed to reduce vehicular traffic and ease pedestrian flow. The six-lane tunnel runs below the Plaza de Castilla and accommodates 150,000 vehicles a day.

Three levels of underground parking garages, totalling 677,419 sf and containing 2,300 spaces, were also constructed below the residential buildings.

