

Transportation Exchange Building in Avenida de América

Madrid, Spain / 2002

Structural type	underground structure, top - down construction
Characteristics	expansion-joint free building 208 m
Owner	Empresa Municipal de Transporte EMT
Client	Pointec - Comunidad de Madrid
Scope	detailed design and construction support
Architect	IREVAL Arquitectura e Ingeniería S.L.P.



The Transportation Exchange Building in Avenida de América constitutes an outstanding element in the Madrid Transportation network. It was conceived as a major model to allow the connection between underground, urban buses and long distance coach services.

The Transportation Exchange Building itself is an underground four-storey structure with a rectangular plan of 208m x 49m. Due to the intensive traffic in the area, the adopted solution was a perimetral foundation wall, partially made with piles, and partially continuous, and a system of excavated column-piles installed from the surface leaving spans of 20m + 8.80m + 20m. The piles have a diameter of 1.80m or 2m and the columns are rolled steel sections. The hollow slabs are made of reinforced concrete 0.80m or 0.60m in depth. The concrete was cast on grade and the soil was excavated afterwards, once the next floor level was reached, the operation was repeated. All the building was designed and built to be joint-free.

The access to the premises of the building is formed by two false tunnels. One tunnel is the entrance, which is 380m in length and the other is the exit which is 480m in length. Both tunnels were solved with screen pile walling and a concrete slab covering, cast on grade.

In the tunnel and in the building itself, the system of casting the concrete on grade permitted great flexibility in respect to traffic deviations, that minimized the impact of the construction process upon the circulation, in an area with a traffic intensity greater than 100,000 cars per day.



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