

## Torre Espacio

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### Figures

Height: Architectural	224.2 m / 735 ft
Height: To Tip	230 m / 755 ft
Floors Above Ground	56
Floors Below Ground	6
# of Elevators	27

### Facts

Official Name	Torre Espacio
Structure Type	Building
Status	Completed
Country	Spain
City	Madrid
Street Address & Map	<a href="#">Paseo de la Castellana 259D</a>
Postal Code	28046
Building Function	office
Structural Material	concrete
Construction Start	2004
Completion	2008

### Rankings

Click arrows to view the next taller/shorter buildings

Regional Ranking	#28 Tallest in <a href="#">Europe</a>
National Ranking	#4 Tallest in <a href="#">Spain</a>
City Ranking	#4 Tallest in <a href="#">Madrid</a>



### Companies Involved

Architect	
• Design	<a href="#">Pei Cobb Freed &amp; Partners</a>
• Architect of Record	<a href="#">Reid Fenwick Asociados</a>
Structural Engineer	
• Design	<a href="#">MC2 Estudio de Ingenieria</a>
Other Consultant	
• Façade	<a href="#">Permasteelisa Group</a>
• Way Finding	<a href="#">neabranding</a>
Material Supplier	
• Construction Hoists	<a href="#">Alimak Hek</a>
• Paint/Coating	<a href="#">AkzoNobel</a>
• Sealants	<a href="#">Sika Services AG</a>

### About Torre Espacio

Torre Espacio is designed to energize the space in which it stands and animate the skyline of Madrid. The design of Torre Espacio evolves from a square plan at its base to a gently curving lozenge, shaped by the intersection of two quarter circles, at its crown. Its intersecting curved surfaces are composed of many separate panels that must be individually fabricated and assembled. Hence, there was a need to discover and adopt a geometric order that can rationalize and facilitate the desired evolution from square to quarter circle. The architects have found this order by subdividing the building section into 44 horizontal layers and then subdividing each quarter circle of the plan into an equal number of radial segments. The intersections of successive layers in section with successive segments in plan define points along a vertical curve.

The mathematical formula describing this curve is based on the cosine, and while it simplifies fabrication and assembly of the curtain wall, its rate of curvature is not constant, but rather changes gradually over its entire length. This gives the resulting tower form its distinctive and visually appealing sense of energy.

The façade is an internally ventilated climate wall design. It achieves an average of 1.3W/m<sup>2</sup>C thermal rating. It integrates façade technology with the building HVAC systems. This results in a reduction of energy consumption, improved occupant comfort and acoustical properties, and a high transparency ratio which allows the façade to be executed in floor-to-ceiling glass. Better utilization of natural light reduces artificial lighting, leading to direct energy savings. Reduced cooling loads from less artificial lighting also leads to indirect energy savings.

The design also utilizes cool ceilings, with a radiant grid of chilled water looped above the perforated metal ceiling panels which increases the comfort in the office spaces by cooling without drafts.

## Videos

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### **Lynn S. Beedle Lifetime Achievement Award: A Lifetime's Work**

7 Nov 2013 – Henry Cobb, Pei Cobb Freed & Partners

## Research Papers

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### **A Smart Real-Time Monitoring GNSS System for High-Rise Buildings**

17 Oct 2016 – Cities to Megacities: Shaping Dense Vertical Urbanism

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