

## MUSEUM OF TOMORROW







**Building Name:** Museum of Tomorrow

**Building/Architectural Style:** Neo-futurism

**Location:** Rio de Janeiro, Brazil

**Date:** 2015

**Architect:** Santiago Calatrava

**Historical Influence:** The structure references Prehistoric Art, designs that mimic or draw inspiration from the beauty of natural and organic elements (human body, sea waves, bird wings, etc.). The simplicity of the form of matter found in nature is merged with the complexity of technological innovations.

### **Characteristics**

**Roof:** The design of the Museum explores the relationship between the city and the natural environment. The Museum includes 5,000 square meters of temporary and permanent exhibition space, as well as a 7,600 square meter plaza that wraps around the structure and extends along the dock. The building features large overhangs 75

meters in length on the side facing the square and 45 meters in length on the side facing the sea. These features highlight the extension of the Museum from the dock into the bay. The permanent exhibition is housed upstairs, and features a roof 10 meters high with panoramic views of Guanabara Bay. The total height of the building is limited to 18 meters, which protects the view from the bay of Sao Bento Monastery, a UNESCO World Heritage Site.

The cantilevering roof with its large mobile wings and the facade structure expand almost the full length of the pier emphasizing the extension into the Guanabara Bay, while minimizing the building's width.

The roof is supported by curving white ribs. A half circle-shaped window tops the entrance.

**Building Materials:** The museum was constructed using metal and *in situ* concrete construction with complex design and 3D freeform surfaces.

**Windows:** Keeping true to its sustainable design, the museum features a large window above the entrance to let in an abundance of light.

At the rear end of the structure is another window that offers a grand view of the harbor, which is framed by the futuristic roof design.

**Doors:** The doors are made of glass offering a seamless transition from the outside in and vice versa. The doors spanning the width of the museum are set beneath the half circle-shaped window.

**Structural and Ornamental/Decorative Features:** Regarded as “Best Innovative Green Building” by MIPIM Awards in 2017, the museum features sustainable design, incorporating natural energy and light sources.

Water from the bay is used to regulate the temperature inside the building; this source also supplies water for the Museum’s surrounding reflecting pools. There is also a system for collecting reusable rainwater. Water is filtered, cleaned, and returned back to the Bay through a small waterfall.

Water conservation is a critical component of the Museum’s sustainable features. All of the water in the museum’s washbasins, sinks and showers is treated and recycled, along with the water used to dehumidify the air, which can reach up to 4,000 liters of water per day. These efforts save an estimated 9.6 million liters of water and 2,400 megawatt-hours (MWh) of electricity each year - enough to sustain over 1,200 homes. The Museum of Tomorrow is also the first museum in Brazil to receive LEED Gold

certification. Finally, native species that require a minimal amount of water to survive were selected for landscaping around the Museum.

The Museum also uses photovoltaic solar panels (5,492 panels divided into 24 modules), which can be adjusted to optimize the angle of the sun's rays throughout the day and generate solar energy to supply the building.

The museum was constructed with recycled materials produced close to the site.

The exterior was painted white to express a sense of airiness and lightness to the structure, thereby appearing almost ethereal and other-worldly.

The building design took inspiration from the surrounding vegetation and Brazilian culture, specifically the bromeliads in Rio's Botanical Gardens and the Carioca culture.

Finally, the philosophy behind the design of the museum is anchored on our need to change if we are to avoid disasters of climate, environment, and social collapse. All these principles are carried out in the building's attempts to set new standards of sustainability.

**Additional Notes:** What stood out for me in the Museum of Tomorrow is how otherworldly and distinct the design is. For me, the Museum of Tomorrow is a piece of sculpture meant to be admired from all angles. And I think only those with a crazy taste in design would appreciate Calatrava's aesthetic. It is not everyone's cup of tea. And so am I.

**References:**

<https://calatrava.com/news/reader/museum-of-tomorrow-wins-best-innovative-green-building-mipim-award.html>  
<https://projects.archiexpo.com/project-211246.html>  
<https://www.archdaily.com/785442/museum-of-tomorrow-santiago-calatrava>  
[https://www.architectmagazine.com/project-gallery/the-museum-of-tomorrow\\_o](https://www.architectmagazine.com/project-gallery/the-museum-of-tomorrow_o)  
<https://www.hisour.com/museu-amanha-rio-de-janeiro-brazil-7348/>  
<https://www.modlar.com/search/photos/project--museum%20of%20tomorrow/>  
<https://www.peri.id/projects/cultural-buildings/museum-of-tomorrow.html>  
<https://www.re-thinkingthefuture.com/know-your-architects/a1665-understanding-the-design-philosophy-of-santiago-calatrava/>  
<https://www.slideshare.net/AnsherinaDelMundo/architect-santiago#:~:text=PHILOSOPHY%20%EF%82%97%20Santiago%20Calatrava%20symbolises,encompasing%20all%20form%20of%20arts>