



SANTIAGO CALATRAVA HAS DESIGNED A STRIKING ALL-WHITE BUILDING AS A MODERN SYMBOL OF TENERIFE.

Small coves of black volcanic sand with long white beaches between them, lush woodlands and banana plantations: the contrasting landscapes of the island of Tenerife, the biggest in the Canary Islands (Spain), have always attracted visitors from abroad.

Alongside its natural beauty, climate and old towns and cities – such as San Cristóbal de La Laguna, which UNESCO has classed as part of World Heritage – the island can also boast some spectacular buildings like the Auditorium designed by the architect and engineer Santiago Calatrava and built in Santa Cruz de Tenerife, the island's capital.

This construction is particularly significant because it is the Spanish architect's first building designed for the arts and entertainment, later followed by projects for the new home of the Atlanta Symphony Orchestra (USA) and Valencia Opera House (Spain).

Work on the Auditorium began in February 1997 and the building officially opened in September 2003. The Auditorium stands along the waterfront between the Maritime Park and commercial port of Santa Cruz. It is built

on an area of land covering a total of 23,000 m², 6,471 of which taken up by the structure itself and the rest accommodating urban infrastructures and gardens.

Due to its striking impact on its surroundings – an imposing all-white structure with a roof suspended in the air in contrast with the light-blue ocean – it is likely that the Auditorium will become a real modern symbol of the Canary Islands, rather like the Guggenheim Museum designed by Frank O. Gehry is for Bilbao or the Beaubourg Centre (Pompidou) designed by Renzo Piano for Paris. The first thing striking anybody looking at the Auditorium is its special structural design that looks almost like an ancient warrior's helmet covering the building below.

This sort of "hood" has a bold, light design and hardly surprisingly is also referred to as the Wing. Its approximately 60-metre-wide base is located over on the side of the building facing the city.

As the big Wing rises up and points its tip towards the square facing the sea, it narrows into the tip of a spear at a height of 98 m above the ground.

All white for the Auditorium



The roof rests on the Auditorium building's main body at three points. The Auditorium has a conical shape and is composed of a twin covering of white concrete, ceramic tiles and granite basalt.

The two outside surfaces or "sails" are 30 cm thick and enclose a perimeter area, the foyer, which acts as both a lobby and barrier against outside sounds. The interior surfaces – composed of plaster, wood, white concrete and granite – are 50 cm thick and enclose the main hall. A set of concrete arches made of cylindrical sheets surround the glass entrance windows on both sides of the Auditorium, contrasting with the main building structure.

The latter arches are designed to convey the load from the concrete covering down into the foundations.

There is a smaller, square-shaped structure alongside the main construction facing over towards the sea and holding a terrace bar.

The distinctive curved geometry of the main hall where the concerts are held determined both the final shape and structure of the building. The hall covers an area of 1,311

m² and provides the audience of over 1,600 with a 17 m wide and 16 m deep stage and three separate platforms (two for the orchestra and one for the stage props).

Thanks to the hall's unusual conical form and the absence of a conventional roof, experts consider the Tenerife Auditorium's acoustics to be quite unique. Sound is reflected by a set of convex reflectors and it is possible to alter the acoustic conditions by activating soundproof devices concealed behind a rectangular grille.

A smaller hall is devoted to chamber music and can host an audience of 400. Access to this space is along a corridor leading to the floor below the main foyer.

The hall covers 411 m² and has almost a triangular base with a "palm leaf"-shaped ceiling. In addition to a dedicated foyer, it also has a bar, main cloakroom and press room. This floor of the building also houses the technical structures, storerooms, a workshop and utility areas (dressing rooms, rehearsal room etc.).

The concert halls are complemented by two service buildings separate from the main construction, which respecti-

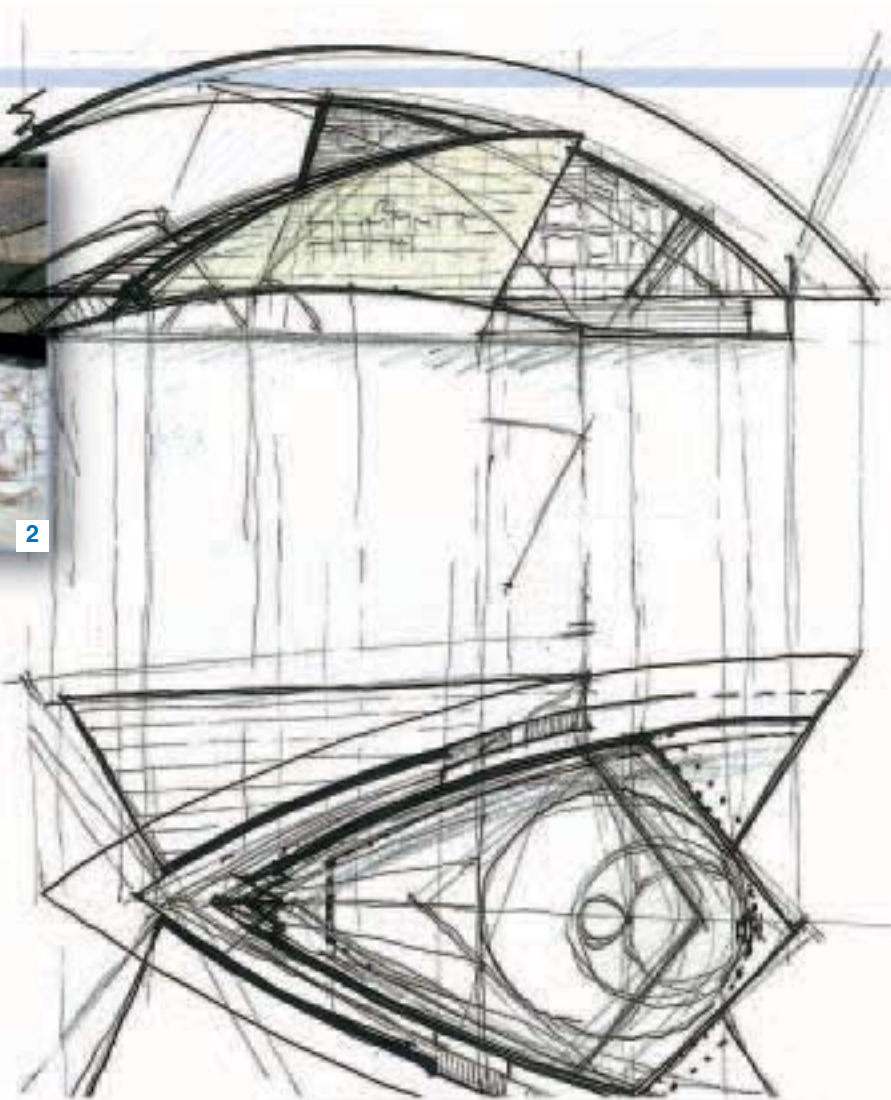




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Photos 1 and 2. Sheets of "trencadis" were used for covering the outside surfaces. These are carefully broken tiles recomposed on fibreglass mesh. This method is used for covering curved or uneven surfaces.

Photo 3. The "sheets" of tiles were laid using Keralastic and Keralastic T adhesives. The joints were grouted using Ultracolor.



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vely accommodate a 250-space garage and the offices of the Tenerife Symphony Orchestra.

Mapei's Contribution

Mapei products were chosen for installing the outside layers of white tiles. The kind of ceramics installed, called "trencadis", is something very special: the tiles are carefully broken and then placed on fibreglass mesh. These "sheets" are then used to cover the curved or irregular-shaped areas, such as the curved roof surfaces and the small walls marking the entrance paths leading up to the Auditorium.

The "trencadis" coverings were laid with the polyurethane adhesives KERALASTIC* and KERALASTIC T*. Both these adhesives are extremely suitable for interior and exterior wall and floor bonding of ceramic tiles, natural stones, agglomerates and mosaics on all type of substrates normally used for building. KERALASTIC T* is the thixotropic version of KERALASTIC* and can be applied vertically without slump and without letting even large and heavy tiles, as in this case, slip.

The joints were grouted using ULTRACOLOR* chosen, like the previously mentioned products, in the colour white (the product is available in 26 colours). ULTRACOLOR* produces no efflorescence and dries quickly, thus making the floors ready for pedestrian traffic after a short period of time. It is highly resistant to acids and abrasion, even after freezing-thaw cycles.

***Mapei Products:** the products referred to in this article belong to the "Products for Ceramic Tiles and Stone Materials" range. The technical data sheets are available on the "Mapei Global Infonet" CD/DVD or at the web site: www.mapei.com.

Mapei's adhesives and grouts conform to EN 12004 and EN 13888 standards.

Keralastic (R2): high performance, two-component polyurethane adhesive for ceramic tiles and stone material.

Keralastic T (R2T): high performance, thixotropic, two-component polyurethane adhesive for ceramic tiles and stone material.

Ultracolor (CG2): fast setting and drying, anti-efflorescence grout for joints from 2 to 20 mm, available in 26 colours.

N.B. The product has been replaced by Ultracolor Plus.



TECHNICAL DATA

Santa Cruz de Tenerife Auditorium, Canary Islands, Spain

Work: laying ceramic tiles on the Auditorium's external surfaces and grouting the tile joints

Year: 2003

Project: arch. Santiago Calatrava

Client: Tenerife City Council

Installation Company: Nesco (formerly called Acciona Infraestructura)

Mapei Co-ordinator: Manuel Ángel López, Ibermapei