

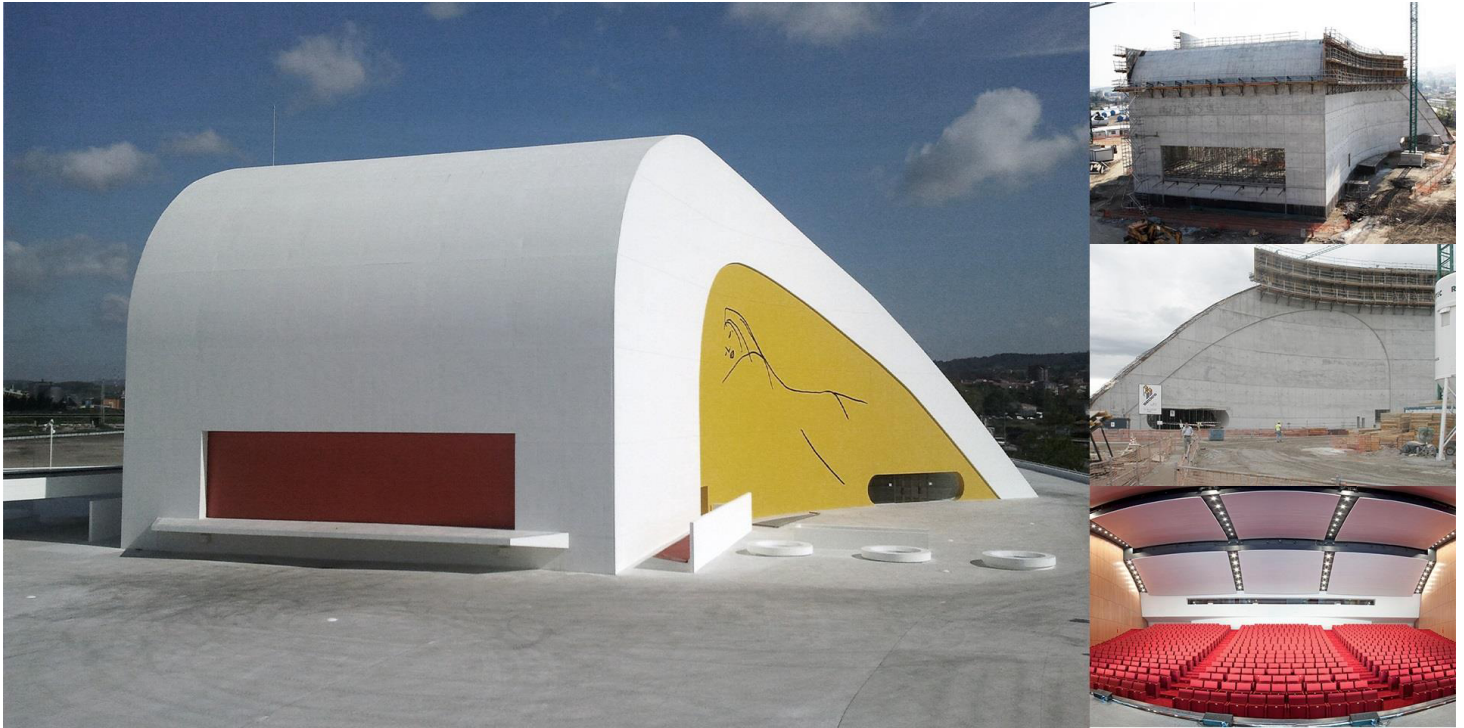


# Oscar Niemeyer Cultural Center Auditorium

Avilés, Asturias / 2010

Structural type  
Owner  
Client  
Scope  
Architect

Concrete structure  
Principado de Asturias  
Constructora Promotora Sedes  
detailed design and construction support  
Oscar Niemeyer



The Oscar Niemeyer Cultural Center is the only work that the centenarian Brazilian architect has in Spain and shall be the most important of those fulfilled in Europe. It is situated on the Isla de la Innovación on the Ría de Avilés in Asturias and the auditorium shall spearhead its cultural activity.

The auditorium has a capacity for 1,000 people and a constructed surface area of 7,700m<sup>2</sup> which is distributed on two floors above grade and one below. All of this is protected with a 5,500m<sup>2</sup> shell-shaped roof covering which favors the auditorium acoustics and has maximum dimensions of 80m in width, 75.0m in length and 26.0m in height. This roof covering is made of a 0.50m reinforced concrete slab, which is a very strict depth for something of these dimensions and which is only made possible because Oscar Niemeyer's architectural conception integrates the structural function of double curvature within the design.

The lateral walls of the auditorium have a curved geometry on plan even if they are vertical in frontal elevation. Structurally the walls have two functions: Firstly, to close off the building with 25cm thick buttresses to resist the wind loads and to reach heights of 20.0m. Secondly, to withstand the weight and the thrust from the roof, due to the decompensation which is provoked by the architectural design and which is solved by a wall a constant 40cm thick.

Inside the building, the horizontal structure above grade is solved with the combination of two structural types: the grid slabs used in the Galleries and in the Entrance Hall, where spans between columns reach up to 12.0m and the gridding of beams for the stage area and the slabs for the cabins destined to the projection and sound rooms.

The scenery equipment (the fly loft) is a steel structure which hangs from the roof and is supported on the lateral walls of the auditorium and on the curtain wall support beam. It consists of six galleries and a grid which allows technicians to walk over the fly loft, and configure lift lines and loft-blocks (the final pulley which lets the horizontal lift line coming from the head block to hang vertically and move a batten). Over the galleries there is also a steel framework, which hangs from the roof, and offers support to the technical gangways which are necessary for the stage lighting and the acoustic false ceiling.



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