

Cartagena Auditorium facades: a new structural and sustainable skin system

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Summary

Cartagena Auditorium (Spain) is a building design inside the principle of sustainability. The building has to large facades in which it has been used for the first time, a flat skin of double layer made in ETFE with a self-resistant cable system. The combination of structural innovation with the rational use of the power resources available is one the main features of this sustainable building.

Keywords: facade, ETFE, cable, sustainability, skin, building.

1. Introduction

Natural conditions are more and more a source of inspiration in the architecture projects. The use of the natural energy like light source, along with the control of the heat flow between the interior and the outside of the building, is one of the most important basis of any architectonic project under the point of view of the sustainability. These ideas usually are materialized by means of light facades, in which the transmission of light and heat is made of controlled form. This includes in many cases, variable systems that allow fitting the power consumption with to the environmental conditions of the moment.

Within this field of the bioclimatic facades, the scope of work of the structural engineer is to design light structures. In these design the engineer has to use combined resistant cable systems with new materials like the ETFE. These types of solutions open a world of possibilities not only under the structural point of view, but from the architectonic one and the power efficiency.



Fig.1: General view of the ETFE membrane during installation and inside view