

TEXTILE ARCHITECTURE? JUAN CARLOS GÓMEZ DE CÓZAR

Dto. Construcciones arquitectónicas 1. Escuela Técnica Superior de Arquitectura
Universidad de Sevilla
Avd. Reina Mercedes, 2, 41012 Sevilla, España
gcozar@us.es

Key words: Architecture, quickly assembling, textile membrane

Summary. For ten years, we have been working in the definition of buildings based on the concept of workshop fabrication and casting-in-place by quickly assembling proceedings. In this process, because of its easy placing and shaping adaptation to many situations, using textile membranes in architectural contexts has been so frequent.

1 INTRODUCTION

Nowadays, so many types of architecture are being classified regarding its relationship with: environment (sustainable, bioclimatic,...), occupants (social, protected, de luxe,...) and materials (concrete, wood, textile,...).

I think this is a error. There is only one type of architecture and it is the one which allows a specific activity starting from correct definition of spaces. Obviously, to get it is necessary: using appropriate materials, consuming the lowest amount of resources as possible, doing it at an appropriate price and, finally, getting a durable object. Therefore, any additional classification is implicit in architecture definition. Any building which does not fulfil these precepts, will be *other thing*.

So there is no problem if we consider that buildings made by textile membranes are architecture. However, because membranes have higher loss of validity than traditional materials, buildings that use them are labelled as not durable. Does a building have to be durable for being considered architecture? Not durable buildings, usually named ephemeral, have been classified in inferior classes. However, these ephemeral buildings are solved with quickly assembled proceedings which stand out over traditional proceedings.

For several years, in our investigation, we have been thinking of:

Is it possible to build durable buildings using ephemeral buildings' proceedings?

What does durability have to do with? Only with material's ageing? Or, maybe, is more important that buildings could loose, in the course of time, its adaptability to new uses.

2 CONTRIBUTIONS

With the intention of answering the first question, for more than ten years we have been working in the development of quickly assembled buildings (or part of them) [1] [2] [3].

With this proceeding we aim to reduce working operations, to take detailed control of the process (factory/work) and minimize constructive process' environmental impact.



Figure 1: Covered and air-conditioned swimming pool in Gines (Sevilla). Unfolded mesh composed of two layers of rhombuses and scissors. A continuous and tautened textile membrane hangs from it.

In this process of making quickly assembled works, tautened textile membranes are materials that give a lot of possibilities. Apart from being used as elements that give shade (the most popular use), we have explored other possibilities, always inside an architectonic context:

- Capacity of reclamation (architectonic landmark like an urban element)
- Covers of spaces
- Buildings and buildings' covers.

We have had the opportunity of building a lot of projects. Technical potentiality has been brought together the architectonical one, trying to profit from the design of all elements that compose the system (membranes, masts, arches, handles, cables, joins, etc.) Following figures illustrate previous points:



Figure 2: Project of travelles' reception module. Seville's Port (J.C. Gómez de Cózar, 2005). Surrounding of existing metallic lattice window by means of four different geometries with all the free edges cloths. Besides to contribute to reduce the tempereature in the inferior cockpit, it is constituted like a landmark in the city.



Figure 3: Project of comercial galleries and shadow areas for the shopping centre Zona Este in Seville (J.C. Gómez de Cózar, 2006). Arches and free endings are brought together in the galleries. All elements give shade and are used as advertisement.

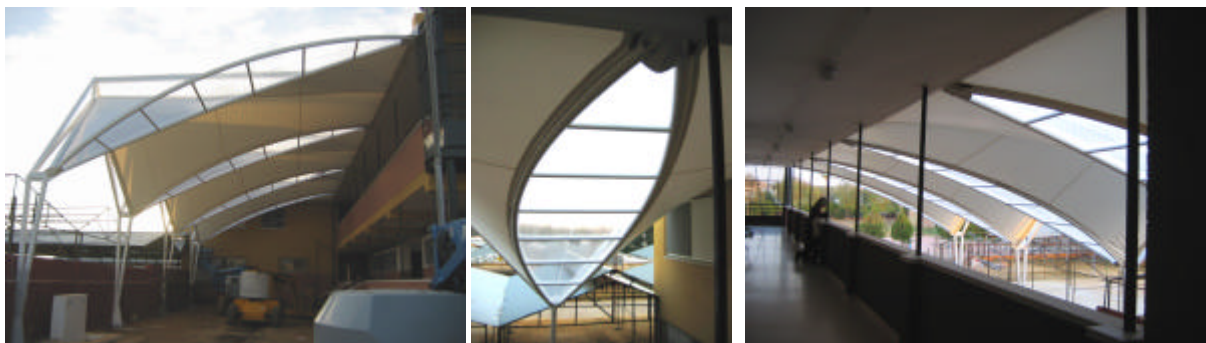


Figure 4: Extensión of Pío XII school in Bollullos de la Mitación, Seville (J.C. Gómez de Cózar, 2004). Roof composed of a combination of opaque and transparent membranes framed by tubular section arches. Membranes give lightness and help for quickly assembling. They are easily replaceable.



Figure 5: Multiuses Centre in Pilas, Sevilla (J.C. Gómez de Cózar, 2004-07). Building solved by quickly assembled proceedings. Membranes play a double role: MAIN (the roof. It was built in one week), SECONDARY (perimetral gallery. It defines a circulation space around building and gives shade to façade).

3 CONCLUSIONS

Built buildings (or part of them) using textile membranes, provides obvious advantages like lightness, easy assembling, exhaustive process' control, freedom of shape, etc. We have proved, according to showed works, the possibility of making durable buildings even when using ephemeral works' materials.

Constructive process showed, thanks to modulation and standarisation, gives facilities when changing or repairing materials, although they age. Furthermore, adaptation possibilities, additions, modifications and, finally, temporal contextualisation, increase with this type of materials.

So the architecture we set up has more possibilities of lasting than the one considered traditional.

By any case, the approaching of works and executed projects and working line followed, as it has been argued, has always been architectural. Because not all works built with textile membranes could, or must, be considered architecture...

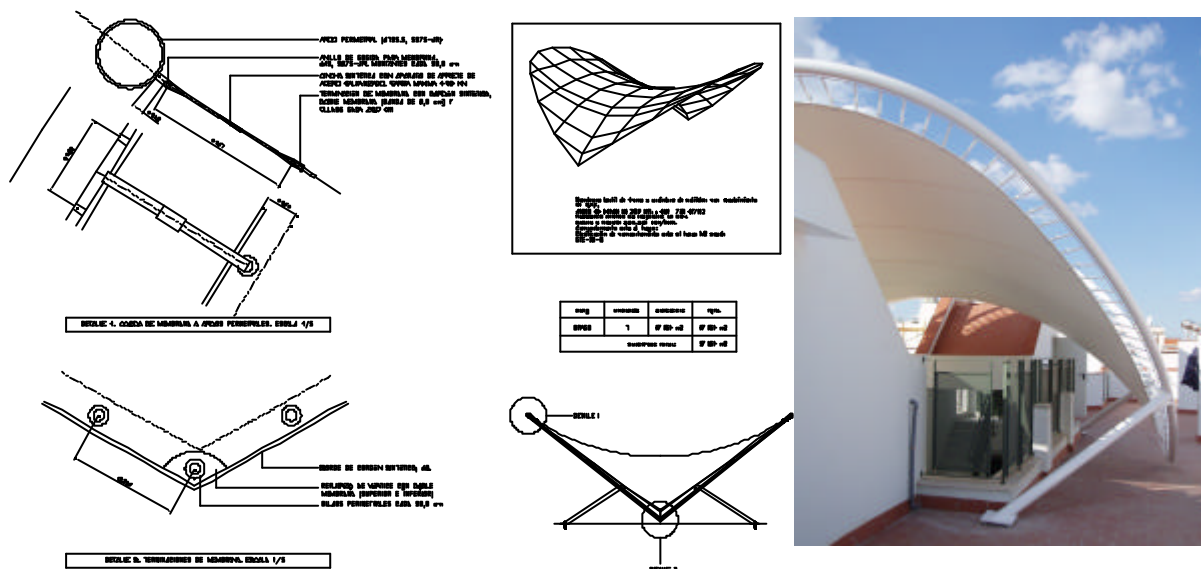


Figure 6: Central yard's roof in a building, Sevilla (J.C. Gómez de Cózar, 2006). Autoamble roof, framed and tautened by all its perimeter, as shown in details. It shows oval shape seeing from above. Arches have two centres..

REFERENCES

- [1] Gómez de Cózar, J.C. & García Diéguez, R. Sistema para la construcción de estructuras estereas de doscapas, desplegadas, formadas por mallas de rombos y aspas multianguladas. Patente de Invención, Reg. N° P9701926. España, 1997.
- [2] Gómez de Cózar, J. C. & García Diéguez, R. Florín System. Doble layer spatial deployable structures, with frames of rhombuses and scissors. Proc. of the Conf. on Deployable Structures: Theory and Applications. Univ. of Cambridge, 1998.
- [3] Gómez de Cózar, J.C. Desarrollo de mallas de barras para la arquitectura. IAU 2006. Segundas Jornadas sobre Investigación en Arquitectura y Urbanismo. Barcelona, septiembre de 2006.