POLITECNICO DI TORINO
FIRST SCHOOL OF ARCHITECTURE
Master of Science in Architecture
Honors theses

”TEXTILE’S PROJECT”_ creativity hang by a thread
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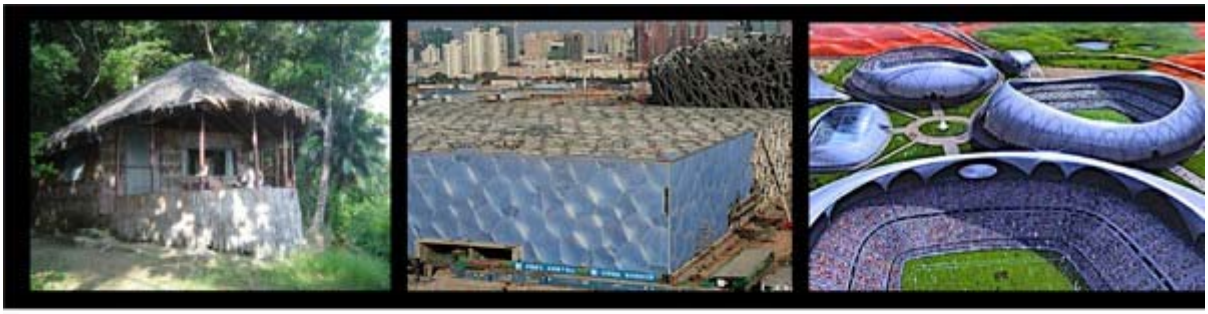
In all civilisations, both ancient and modern, the tools used in the production of manufactured textiles and the operations that are connected to weaving possess and have possessed a symbolic valence which have even influenced language.
In the world of design, textile surfaces are extremely versatile and their applications in the field of architecture and design continue to grow.



The designer is almost faced with a problem of “hyperchoice” in terms of the textile, as it is extremely varied, both technically, given its light weight, stronger resistance and elasticity, and from the point of view of its aesthetic and “sensory” appearance.

Weaving has always been present in the history of architectural design, from the moment nomads in ancient times felt the emotional and biological need to build shelter, by intertwining branches and leaves, to more innovative contemporary projects in which extremely light and resistant textile membranes are employed.
What are the features of a textile? What is a textile? What raw materials does it come from? What tools are needed to achieve this? What research has been fundamental in its development? What are the applications of a textile in architecture and design?
A textile is a material that elicits creativity and it has changed the shape of many buildings and objects by often allowing different parts to be brought together in a single surface.
A textile surface is capable of conveying immediate messages which have a strong visual impact.

cos'è un tessuto?

A textile is semi-worked as it comes out of a design and development process that is made up of different phases: the choice and then the spinning and weaving of the primary material.

A textile is made up of many yarns which are distinguished by their traction resistance, steel cables or guys for instance are essentially spun in macroscale and are a perfect example of the immense elasticity found in woven materials. The axial behaviour of a yarn becomes planar in a textile so we have a material that works under traction to the best of its abilities because the elastic tension produced confers a greater resistance to the weight.
A textile is a very light and resistant material that can be used to construct roofs, which, taking into consideration the width, can weigh up to a hundred times less than concrete beams and ten times less than steal. In addition, the resistance of some woven materials is four/five times greater than steel, with a traction resistance that can be ten times greater. The use of woven materials in a project allows one to construct lightweight structures, which can be easily transported and put in place in an extremely short period of time with reduced costs.
A fabric prevents visual permeability into the building during the day, but at night, it allows the inner light to come through, which means that manufactured architectural goods make a significant impact by turning them into important features of the area.
Space missions are and have always been fundamental in developing the uses of fabric in architectural planning and design: materials used in the tensostructures are an extension of the layered textile membranes which were tried out in space suits and which led to the birth of “high performance” and “smart” materials.

Modern day fabric is able to transmit light and information, from the Edison light bulb to fibre optics, to materials which can store and give out electricity that could be the basis of “intelligent houses” that have interactive walls and monitoring systems and remote transmission. Fabrics, which historically have been passive, in the 21st Century have become systems capable of participating actively in the life of the new “high tech” user. The future of design will be in these “intelligent materials”, which are examples of innovation and show how much fabrics continue to push the limits of design by overcoming barriers in different fields, while at the same time, remaining a material which was adopted millennia ago to “construct” the world of our needs.

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