Structural Fibres

Atelier Weinand

How can production techniques, material properties and structural aspects generate / produce / induce architecture? These were some of the key questions that were at the core of the Atelier Weinand in the autumn term of 2007.

The architecture and civil engineering students of the Atelier Weinand (Professor Dr Yves Weinand with assistants Hani Buri, Markus Hudert and Johannes Natterer) examined, under the title ”Structural Fibres”, the logic and principles of textile structures in order to answer these very questions. This undertaking was structured in three phases: First, a learning-by-doing workshop, where the students were introduced to four different types of textiles, namely woven, braided, mesh and non-woven fabrics, and the way they are manufactured. Of special interest was that, although the production of fabrics is based on rather simple techniques and principles, a huge number of variations can be achieved. At the same time, it became clear that there are many similarities between the different types of fabrics.

The second task was to develop an architectural object, for instance a piece of furniture or a single-space cabin, based on the observations from the first exercise. In parallel, the students achieved a better command of usage of the different techniques and their variations.

The third phase took place on building scale. Here, every student defined an individual program in order to allow for each approach to unfold its full potential. Application and further development of principle details from the precedent studies were encouraged. Several of the developed projects could be realised as large-scale prototypes, which demonstrated the value of practical implementation that has been promoted throughout the Atelier. Among the impressive outcomes were projects such as a braided arc, a plaited pavilion, an inflatable plaited structure, a plaited screen and a knitted greenhouse. The EPFL-ECAL Lab provided an appropriate environment and infrastructure to allow both the build-up and the exhibition of the results.

Currently, the IBOIS is working on a publication that will feature some of the results of this Atelier, which will be published in 2009. For details and updates please visit the IBOIS website at http://ibois.epfl.ch.