

I propose to relate a way for the teaching of constructive conception which has been especially conceived for the pedagogic program of the Grands Ateliers de l'Isle-d'Abeau *

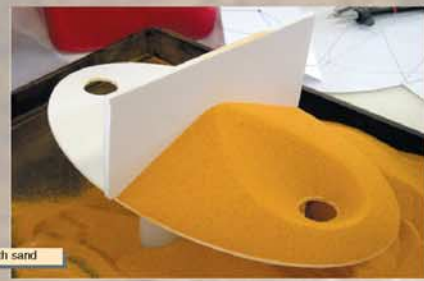
The originality of this teaching way arises both from the constructive register it considers (composition of surface lightweight structures), from the matters which are co-operating during this teaching (pluridisciplinarity approach), from the conception methods it uses (mixing theory with experimentation), and from its elaboration sequences (from the search of principles until an effective realisation)

It is also convenient to show how disciplines such as Structural Morphology (analysis of the correspondances between forms and structures in any field of existence) and Constructive Geometry (study of the structuring abilities inherent to spatial organisations) are able to catalyse constructive invention

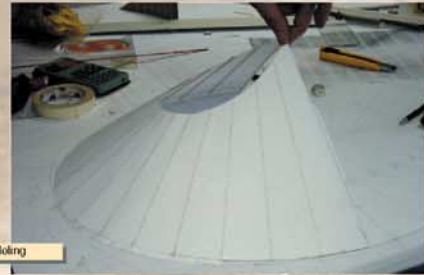
Five posters will argue the principal phases of these processes, in accordance with your thematic criteria :

- 1) Morphological prospection with physical sand models which are naturally generating the particular register of surfaces which was then studied (constant slope surfaces for roofing systems)
- 2) Geometrical analysis specifying, through graphic and infographic representation, the characteristics of the configurations which are studied (developpable rules surfaces, for the manufacture of three dimensional models)
- 3) Constructive interpretation of these roofing forms which were previously considered, made with models for structural simulation (from global composition until technical details for fabrication)
- 4) Stages of the effective realisation for the choosen proposition (from rough material until achieved building)
- 5) Didactic material especially conceived to assist the various stages of these pedagogical processes

** This teaching experience, recapitulated on the joined poster, has been held for the inauguration of the Grands Ateliers de l'Isle d'Abeau in February 2002, during a thematic workshop untitled "Geometry and Structure"*



morphogenesis with sand



geometrical modeling



constructive elaboration



manufacture of a post



ground implantation drawing



raising a frame



the building is quite finished

SCHOOL OF ARCHITECTURE PARIS-MALAQUAIS **FRANCE**
SCHOOL OF ARCHITECTURE OF LYON

Workshop about Constructive Geometry of Surfaces Self-Constrained Frame with Constant Slope

Permanent teachers:

Jean-Marie Delarue, architect (School of Architecture Paris-Malaquais)

Rémy Mouterde, engineer (School of Architecture of Lyon)

Occasional teachers:

Jean-François Brossin, teacher in visual arts (School of Architecture Paris-Malaquais)

Damien Kahn, architect

Robert March, engineer (School of architecture Paris Val de Seine)

Loïc Couton, architect (Renzo Piano Building Workshop)

During a building workshop about the Constructive Geometry of Developable Surfaces, the quite unknown field of constant slope surfaces has been studied in search of their application for original roofing forms.

Here are the main study phases:

- Some experiments with a self structuring sandy powder material realize the morphogenesis of constant slope surfaces.
- The geometrical analysis of these ruled and developable configurations allows the modeling of these surfaces with a patchwork of cut and bent paper sheets.
- Constructive interpretation of these forms, made with models for the simulation of structural behaviour, are proposing various building solutions, from the global system composition until its realization details.
- A prototype of self constrained framework made with metal and wood has been built as a support for a plastic covering.