

centre de recherche sur l'espace sonore
et l'environnement urbain



CRESSON

Unité Mixte de
Recherche
1563
"Ambiances
Architecturales
& Urbaines"

The teaching of construction at Grenoble School of Architecture

Nicolas Tixier, Philippe Liveneau - 2002



école nationale
supérieure
architecture
de grenoble

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Pour citer ce document :

Tixier, Nicolas ; Liveneau, Philippe. The teaching of construction at Grenoble School of Architecture. In. Maria Voyatzaki Editor. *The teaching of construction in Architectural Education, Current pedagogy and innovative teaching methods*, ENHSA, Thessaloniki, 2002, pp. 86-91.

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Dernière mise à jour : 2007

The Principles

The teaching of construction in the architecture school of Grenoble

Decompose – analyse, recompose – construct

To begin with, the project is a mental construction. For it to be able to pass to the realistic side, that is to a constructive state, the mental project has to become possible. Therefore, it has to be thought in a certain way allowing it to be virtually decomposed or deconstructed into elementary objects, then recomposed or reconstructed. The construction then acquires a new meaning, one of a passage of realistic objects to a mental or imaginary project. The construction course is first learning this method : **decompose or analyse, recompose or construct.**

Time

Every project is situated in a time and a place that supply it with its resources (men, culture, materials), and its constraints (climate, environment). The courses always try to recall this fundamental dimension of **time** : days, seasons, life and transformations, demolition and recycling). This temporel dimension permits to logically approach the history of construction, to demythologize the one of science which is applied there, and to approach economic and environmental notions.

The cave and the tent

From these two big constructive archetypes, the history of construction shows the evolutions and passages from one to the other. Case studies create links between construction and its history, its resources, allowing to illustrate the principles of decomposition or deconstruction mentioned above.

Application of the Principles

Fisrt year : thought and matter

In the first year, the students learn to manipulate certain materials, and then construct a small edifice at a scale 1 to 1, realized in the Grands Ateliers. That way, they understand that the construction objects are a result of the transformation of matter into materials, then that their production or assemblage still need some further work.

Second year : history

In the second year, the construction courses will pursue the initiative of the vocabulary of objects, to the principles of mass and skeletal structure construction, to their evolution in history with the industrial revolutions and the invention of new materials. The sketching and construction analysis of an emblematic house contributes to the acquiry of this method of decomposition and analysis. Models at a big scale, as well as construction exercises and the manipulation of big scale models contribute to the understanding of construction and stability systems.

During the second year studio programme, exercises are developed with specific requirements concerning construction and light.

Third year : complexity

In the third year, a « project exercise » constitutes the realization of the complexity of a project and its multiple aspects. It's a pretext which leads to a global work of conception making evident the differences in the principles of mass and skeletal structure, and generating a work of economy, details at a big scale, as well as a serious approach to « ambiances » (natural light, thermic confort, accoustics, climate control).

Fourth year : développement durable

In the fourth year, the teaching of construction is principally based on on the « développement durable » and « ambiances ».

Product design diploma (DPEA)

This course is open to students who have obtained their BACCALAUREATS-SCHOOL-LEAVING certificate or equivalent and successfully completed at least 2 years in the form of lectures and workshop projects.

It aims to develop :

- experience and training in project work, design methods, evaluations tools.
- personal creativity and constructive imagination.
- understanding of the professions to guide in choice of career path and the approach to the market.

Fifth year : constructive strategies

In the fifth year, the « cultures constructives » domain gives an important place to materials, their life cycle and their logical use. The year is divided into four sessions, each session has a theme on a specific material, its history and its different techniques, ending with an intensif project of two weeks. (The four materials studied are the following : stone, wood, steel and earth).

The Grands Ateliers receive students during their degree course, mostly those in the first year and in the domain « cultures constructives » of the fifth year. Some options of the second cycle take place there, and the Grands Ateliers can also receive students in residence for research work, experimentation or the realization of prototypes.

Ambiances

This teaching unit is included in a fifth year programme based on The architectural and urban ambiance theory developed in the CRESSON laboratory and is the result of a collaboration with les Grands Ateliers de l'Isle d'Abeau.

It has been developed and lead by Philippe Liveneau and Grégoire chelkoff, architects, teachers and searchers.

It questions the architectural conception process in both its theoretical and practical dimension. The aim is to experiment and build "multimodal Ambient Devices" - "Dispositifs Ambiants Multimodaux. These artefacts

combine Ambiance Theory (sensitive, practical and technical space dimensions) with the constructive field.

- 1- On one hand, it implies identifying and generating light and sound effects, tactile and kinetic properties that constitute the quality matrix of public and domestic space
- 2- On the other hand, the construction system, requires thinking and using materials according to their own intrinsic properties and their assemblage , combination and transformability potential.

The small scale artefacts realized during experimentations are emblematic of a specific way to understand and undertake the making of architecture with a phenomenological approach;

In a four interrelated phase cycle, students have to

- Analyse the experimentation context
- Programme the qualitative and quantitative aspects of their project
- Build and develop the project during the construction phase
- Evaluate the evolution and transformation of the context following their intervention as well as the project itself

This heuristic teaching process is carried out several times in order to increase student comprehension and quality results.

Each phase requires working throughout different disciplines such as ingeneering, sociology and architecture. It implies a negotiated conception process.

Each experimentation constitutes a reference for its process and the artefact that has been built.

Traduction du schémas

programmation	conception	construction	perception et usage
programming	conception	building	usages and perception
programme	représentation	artefacts	situations architecturales
programme	representation	artefact	architectural situations

DPEA

the "earth architecture" DPEA diploma

This training enables students to acquire scientific and technical knowledge of the earth material, and to master the production processes and building techniques (projects for the development of low-cost housing, for the preservation of earthen architectural heritage or environmentally-friendly housing).

DESS

"construction management" DESS diploma in applied subject constructions.
In association with the Joseph Fourier and Pierre Mendés France universities (in the course of accreditation), this professionally orientated training focuses on the professions linked to on-site works supervision.

DEA

"Architectural and urban ambiances" DEA diploma/PhD
jointly accredited with the Nantes University and school of architecture, the goal of this course is to provide students with more in-depth knowledge of interactions between the physical elements of ambiances and the human sensible dimension in an architectural perspective

principles

Decompose – analyse, recompose – construct

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The cave and the tent

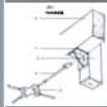
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the teaching of construction at

grenoble school

de école

1st cycle



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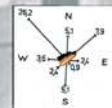
basements

2nd cycle



Third year : complexity

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Fourth year : sustainability

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specializations

design

Product design diploma

(DPEA diploma)

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of architecture

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3rd cycle

ambiances

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masters and PhD

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