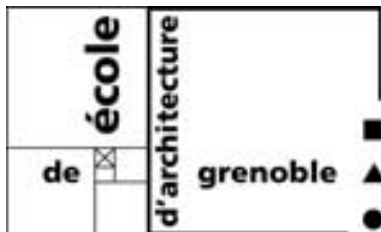


Building atmospheres

Introduction



Atmosphere as a transdisciplinary object

Research at the CRESSON laboratory (CNRS mixed research unit 1563) focuses on the perceptible environment and architectural and urban atmospheres. Cresson advocates a qualitative approach capable of helping and possibly guiding the strategies and processes of architectural design. Initially focused on the sound space the laboratory broadened the scope of its investigations to the many dimensions that are perceptible *in situ*. Research addresses the phenomena of light, heat, smell, touch and movement. It is based on original pluridisciplinary methods at the crossroads between human and social sciences, between architecture and engineering science.

Drawing on this culture, each member of the laboratory and teacher at the school sets out to develop in his or her classes a pedagogical approach that teaches students to make allowance for atmosphere at every level of design: how to qualify a site in terms of atmosphere? how to draw up a perceptive programme for an architectural project? how to conceptualize the atmospheres of a project? how can work conceptualizing atmosphere initiate a particular process for producing a space? how to achieve the sought after atmospheres in terms of actual building? how do reference projects contribute to the design of tomorrow's atmospheres? how do atmospheres enable us to revisit classical categories of architecture?

Whether addressed in design or construction exercises atmospheres enable a rich dialogue between disciplines. Asking students to do design work on atmospheres, build atmospheres, or experiment and make expert appraisals *in situ* are all ways of articulating design work and the learning of classical building techniques.

Atmospheres are a meeting place between the various trades that surround architecture. Atmosphere provides a starting point for dialogue between designers and builders, as it is a transdisciplinary idea that is meaningful for everyone involved.

Our experience of teaching shows that building in the classical sense is developed by the exercise of design at various moments and in various modes: sometimes building elements generate an architectural project, sometimes they only appear at the end of the process once the project, stripped of its material contingencies, at last exists in a conceptual form and it is time to focus on its material realization. We have all been confronted with a situation of this sort. We believe there are neither good nor bad approaches. What strikes us as fundamental, on the other hand, is the ability of students to organize their intentions, be they conceptual

or construction-oriented. As such the notion of atmosphere seems to offer a new means of overcoming this dichotomy by proposing different attitudes – intervening as a designer, or builder, but above all as a designer aware of the building choices that his or her intentions involve.

This article sets out to show what a theory of atmosphere has contributed to teaching of building and design in all the modules at Grenoble's school of architecture.

More precisely this paper will present the following exercises (to facilitate understanding the years indicated correspond to the new European organization of study (Bachelor, Master, Doctorate) regardless of how the new system will actually be applied in our school for the 2004-2005 academic year:

Inhabiting – Dwelling: design gestures, architectural and urban atmospheres

Philippe Liveneau - Bachelor, 2nd year

This exercise is organized around three pedagogical modes: analysis, experimentation and design. They enable students to understand and conceive the quality of the dwelling starting from the issue of architectural atmospheres. Each phase of the exercise centres on a morphogenetic operator, in other words a design gesture that enables the student to conceptualize and achieve articulation of the physical, perceptive and usage dimensions of the project: bending, cleaving, deploying and "imprinting". This prompts students to:

Studying Atmosphere

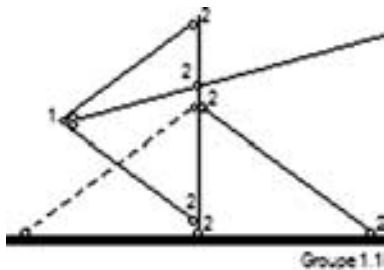


- analyse housing projects from two points of view, namely the perceptive quality of the resulting atmospheres and the design gestures involved;
- experiment with and test the quality of the atmospheres each design gesture produces. Through the production of a small wooden dwelling accommodating two to three people in a sitting position, students can test at the scale of the human body in movement the quality of the spaces obtained depending on the gestures previously analysed;
- design a student flat on the university campus comprising two main areas with distinct atmospheric qualities, one turned in on itself, the other opening onto the surrounding landscape.

Students are required to report on their approach, capitalizing on their analysis and experimentation. They design their project starting from a design gesture which offers a means of controlling the atmospheric qualities of the dwelling being designed.

2.5m x 2.5m: Structures and forces

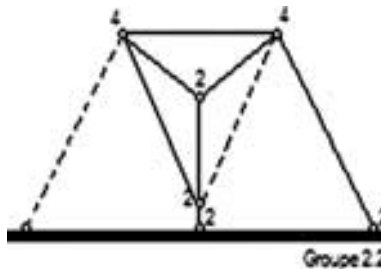
Nicolas Tixier, Nicolas Remy – Bachelor, 2nd year.



This exercise is the second learning phase started in class. The bases of statics are presented to students who very quickly are asked to analyse from a particular point of view the theories of static equilibrium underpinning reference buildings and constructions to be seen in Grenoble. This phase links a classical pedagogical approach based on class teaching with in situ observations in which the atmospheric qualities of a building are related to its structure and building materials.

The exercise presented here seeks to make students experiment their understanding of the structure and resistance of materials (does it work? can it withstand that stress? how can we build it? etc.). Students are asked to produce a lightweight structure subject to the following constraints: woodframe structure (posts and beams) with metal tensors. It must be anchored to the ground using existing inserts that form a 2.5 x 2.5m square. Triple ties are forbidden and the structure must be isostatic in all three dimensions. A person must be able to enter the structure and stand up inside.

This exercise measures students' theoretical understanding and their observations of other buildings against their ability to undertake a simple programme.



The greatness of the very small

Olivier Balaÿ - Bachelor, 3rd year

This exercise starts from a reconversion project on an existing building. Students are asked to find out how potentially identifiable, often tiny local roots might form the basis of a new project.

Architectural work starts with individual applied research focusing on the selected site. It continues with confrontation of project players and the disciplines capable of asking pertinent questions (opening up to interdisciplinarity). The method of work situates the project process as part of the search for a theme (expressed as three notions or concepts) permitting analytical observation of the territory, putting the project into shape and strategic action. Techniques for dealing with environmental and landscape issues (atmosphere analysis) and the ones for guiding the design of interior spaces are particularly sought. Students are prompted to concern themselves with producing a building in the service of humankind.

In terms of methodology the exercise incites students to seek out the qualities of the location and building under study, to describe them and imagine the people who would take pleasure in identifying with them. This in turn provides the incentive for a proposal (how to start a project? or the art of perceptive description). Analysis may serve as a strategic tool for rethinking the links between existing buildings, their location and the new project. This approach requires a two-way exchange between description and design.



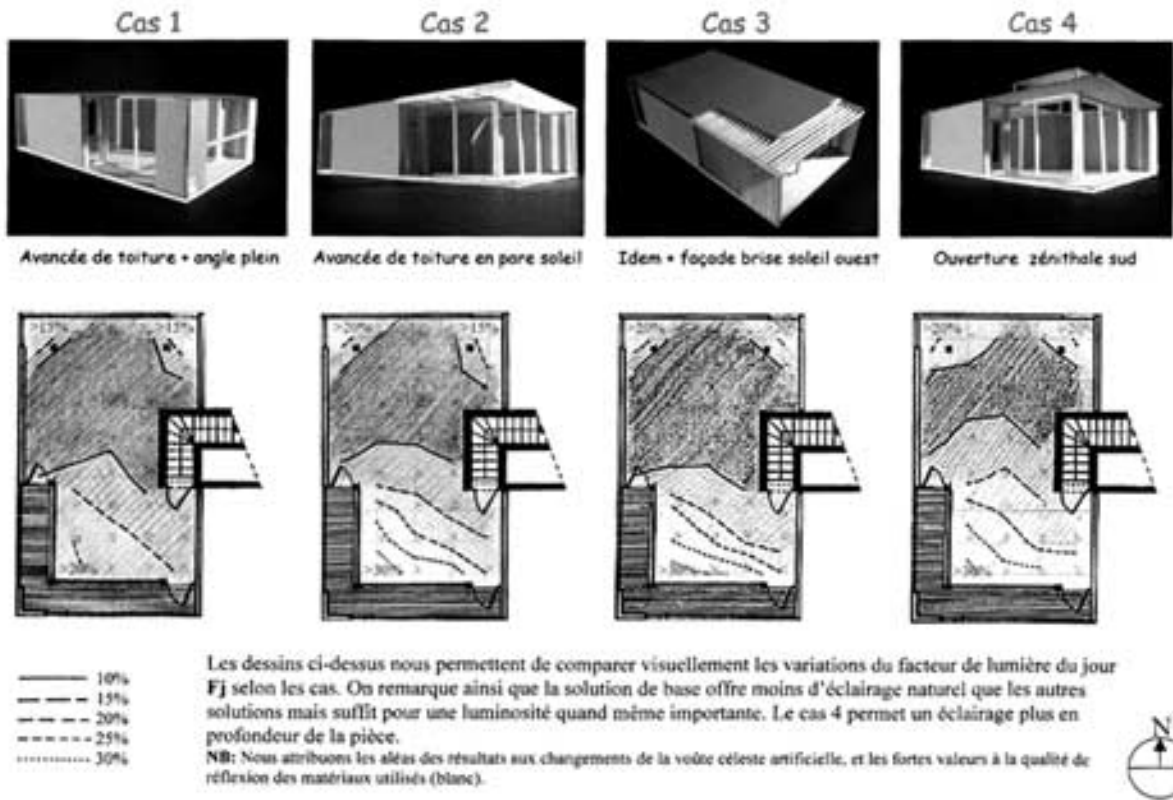
Mastering atmosphere: achieving comfort with sounds, heat and light

Jean-Jacques Deletré, Nicolas Tixier and Nicolas Remy - Bachelor, 3rd year and Master, 1st year.

The overall objectives of these exercises are to:

- give tomorrow's architects ways of mastering atmosphere and a grasp of how it fits into the design and construction of our built-up environment;
- acquire basic tools and a way of working enabling them to integrate the sound, light and heat environment in project design;
- understand the simple physical phenomena linking sound, heat and light parameters to our daily environment, and acquire the necessary notions to keep track of changes in concepts and tools;
- show how such data is closely connected to our historical, social and cultural environment.

Étude de l'éclairage naturel :



Bachelor exercise, 3rd year: starting from a design exercise done in the construction class, focusing on work on mass and framing, the aim here is to simulate on an analog mockup the natural lighting and exposure to sunlight of a room, deciding its allocation and which part would get the most light. In particular the aim is to test the solutions considered at the outset and to compare them, after obtaining initial results, to a range of other solutions.

In preparation for this work students receive teaching in class and do a supervised assignment involving the relevant techniques. The school has purchased luxmeters and specific software for natural lighting and heating. Next year it plans to build an artificial sky and a new heliodon.

Master exercise, 1st year: This work involves making allowance for sound atmosphere factors in an architectural project. The basic project may be underway or already complete (in the architecture studio). The aim is to study a collective building with several floors (dwellings or public-sector building) as a whole and how it relates to its surroundings.

Students are asked to present a critical commentary on integration of sound elements, highlighting the positive sound features of their project, then ranking sound problems noting their position and possible ways of solving them (illustrated by sketches).

Possible solutions must be presented giving priority to architectural (rather than technical) solutions and assessing which are the most relevant (in

perceived in terms of light, sound and movement. We consequently seized the opportunity of making mockups on a scale corresponding to bodies in movement the better to grasp these factors which are hard to represent and conceptualize when building. Starting from the idea that these qualities are poorly identified and do not weigh heavily in decisions in conventional architectural representation and design, dependent on drawing or digital simulation methods, the experiments we undertake aim to encourage atmosphere-oriented architectural design. In other words we set out to modify the cognitive attitude of the design process and favour the emergence of criteria specific to atmosphere-oriented thinking.

Since 1999 this exercise has experimented with full-scale atmospheric objects that we call "multimodal ambient devices" (DAM). After starting at Grenoble's school of architecture we continued the experiment at Grands Ateliers de l'Isle d'Abeau.



Conclusion

We hope that this overview of the exercises used for the teaching of atmospheres shows one way of overcoming the rather outdated opposition between studio and construction-oriented teaching. This type of approach also provides a possible response to contemporary changes in architectural practice, notably regarding sustainable growth, but also more generally from the point of view of the environment, architectural quality and user comfort.

In conclusion we may say that our pedagogical experiment also shows that thinking in terms of atmospheres offers students a way confronting their ideas with the perspectives of architects, engineers and sociologists. It thus represents a way of anchoring their work in a solid methodology essential to cope with their constantly changing trade.

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