

Bringing new Light to Schools

Dolf Schnebli's Works

What is the pedagogical agency of light in classrooms?

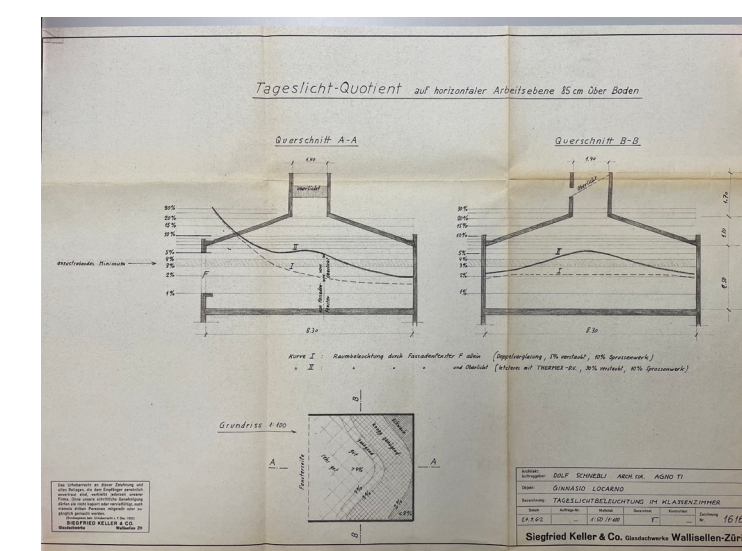


This poster presents different archival material - drawings, model photos, sketches and memories - to uncover the architectural process in designing light and link it with its pedagogical agency. In its untouchable inconsistency, light is a parameter that is directly a design- and decision-making product of the architect's work.

Lighting conditions and light design have been treated as triggers, to investigate the pedagogical agency of space and thus to demonstrate the awareness that light design for schools is something with a high educational value. The important role played by Schnebli in the design of lighting conditions inside classrooms testified to a certain extent his understanding of learning issues and his position in the pedagogical discourse of the time. Through light, the architect asserted his didactic expertise by designing places that would support any form of teaching, towards an idea of open and active education.

Starting point:

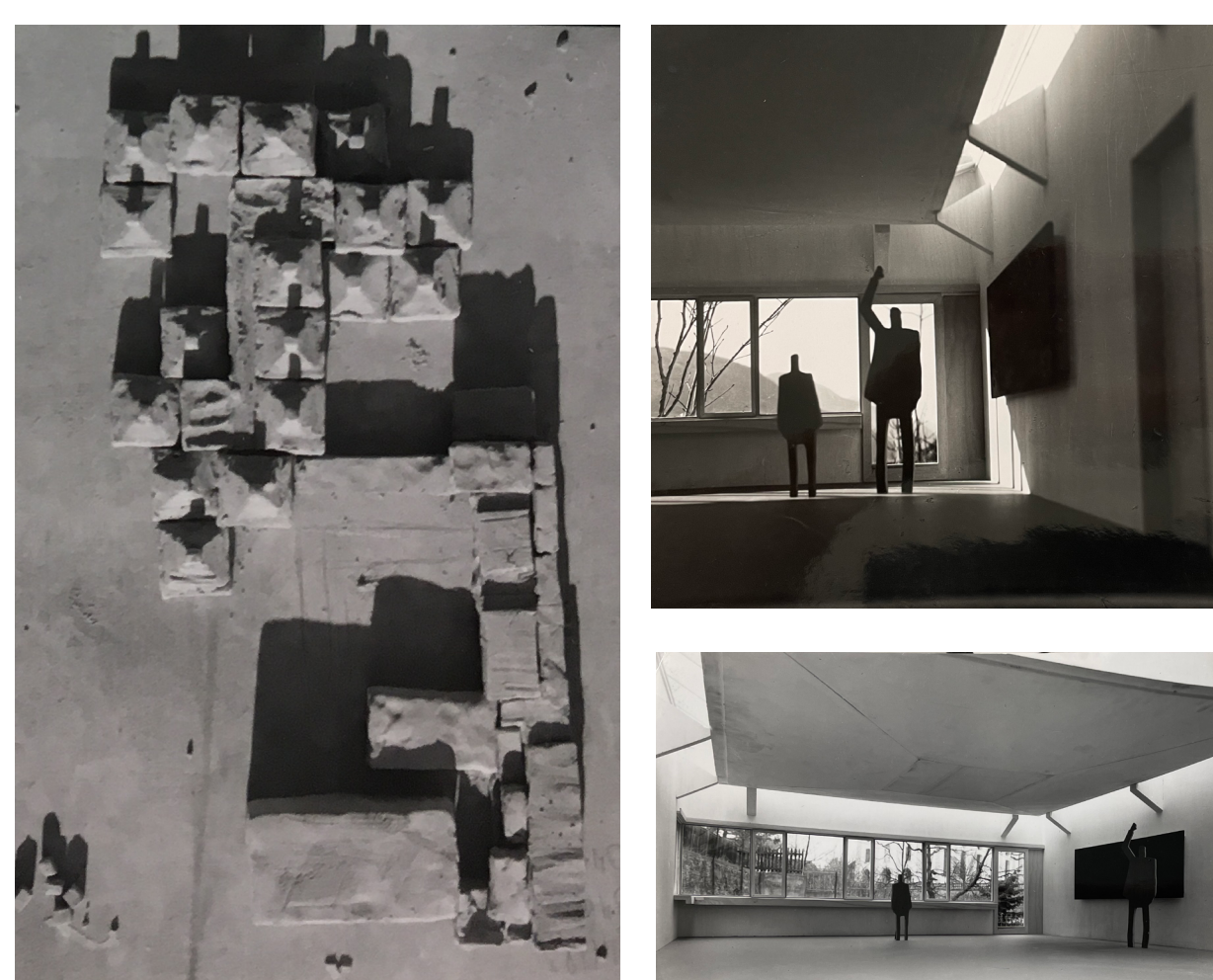
The works of Schnebli and the interesting light effects that influence the whole perception of the environment.



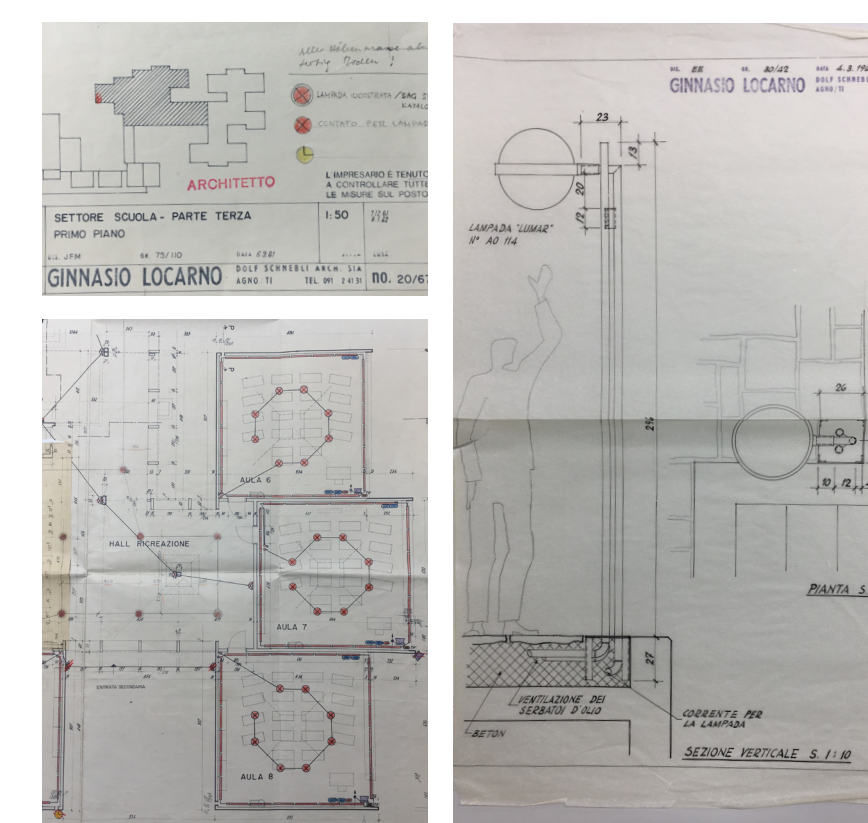
Light study

From the preliminary design to the detail and construction plans, different materials document how the architect detailed the project further, studying every sun and darkness possibility and coordinating windows, light performance, shadows, which are devices for light manipulation. Furthermore, in every school, light conditions weren't only the result of windows design, orientation, artificial lights layout or building laws. Other factors, like surface materials and colours, played a crucial role in lighting and vision, the ability for children to see, to distinguish numbers and characters both on their "task surface" - the desk - and on the walls or the chalkboard. As Schnebli claimed, in Locarno's classrooms, the white matt wooden cladding roof helped propagate the rooflight, opened the vision towards the sky and raised the height effect of the space. Similarly, opaque floor and wall materials helped to reduce reflection effects and thus induce attention. Of course, skylights weren't the only light sources inside the classrooms, but horizontal windows opening towards nature completed both the light requirement and the pedagogical benefit of the relation with the green.

From the built classroom to design: How does light enter the design process? What is its pedagogical role?



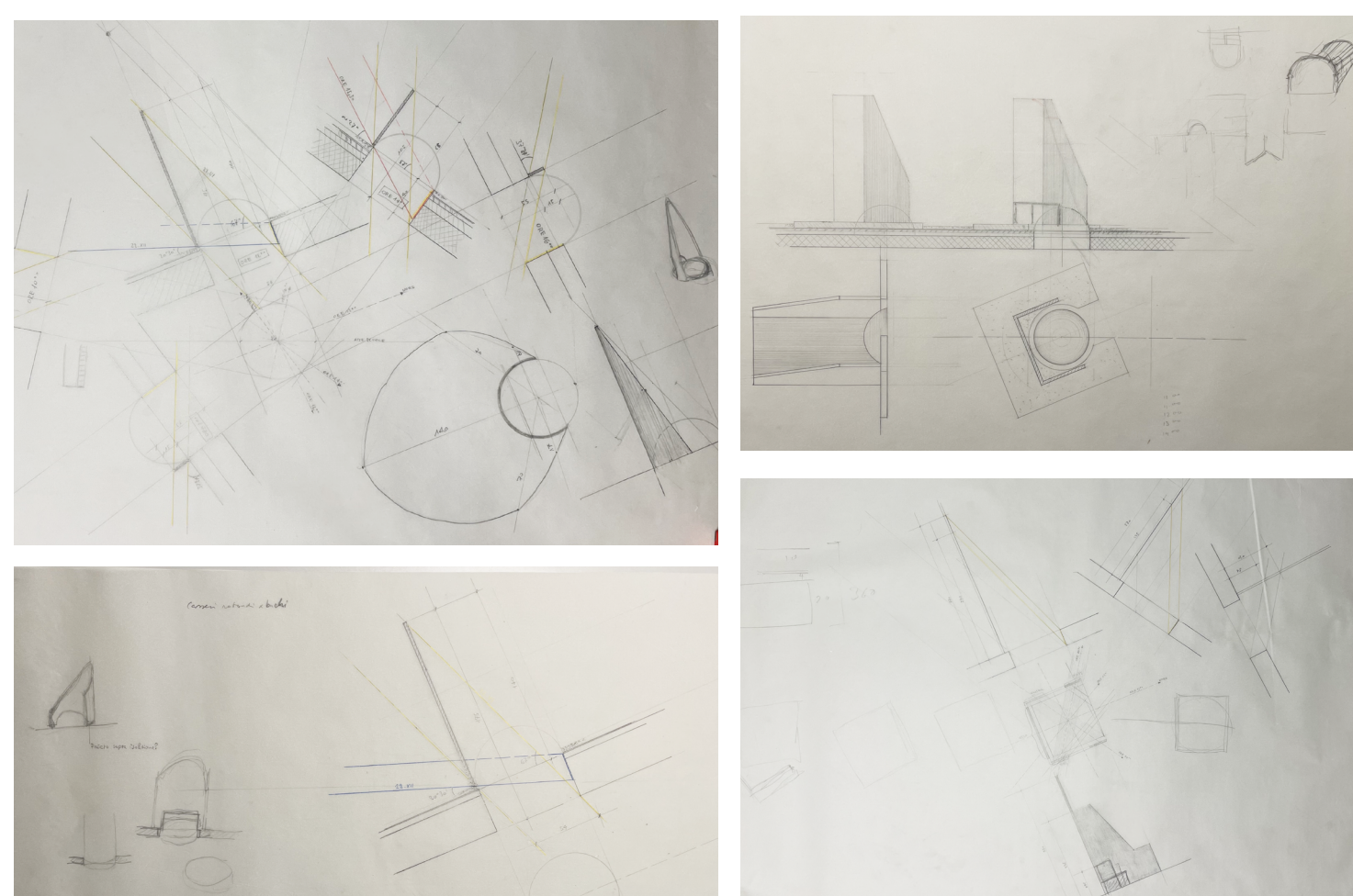
Architectural models in different scales were used for preliminary studies on light. For example, a basic clay model was photographed for the Locarno school, reproducing the exact shadows conditions, pointing north-east. The model and its photos helped to picture and study the general outside light and shadow situation and the project's exposure and orientation inside the urban plot. For another school project in Wohlen I, Schnebli tested the effect of perimeter skylight inside the classrooms through bigger scale models (ca. 1:20/1:35). The physical reproduction of the interior space is photographed outdoors to control the quality of light that pervades inside.



Artificial light

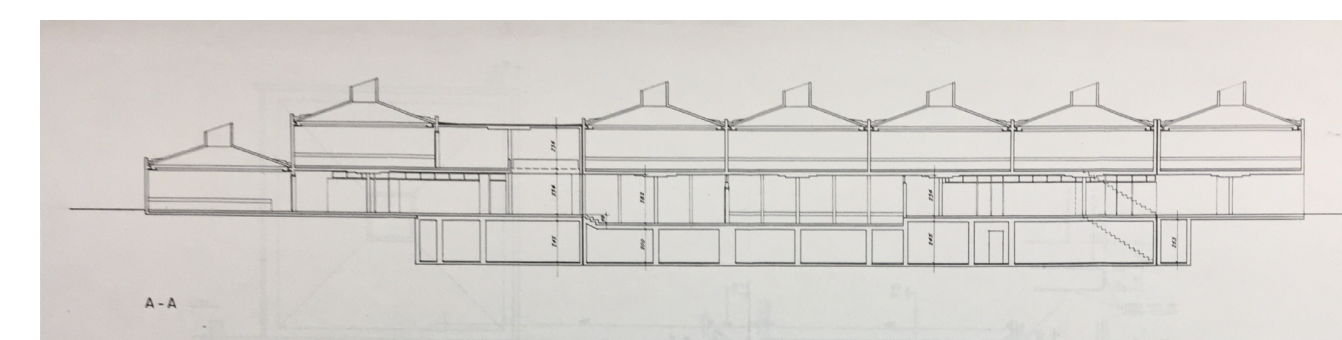
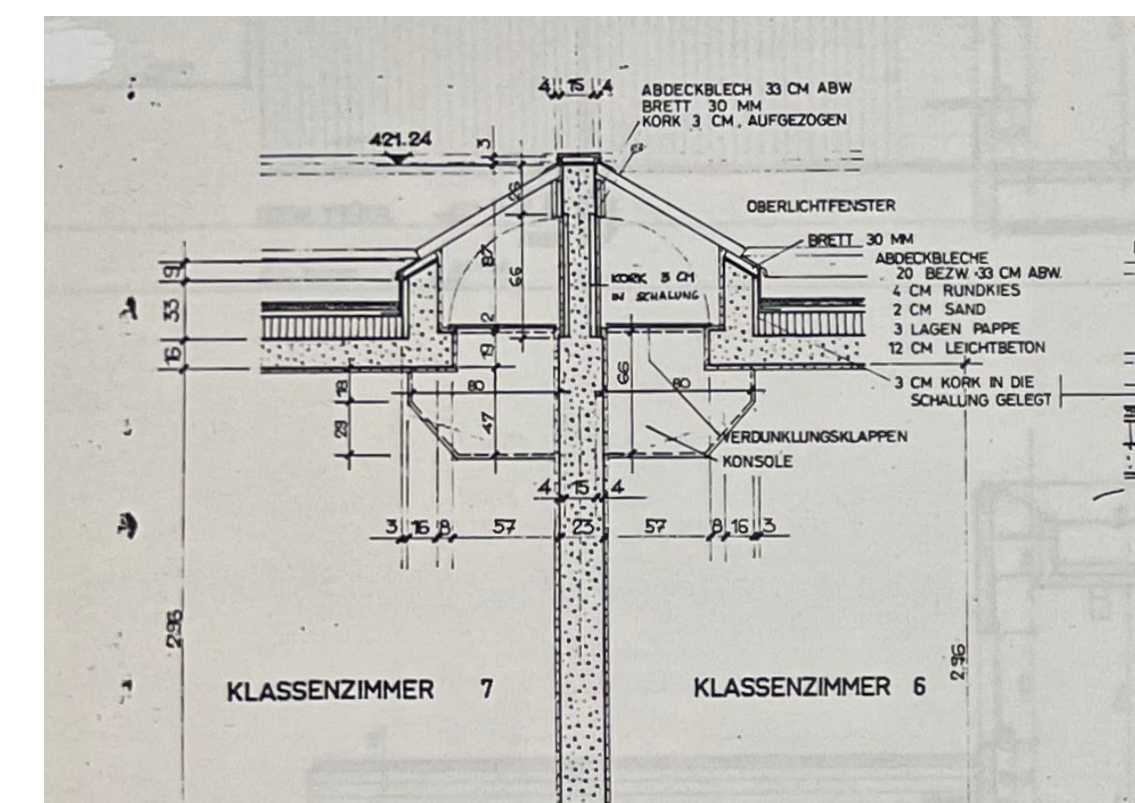
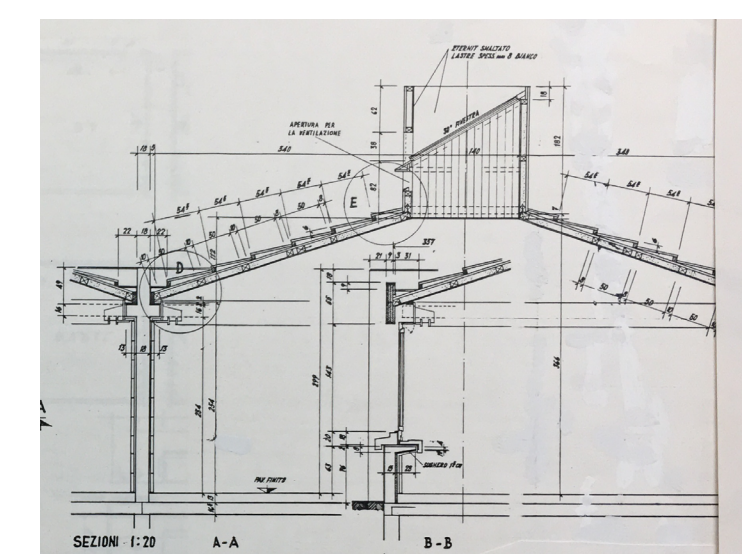
Different from nowadays specialisation, the architect used to design electrical light and lamps. Schnebli defined the position of the different lamps inside the room to create a flexible environment that could be used and organised in all other ways, following the fact that teaching and learning should happen in different layouts and no more only frontally. The arrangement of the lamps hanging from the ceiling inside the squared classroom was symmetrical, distributing the light evenly throughout the space, so that ideally each position of the students' desk and chair was not disadvantaged by shade. The care taken in the design of the lamps layout, which would allow for open education, reflected the pedagogical agency of the space and the relationship between light and stimulating learning conditions.

Sketches and drawings: How do architectural drawings analyse and shape light? Does this process say something about the relationship between architect and designed classrooms?

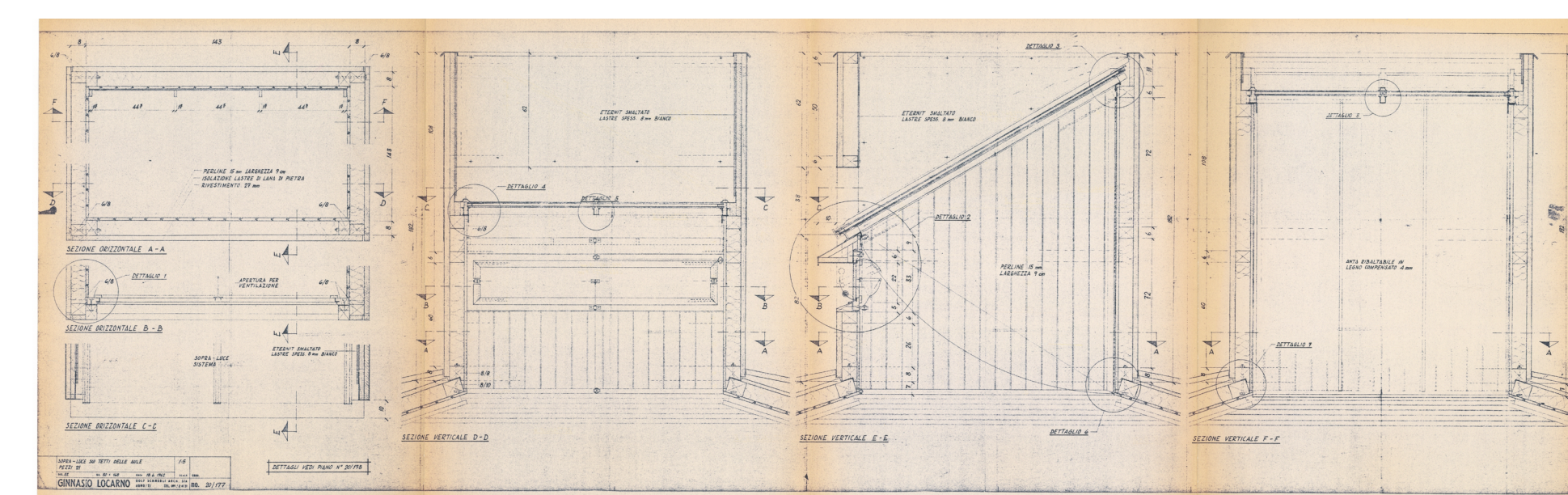


Sketches about Schnebli's school complex in Breganzona document rooflight geometrical studies and explain the process of combining the rational representation of the natural daylight phenomenon with the definition of architectural elements. These drawings show the evolution of a lighting idea through the design of a skylight system. The primary goal was to control the light entering the building. Through the different empirical drawings, made in clear and confident lines with the help of a ruler, it is possible to see how the shape of the window shade was defined according to the geometrical representation of sun-rays to provide the necessary shadow inside. This skylight was planned for a school complex, so it is plausible to assume that the light design was related to the pedagogical concern of the 1960s, for which the zenithal illumination was the most efficient. Zenithal light allowed a constant and uniform illumination, perfect for concentration and freedom in the classroom arrangement.

The project

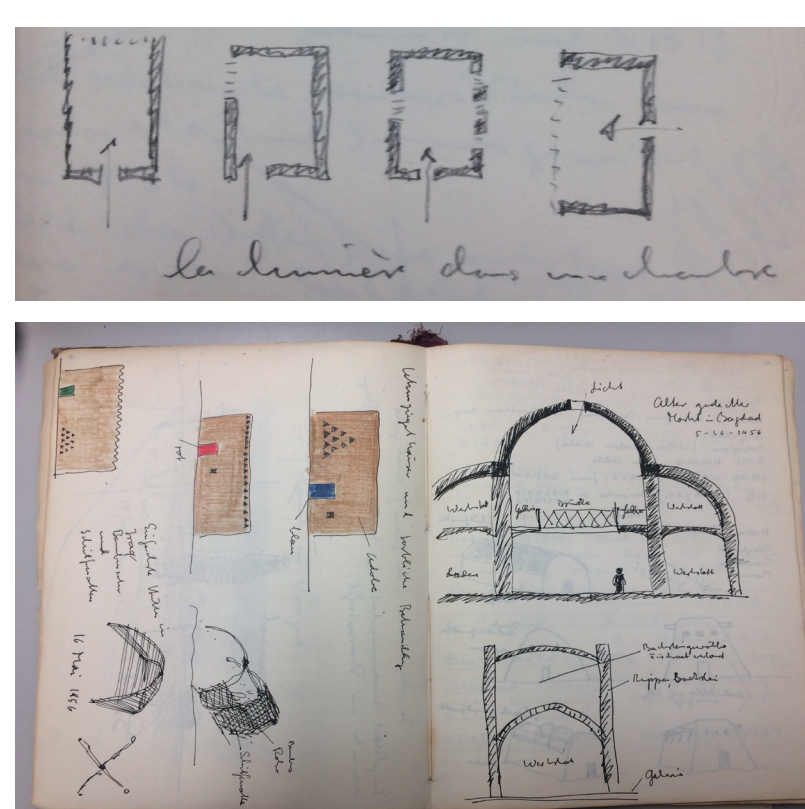


The narration of the design process through models and drawings aims to investigate Schnebli's pedagogical ideas and to testify that lighting design for classrooms plays a high pedagogical value. Through the design, the role of the architect himself becomes in a way, pedagogical.



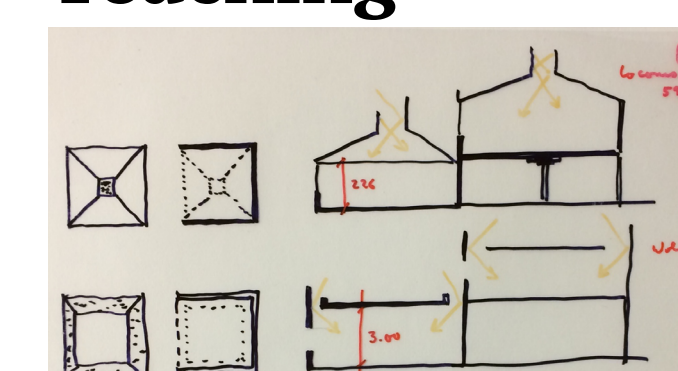
Memories:

What kind of different interests and agencies influence Schnebli's understanding and sensibility for light, which he then applies in schools?



Schnebli's fascination with skylights began during a trip to Rome, where he was impressed by the oculus in the Pantheon. Later, during his year-long trip through Asia, he visited vernacular villages in Iraq, where zenithal openings were used for light and air. The light design followed the same schematic conditions as Schnebli's early sketches on his cahier de voyage: a balance between walls and openings, with light coming through, represented through an arrow. During field surveys, different tools enabled the architect to examine light and relational conditions of the built environment: he used photographs and simple sketches as recording methods for appropriating and developing the idea further and imaging what it might become. Schnebli's interest in understanding particular lighting conditions in concrete examples reflected the pedagogical agency of space, in how the embodied experience of an environment produced a specific knowledge that would influence design.

Teaching



As a design professor at ETH Zurich, Schnebli discussed the subject of light through schemes that explained the design process, external requirements and uses. Under these conditions, light itself became a pedagogical tool for students of architecture. In his design lectures Schnebli schematised the flow of light inside classrooms and related the choice of a particular volumetric design to the pervasion of light, the flexibility of use and building regulations. The relationship between the height of the room and the size of the windows was crucial to test the light.