POLITECNICO DI TORINO

Honors thesis

COURSE OF MASTER DEGREE in

ARCHITECTURE CONSTRUCTION CITY

Abstract

La Termitière - Didactic project of renovation to the Cecchi Point - Bioecological building and self-build

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The thesis documents the research on natural materials and the management of the educational project of self-construction "La Termitière", born in the academic year 2015/2016 as a response to a particularly need felt by a group of students of the courses of studies of Architecture , Engineering and Design of the Polytechnic of Turin. It is the recovery of a local has started in the city center to learn about materials and construction elements, assembly processes and realization on site, personally experiencing their use in practical exercises, culminating in a real redevelopment project.

In February 2016 it was presented the application to the notice of Projectuality Students receiving funding for the planning and redevelopment of green building in the Red Room in the House of the Quarter "Hub Multiculturale Cecchi Point" in Turin. The project has been designed to generate multiple benefits for many subjects, first of all students who have learned various constructive techniques with a practical approach, even before leaving the protected environment of university and entering the world of work; but also the associations that run the Hub, and the city of Turin which owns it, which they have been free of charge for the recovery of a building. The construction techniques of raw earth, wood, straw and lime were also examined, as well as the fixing of wooden uprights, the positioning of the containers and the resolution of the problems of humidity, the presence of the electrical system and the heating. In this way, a greater awareness of construction processes has been achieved. The laboratory also provided a design approach that would allow experimental testing of technological choices to simplify the construction process, also utilizing the experience of artisans and experienced architects of bio-architecture.

The synergistic action among students of various years of the course (master degree to bachelor) has produced a Learning by Doing site. This has generated an additional opportunity compared essence of practical construction experience which is absent in the teaching of courses of study. Students have gained greater consciousness of their actions by doing a not just mechanical, but accompanied by a logic of thinking. Getting into the processes of a teaching site has made it possible to create a team where everyone can contribute with their own skills.

The yard has undergone various transformations over time (from work cycle to self-managed yard) and saw the construction of a coat (10 cm) in light-clay (125 m^2) and light-lime (90 m^2) and clay plaster (total layers = 700 m^2) and lime and cocciopesto (total layers = 375 m^2). The floor (120 m^2) and countertop (120 m^2) are foreseen for 2017/18 and 2018/19.

The thesis also documents the study of the individual materials used, the performance of the different types of vegetable fibers, binders and inerts. After the explanation of the tests and the selection criteria of the mixtures, of the clay, of the straw and of the sands it is illustrated the installation method of the plaster and of the insulating panels. The thermal conductivity (λ) of the panels was measured with a hot plate instrument at DENERG. The comparison between the solutions used and the site experience allowed me to document the results of the mechanical performance of the products that we made, the vapor permeability and the laying time.

A "relay" succession method has been organized, where the task of guiding the yard is left year by year to students wishing to realize new projects at Cecchi Point (or in other House of the Quarter), not before being educated and trained by "veteran" students.

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