

POLITECNICO DI TORINO
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Honors theses

Experiment of an environmental friendly in self-construction in Panama

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The dissertation “experiment of an environmental friendly self-construction in Panama” is a review of a masterplan designed by the architectural office “Studio Fos” of Panama, for the village Pedro del Cacol, settled in the archipelago of Las Perlas. The masterplan consists in a nursery school, The Caracol House, a teacher’s house and a library with a stationery shop.

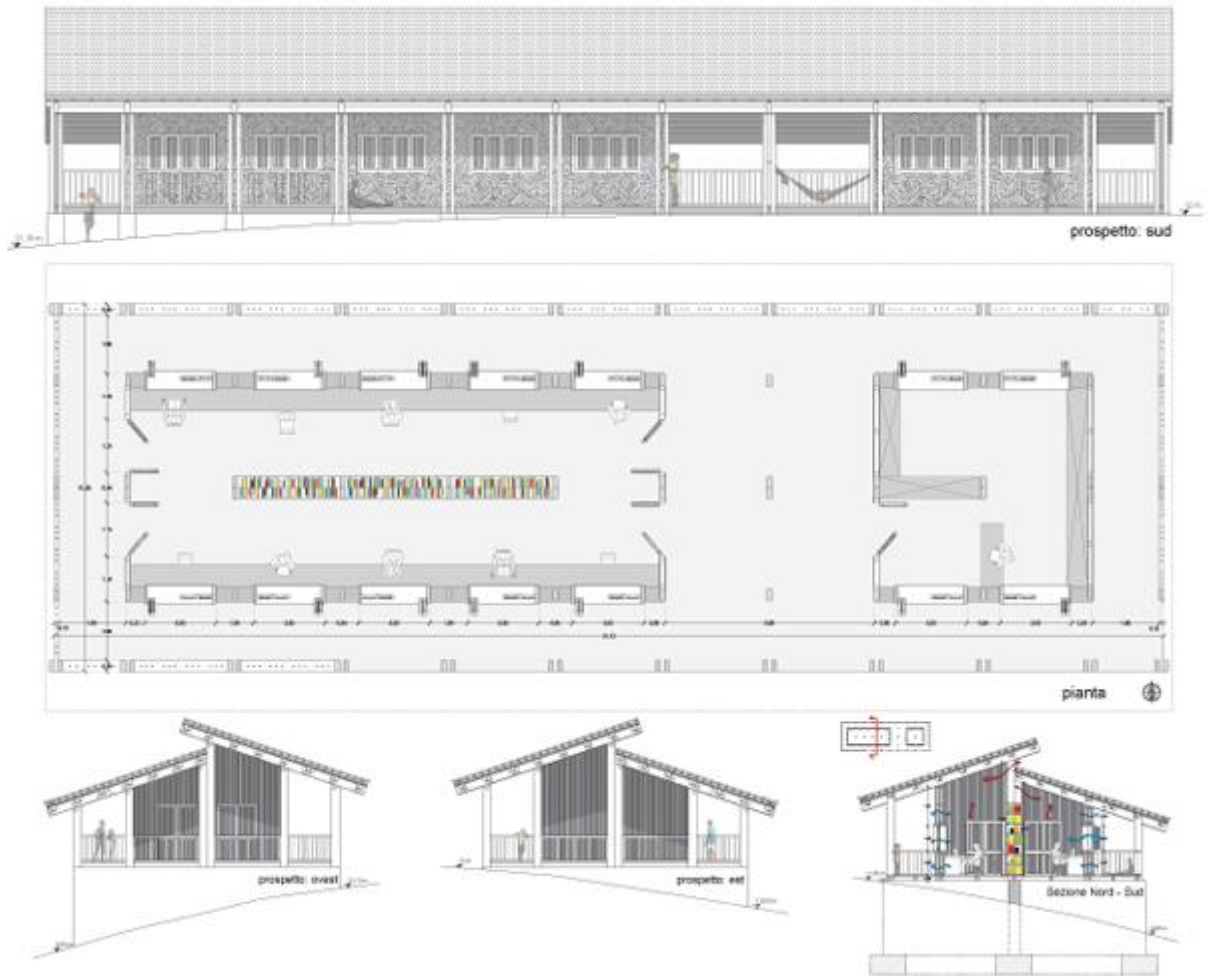
The idea of a thesis in Panama is related to the desire to keep a personal experience which took place between August and November of 2011 where, together with the architect Mauricio Castaño and organization Habitat sin Fronteras, we dealt with the design and construction supervision for a nursery of 120 square meters, the Caracol House, which was completed in 2012.

The thesis focused on the reinterpretation of the context and the educational complex, characterized by a school, the kindergarten and a community center, with the designing of a new building to host the library and the stationery, settled in front of the existing school in order to create a public square public, as a socialization space.

The main object is the construction of a building, in harmony with the context, which is an example of building a low-cost but high value-added, which uses local materials and techniques in a contemporary way according to models of sustainability and environmental comfort

The new building has a rectangular shape and occupies more or less the same surface of the old school. It’s formed by a continuous porch on the four sides of the building and a covered public space, which connects the two functions: the library and the shop. The arcade, in addition of ensuring bioclimatic requirements and of creating a public space, matches the design of the facade of the existing school, creating a formal continuity with the context.

Futhermore, the internal covered square, creates a social place that can be used during the wet season, that in Panama lasts for about nine months.



The materials and construction techniques are similar to those used in the Caracol House: wood for the structure and the finishing and concrete only for the foundations, in order to promote the use of local and recycled materials. In fact the wood used came from the trees felled for the construction of the airport realized by the company Pearl Island SA.

The external walls, oriented North and South and subject to the prevailing winds, propose the same technique used in kindergarten: wood pieces of various length overlaid in order to create an internal space perfectly ventilated and lighted with global illumination. While for the exposure East and West and the windows, was chosen a system of reeds nailed to a wooden frame.



The roof presents a system of wooden shingles that is the real innovation of the project, in fact, even though this type of roof is typical of Northern European countries, it can be easily made with recycled wood and resources available on site, and at the same time it may be an ecological alternative to the sheet metal generally used at the moment.

The whole project was studied to be made in self construction by locals, all the drawings and technical sheets are simple and clear, made for unskilled workers and suitable to transmit the construction system. Therefore the project is characterized by modularity and designed with ease of assembly in mind.

The plan has been organized on rigid modules of 2x2 on the perimeter, 3x2 on the porch and 3x3 in the body of the building. The structure is made by a wooden frame that defines the shape of the building.

The only element generated by casuality is the external finishing in wooden pieces, where the people of the community will choose how to organize the pieces in order to create their façade.



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