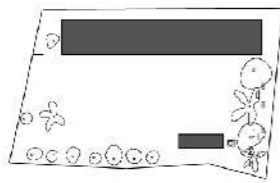
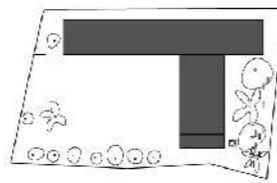


school incremental program: first 6 classrooms, second two laboratories, third the residential area

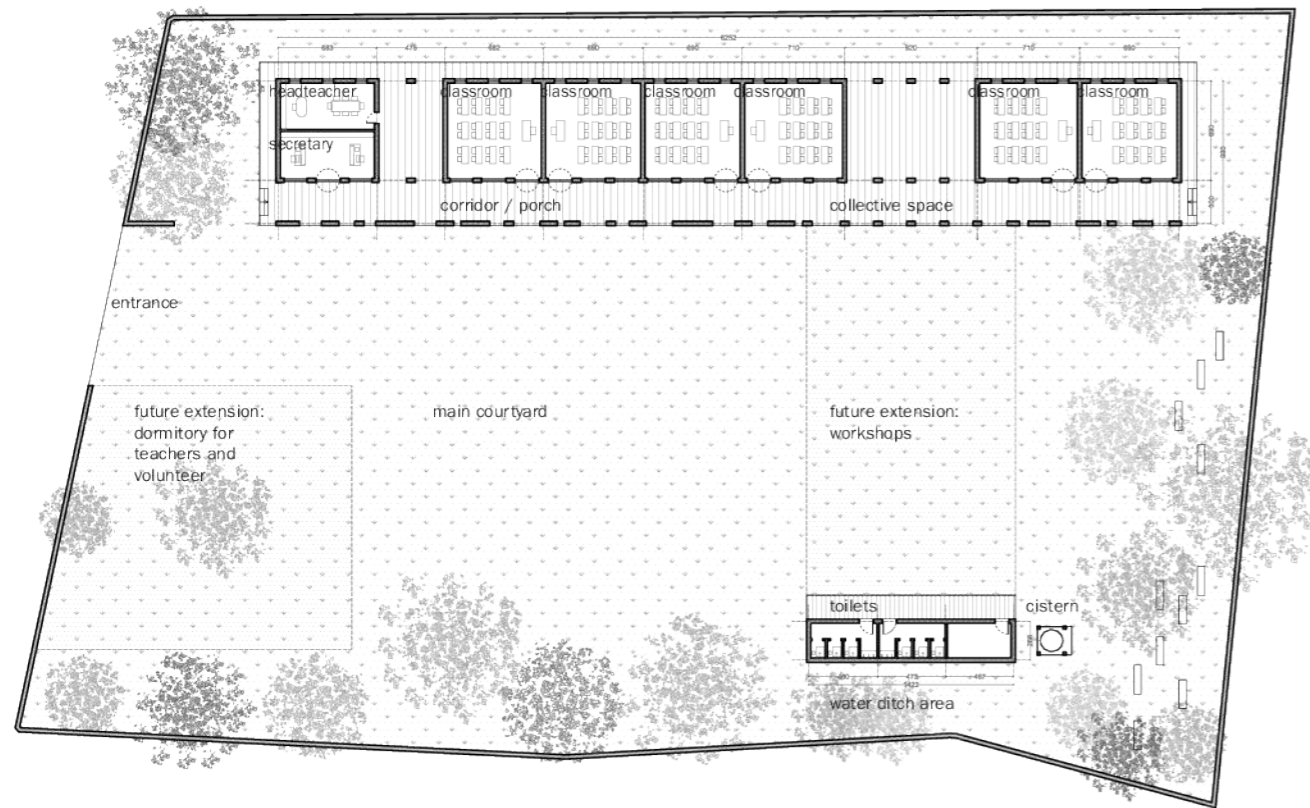
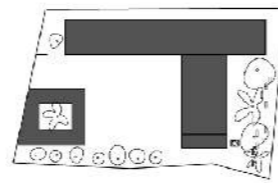
first step



second step



third step



diaphragm wall permits more permeability between corridor and courtyard



porch as a place of encounter and sociability



bamboo panels as a separation between hallway and classrooms

experimental and participative school

In 2012 Architetti Senza Frontiere was involved by the **Association Missione Possibile ONLUS**, who built the primary school in 2005, in building a new secondary school in the Roong village, in Takeo province, 50 km south of Phnom Penh, in a agricultural area characterized by a strong industrial transformation.

Design attention has been focused on the elements that define and separate the different spaces of the school: classroom, distribution, and backyard.

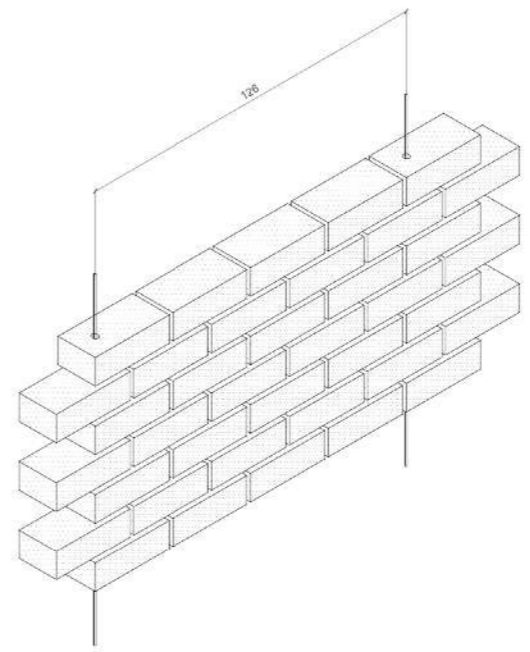
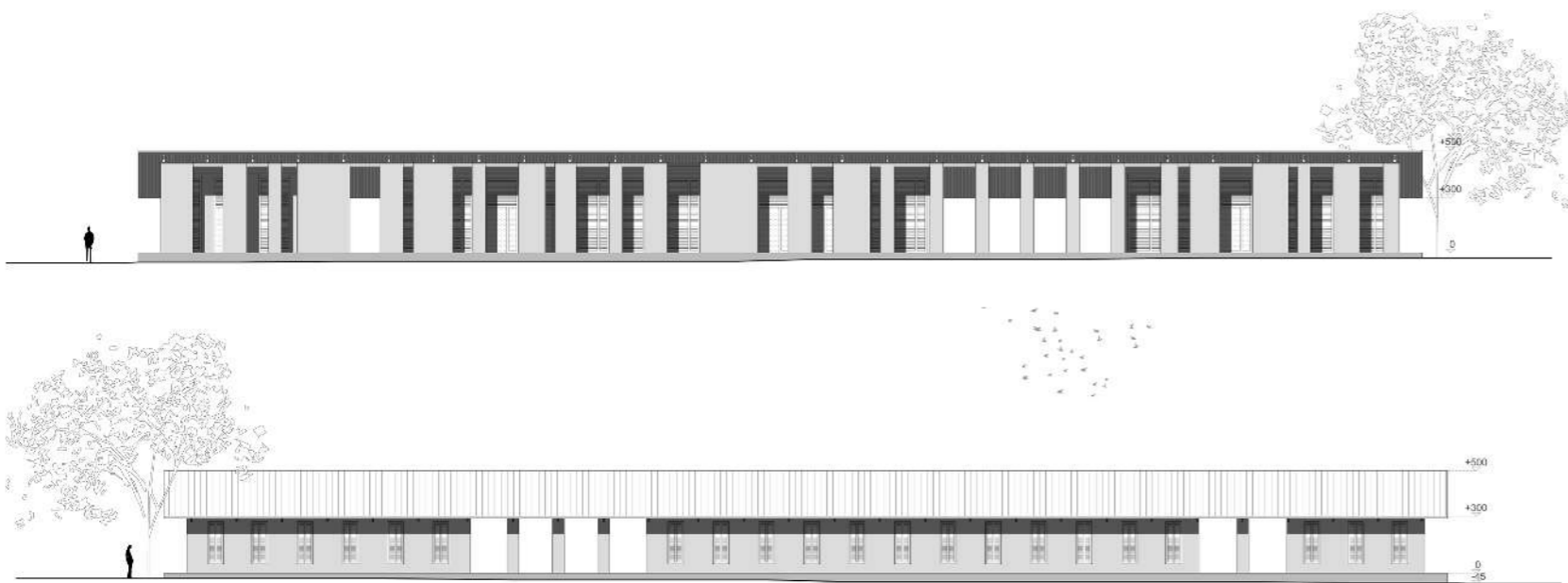
If **the classroom** is the place of teaching **the corridor** represents a place of encounter and of sociability that, in modern pedagogy, is gaining more importance.

Two open-air rooms are added to the corridor interrupting the sequence of classrooms and enriching the nature of the connective space. During the rainy season or during the hottest months the corridor has become the place to meet and play. We tried to reduce the separation between the classroom and hallway by the use of a series of large bamboo panels fixed. The separation between the porch and the courtyard has been subject of debate. The aim is to build a **variable diaphragm walls that modifies the visual perception allowing more permeability** in the areas facing the common spaces.



SECONDARY SCHOOL IN ROONG VILLAGE, CAMBODIA

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Principle 1
 Cooperate for fair and sustainable development initiatives in active collaboration with disadvantaged people or communities. This process shall follow principles of human solidarity, non-discrimination and will be aimed at promoting their self-sufficiency.

transferable techniques: constructing bamboo beam



transferable techniques: constructing soil blocks



soil block sun-dried with vertical stiffening technology

Our project is integrated in a bigger development program, which has been lasting for over 7 years and whose main task is child protection by the reduction of the child labour, which represents the main obstacle to the universal education diffusion to achieve the objectives set by the UN millennium development goals.

We tried to combine and reach a goal of **direct protection of childhood** through the construction of a school in Takeo Province.

The main target of child instruction it was prop up by the integration in project development with the **local workforce**, which has been fully involved since the very beginning of the project. The whole school was hand-made, this allowed us employing **many people from the villages** and **teaching them new simple and transferable techniques**, and **promoting the use of natural materials**. Everything was done to **strengthen local rural identity** and try to avoid the massive and harmful migration to the city.



transferable techniques: making plaster



SECONDARY SCHOOL IN ROONG VILLAGE, CAMBODIA

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Principle 5

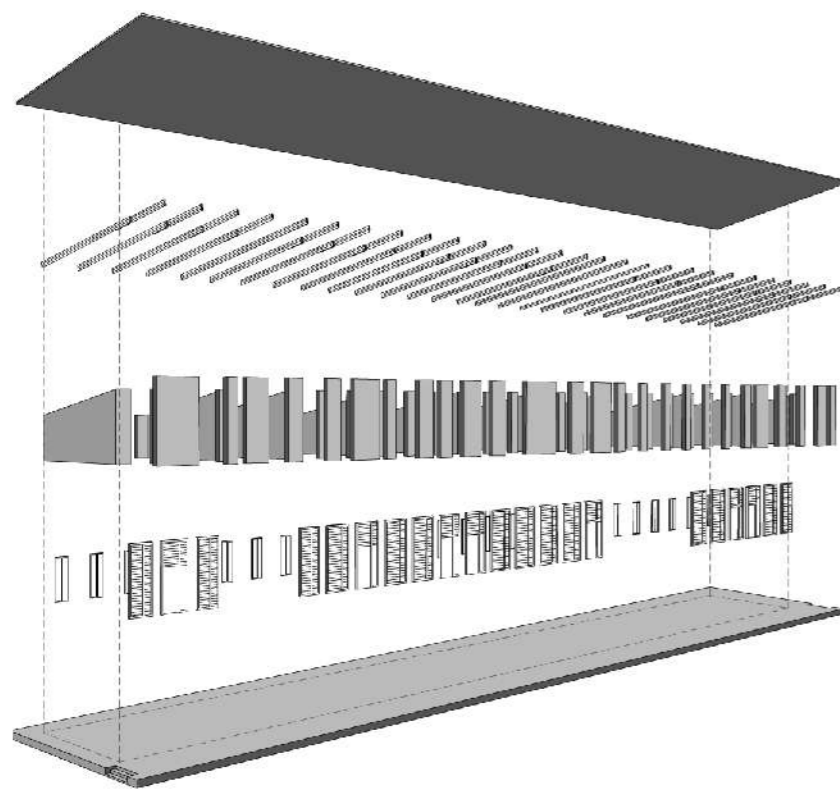
Facilitate the use of appropriate technologies, materials and labour adequate to local values, to the cultural specificity and responsive to the natural environment.

Our goal has been achieved experimenting the **use of local materials** such as bamboo and soil **respecting local tradition**, but, at the same time, using them on **contemporary forms and industrialized constructive procedures**, to promote a greater rationalisation of the production process that is **easily replicable, economic and affordable for local people**.

We tried to find out the correct material, identifying the most appropriate soil and looking for the nearest bamboo plantation. We designed the **soil block sun-dried and bamboo beams** so that they were “industrialized” and easily replicable by unskilled workforce.

In the foundations the **iron mesh was replaced with a mesh made by bamboo strips** nailed laid on a polyurethane separation sheet with the land.

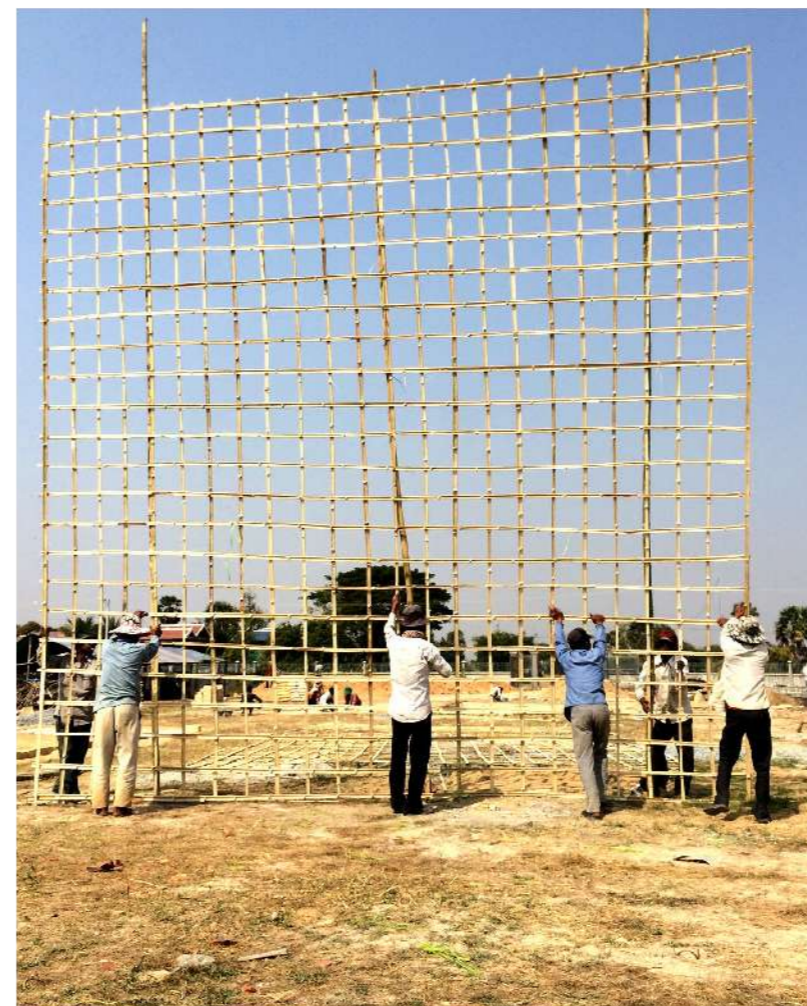
The blocks were laid with cement mortar and had a vertical stiffening system made with **round section wire blocks with an iron bar 8 mm** connected to the foundations to link the base with the top beam as if it was a pillar post cast in moulds to lose.



contraction system: concrete and bamboo mesh floor, earth walls, bamboo beams and micro concrete roof



experimental bamboo mesh for the concrete basement



bamboo beam technology



SECONDARY SCHOOL IN ROONG VILLAGE, CAMBODIA

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Principle 10

Defend, promote and enable access to adequate and dignified habitat for all as a 'Fundamental Human Right'.

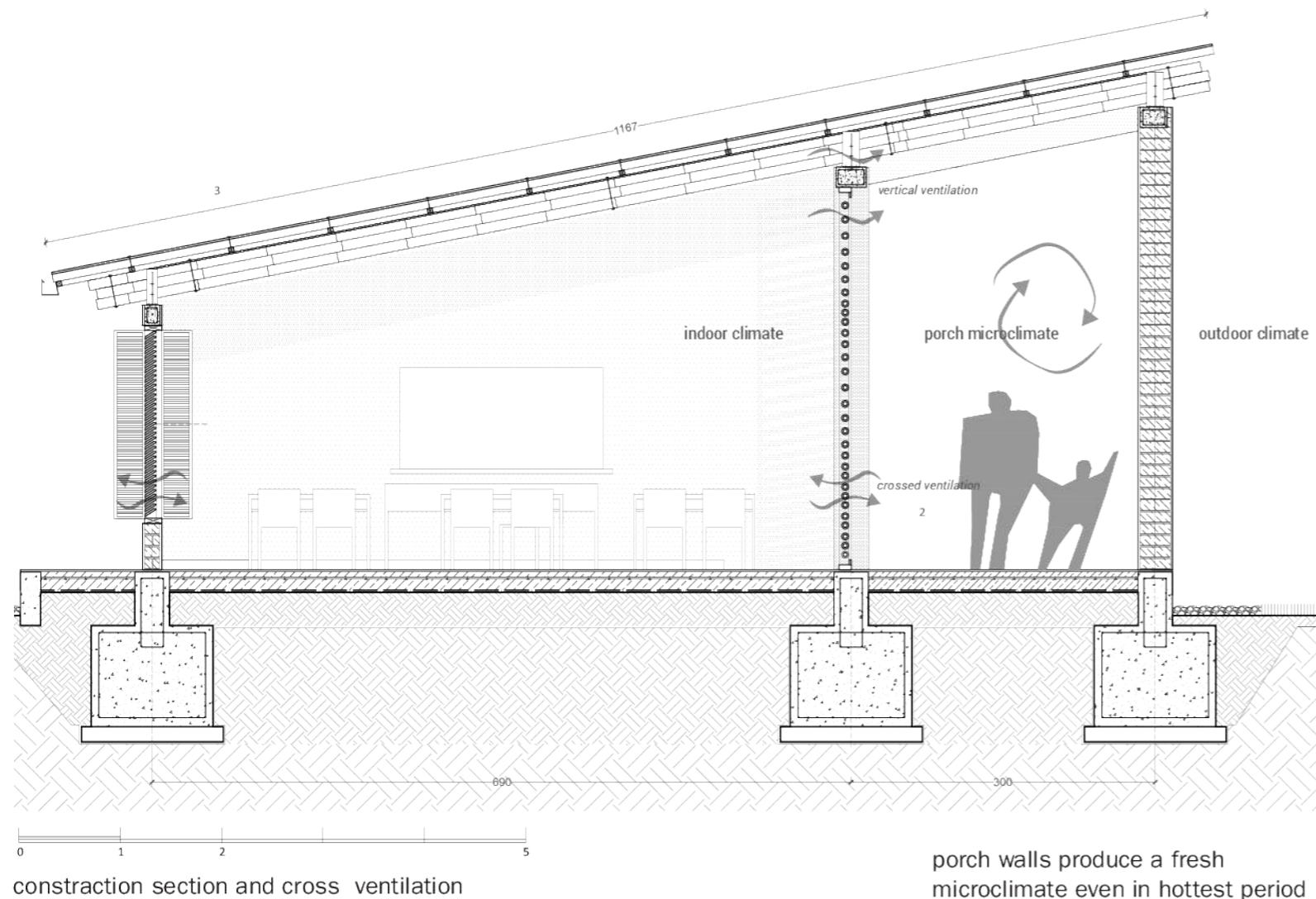
The main objective of facilitating the access to education for the children of the district was carried out with **360-degree approach**, which considered a **daily life improvement** for people who were not accustomed to. All these new implements were inserted in order to improve the everyday life in the school, and by consequence primary rights, such as **education and even an adequate access and liveability** of the same.

As to **thermal comfort simple planning strategies** were set: first, the building has one large pitched roof North oriented to decrease the angle of incidence of the sun radiant effect.

The **ventilation** was carefully taken into account: inner hipped roof height of over five meters favours hot air escape, while the replacement of vertical diaphragms with permeable elements such as bamboo panels facilitate horizontal ventilation.

The **porch walls** protect the inside from the sun and produce a **microclimate that filters the transition** between indoors and outdoors.

Very fresh classrooms even during the period of heat wave is the excellent outcome.



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