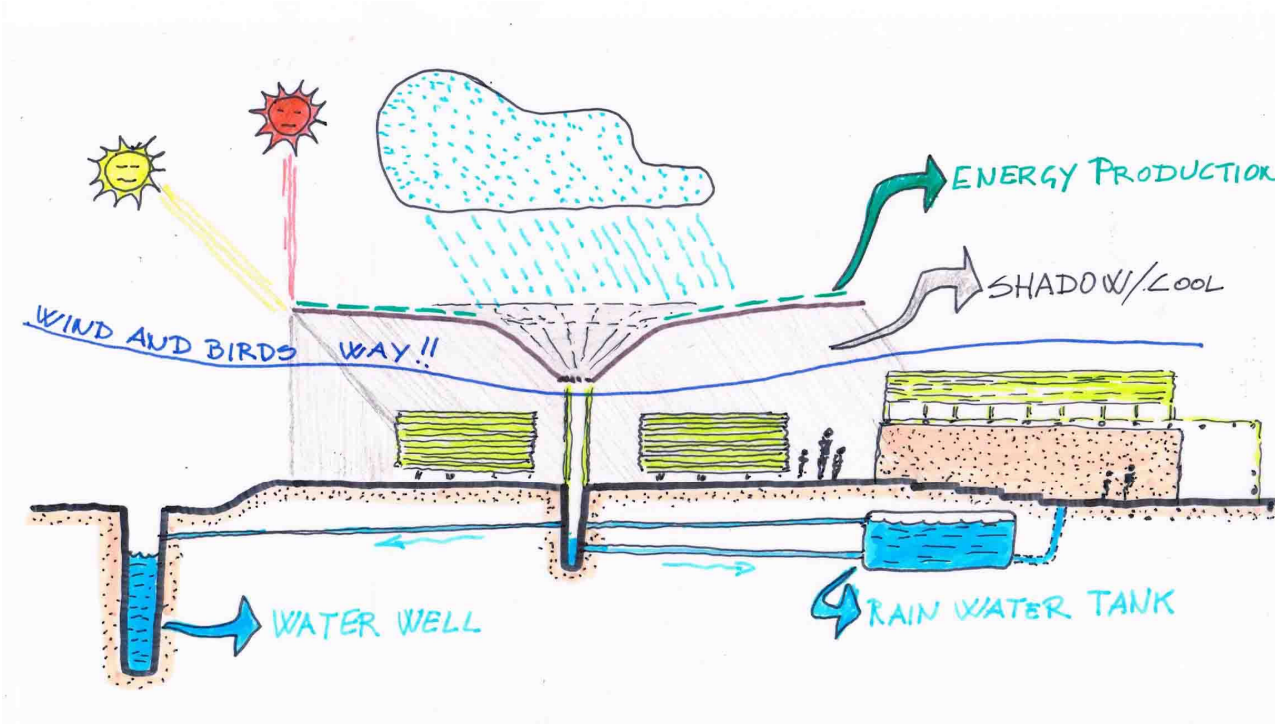
The Good School.

The location imagined is a rural area in Burkina Faso.
In a system of small villages, the school acts as a catalyst for a series of social activities and acts as a Civic Centre.
As an archetype and institution, the school needs to be able to create a global view of a new model of society: pluralistic, fair and inclusive.
The “architecture” proposed is inspired by an element of nature often chosen by local communities as a meeting and “training” point for their community: the tree.
The tree, rooted in the soil but stretching upwards, is a metaphoric symbol of the spirit of the project: belonging to the culture of the place, and vertical growth of the community.
The aim of the project is to unite continuity of local tradition with technological innovation, with the “building”, which becomes an occasion for learning about environmental matters, investigating them and making them known.

Image of “The Good School”.

“The Good School”.
The “building“ has a tree-like structure that takes in the three classrooms and the common areas, with membrane roofing that gives perfect protection against the weather and excellent shade.
Overcoming the paradigm of a building as representation and definite place, the structure fits in perfectly with the landscape and becomes a “familiar presence“ in the place.
The tree-like structure was designed completely in bamboo, simple and light, easy to erect and capable of combining versatility with an economical job.
Big and small bamboo canes alternate, linked by simple ropes and steel wire.
The choice of bamboo was not made for formal/figurative reasons but to have a sustainable job.
As we know, bamboo not only reproduces rapidly but it also has a high capacity for absorbing CO_2 as well as having excellent mechanical properties.
This last property has made it widely used in the field of building in a number of countries where, thanks to a wide survey, full regulations exist for the design and control of structural elements in bamboo for both private and public buildings.
The funnel shape of the roof, with an area of nearly 400 sq.m, collects the rainwater and sends it into a buried polyethylene tank that holds 26,000 litres.
The excess water is sent into a prefabricated tank and used for watering the “garden of wisdom”.
The garden, with an area of 2000 sq.m, will be a meeting point or pass-through point for knowledge among the various generations and will play an educational role.



Scheme of the tree.

Teaching.

The teaching areas are made up of simple, egg-shaped elements. Three classrooms connected by their vertical and horizontal structures and made of bamboo canes.

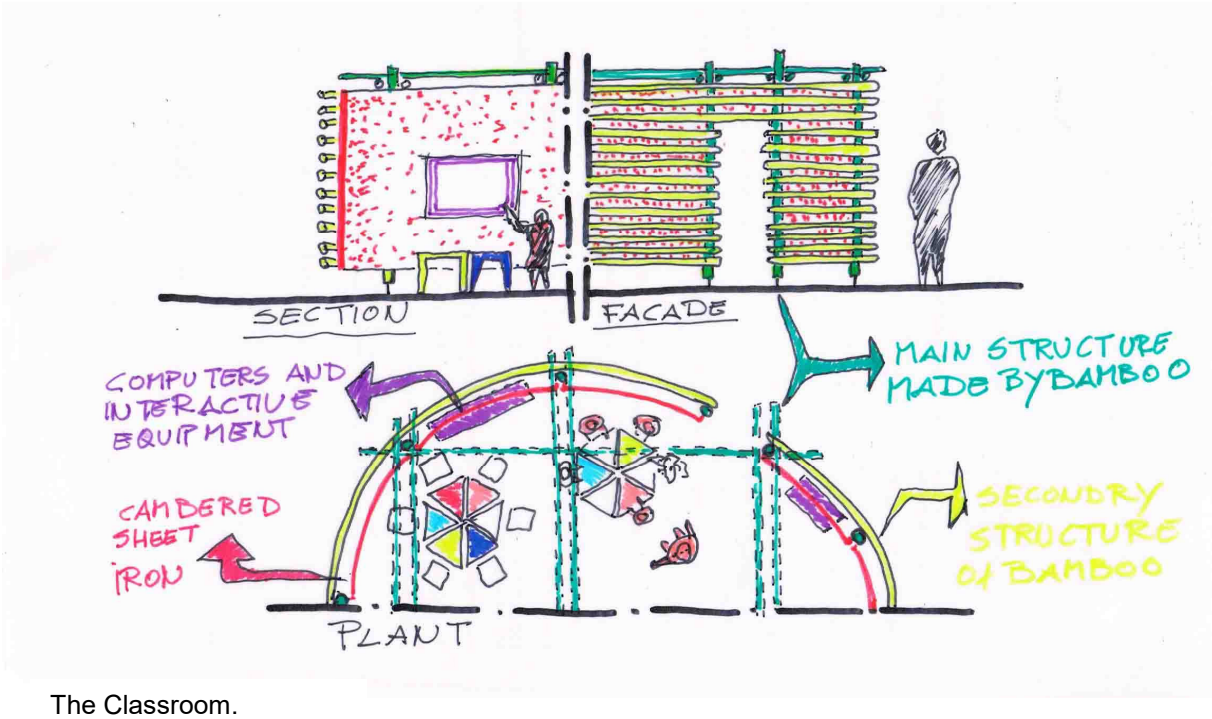
True to tradition, the outside wall is made of horizontal canes tied to the vertical structure, while the inside wall, the result of technical innovation, is in cambered sheet iron containing computers and interactive teaching equipment

Four learning desks per classroom, consisting of an assembly of six paperoid desks, form working groups so as to give the students a sense of group and therefore of community.

The teacher moves around among the learning desks without having a fixed position in the classroom.

The classrooms have no roofs and get light from above, filtered by the structure of the tree and the membrane that forms the roof.

Thus the youngsters always have a view of the sky, and therefore of nature, even though they are in their classrooms.



The Classroom.

Facilities.

The rooms to be used as teachers' dormitories, pupils' toilets, storage and utilities area (containing the battery for producing electricity) are built with the method used for military bunkers, using the excavated earth pressed into sacks, barbed wire for fixing the rows together, and plaster.
These rooms are roofed with bamboo canes, planks of local wood and a base course with light aggregates.
There is another vaulted roof built, above the previous one, using bamboo and thatch, and it covers the area used for study/reading and rest for the children, freely accessible by the whole community.
The entrance "hall", marked out by the decorated walls of the facilities, also serves as a small auditorium for shows and any other type of collective activity.
The flooring of the school is composed of bricks made from the excavated earth.

Image of Zero impact.

Energy production and storage system.

The central element of the design of the "Good School" is its membrane roof.
Integration of innovative organic photovoltaic technology (OPV) transforms the roof of the school into a "solar tree". The advantage of OPV modules compared to traditional ones is that they work in any direction and even if there is diffuse light. The electric energy generated, which is 6 kW, powers the technical equipment in the three classrooms, the lift pumps of the well and the rainwater tank, the night-time utilities in the teachers' quarters and the study/reading areas, as well as a perimetral LED lamp that "lights up" the school area at night.
The OPV technology makes it possible to give the membrane the desired appearance depending on the shade to be created.

Membrane with flexible OPV modules.

The energy produced is stored by water-based organic batteries, with high performance and almost no environmental impact. The battery, developed by USC researchers, eliminates once and for all the use of heavy metals or toxic chemicals, which are replaced by organic compounds soluble in water. The molecule used, natural quinone, cheaper than traditional molecules, is used in nature for producing energy. In addition to its low environmental impact there is the considerable advantage of the duration of this new type of battery, estimated to be between 10 and 15 years compared to the about 3 years of traditional lithium batteries.