Sustainable low cost school in the Rif country side - Morocco

Location and data:
Climate: Winter 10°C Summer 27°C
recorded rain fall: 1500mm/year
Geology: Clay, Shale
Vegetation: Cedar, fir, Oak
Height: 1400 m

Issue:
In the central Rif region, illiteracy rate remains the highest among the country’s. The social and economic situations there are very rude: schools are rarely in that region enclosed in the mountains and almost cut off from the rest of the world.

People living in that region ignore everything about how to deal with their daily activities which result in having negative effects on their productivity and benefits.

Deprieved from education and awareness, these poor people ignore everything about health prevention that damage the children’s and even the mother’s health. Conseqently, it harms their physical and intellectual capacities as well.

As we can see, a school has an important role in rising a well balanced society.
The national government falied on providing those isolated regions with schools, and can’t deal alone with it.

Our challenge is to make up a concept of a low cost school which respect the regional architecture and sustainable development. In fact this will fester a new state of mind that should eventually extend to the whole population. If all school buildings in rural regions combined low cost architectural quality and ecological concerns, children would look at things differently and might become open adults directed toward artistic creation, motivated by civic consciousness.

Architectural concept:

- inspiration from the regional architecture
- compact form and comfortable spaces
- adaptation to the site topography and nature’s elements (wind, sun…)
- local materials
- heating and cooling control

Slipping schools:
The architectural composition of the school meets several environmental objectives, as well as it preserves the natural site to its maximum extent.

By setting it as far as possible as a completing part of the land, we safeguard the wooden area. The main north-south orientation provides good thermal comfort that varies with the seasons, whereas its positioning on a slope provides opens views and creates different spaces.

We designed the school, by taking its users needs into great consideration while keeping a tight region on costs, remaining attentive to its upkeep and maintenance and anticipating its possible evolution.

By avoiding any harmful emissions, the construction also takes into account the health and comfort of its occupants as well as it follows the rhythm of days and seasons.

The building serves as a learning tool that combines both cultural heritage of the area with our new knowledge and updated skills in this field, and it reflects different generations throughout the project.

The choice of materials & Construction techniques:

- Rain water recovery: Water stored in a tank and used after filtration
- Cedar wood: 1% of total wood on the structure the requirements of sustainable management of forests.
- Local stone: Stone meeting the criteria of fluidity and ease of maintenance that forms the walls are widely used.

Low cost Kinetic wind energy:
A basic wind turbine has been conceived and realized with simple material such as the back of an air-fan that serves as a base and the blades that were made of zinc by aluminum frames.

The polyvalent room can also be used by

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