

sustainability

PROCESSES NEW MATERIALS BRASIL

2007 / 2008
BIOPlac



In accordance with the concepts of fair trade and sustainable design, Fibra developed the skateboard's material by observing the techniques of traditional communities and exploring the variety of botanical families in Brazil. Folha Seca is made with BIOplac, an eco-friendly composite that uses non-wood resources from Brazil. Winner of iF Material Awards and VOLVO Sports Design Nominee



Pupunha Veneer



Organic Bamboo



Natural fibers + Polypropilene

2007 / 2008
EcoSurfboard



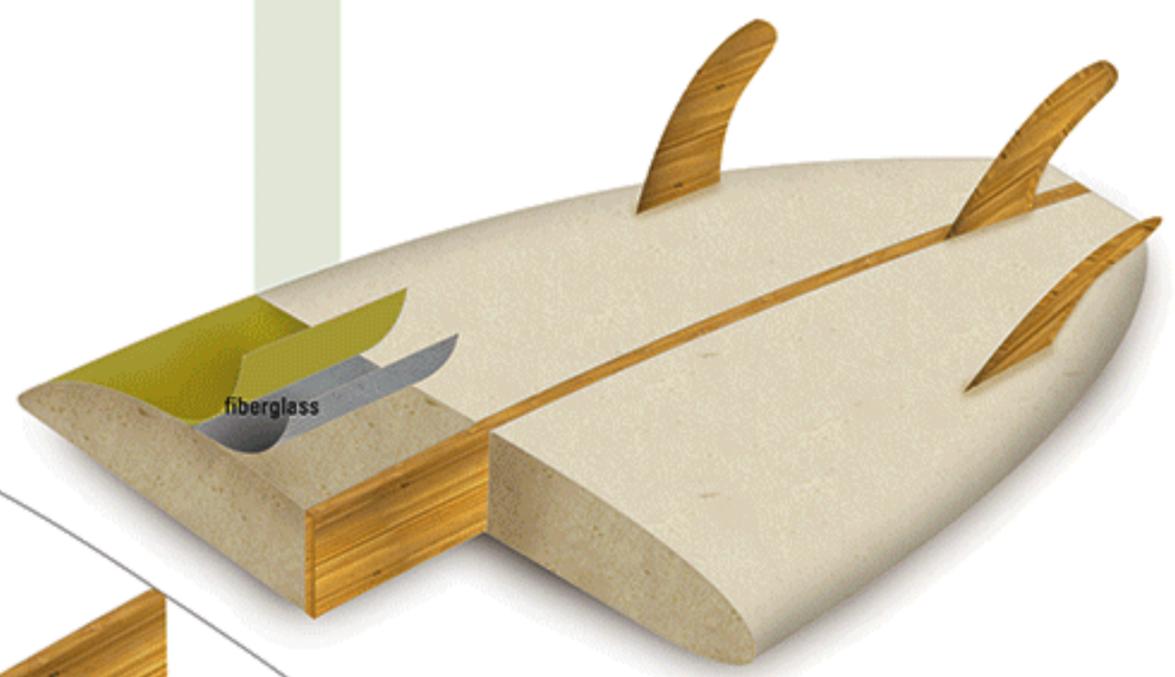
Organic Bamboo



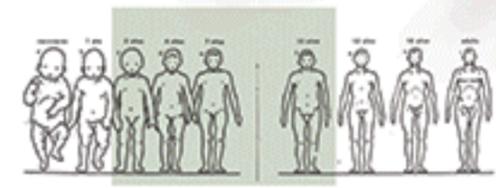
Polyester Resin with recycled PET



Vegetable adhesive



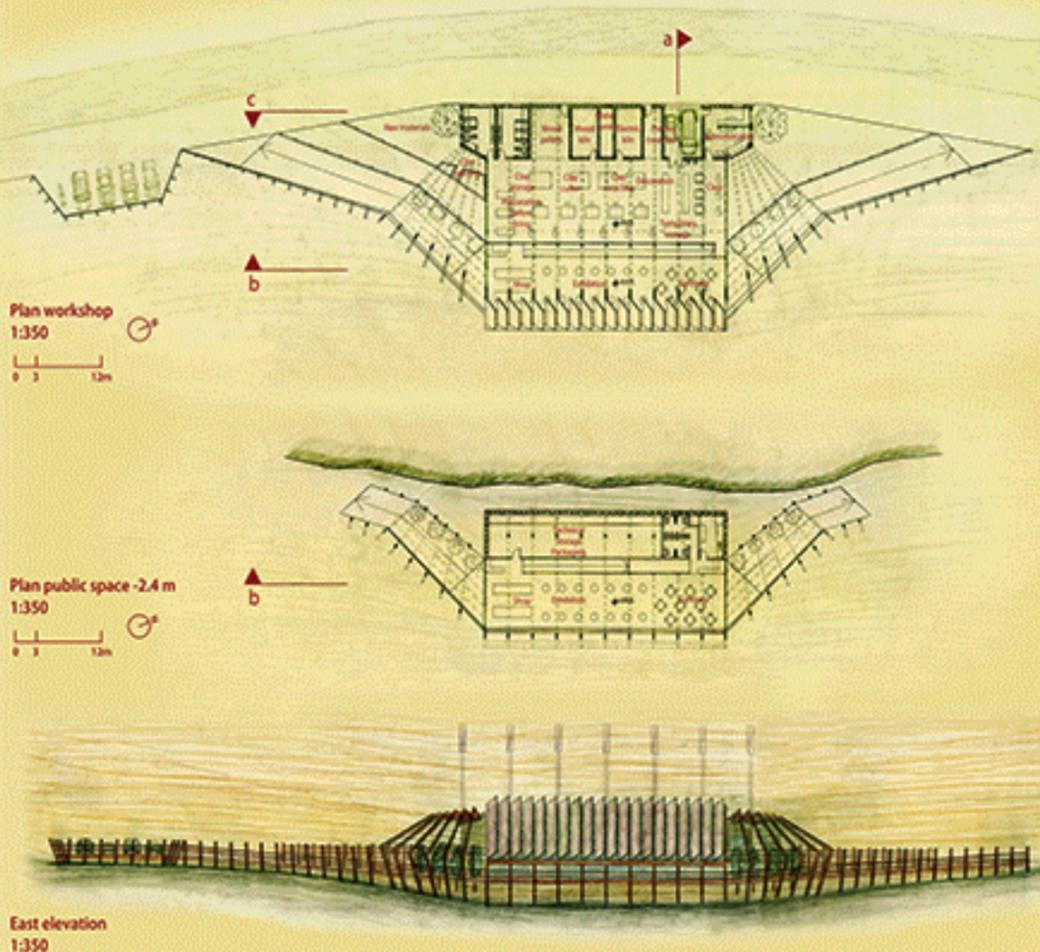
2009 / 2010
Bicicleta Chico



Manufactured mainly with sustainable materials, this bicycle can be ridden by 2 to 10-year-old children. The Chico Bike accompanies the child's development, and parents can change its configuration through simple movements making it convenient and comfortable for use throughout childhood. The design meets user's ergonomic and technical functional requirements. As well as entertaining, the bike fosters psychomotor development and contributes to body balance and awareness. Winner of IDEA Brasil Silver EcoDesign

Pottery factory in Chabrouh

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 American University of Beirut, LEBANON



Systems:

Ecological use of the factory:
 The factory gets its raw material from the dam's sedimentation and other sources. It helps keep the level of the dam's low point stable as its capacity remains unchanged.

Water recuperation:
 Water is provided from the dam. The location of the factory with it on a lower point relative to the dam's water level, so water is got by gravity.

Economical factory:
 The factory's internal spaces (kitchens, kitchen are nature friendly).

Energy production:
 The factory produces its own electricity from PV panels and wind turbines. Electricity is exchanged with the municipality when there is over-charge or if there are lack of energy. Heat is produced by electricity and burning wood pellets. The heat and fuel are electrical.

Days, Night, and Winter:
 During the day, the factory produces its own energy by PV panels and wind turbines. It is backed by the municipality electricity if there is lack of energy, or gives back over production.

Winter:
 Heat heating ensures melting the ice that holds and it, allowing the PV panels to work normally.

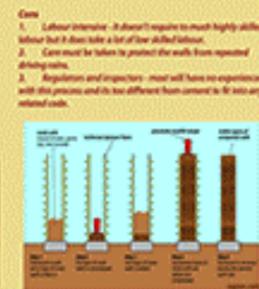
On the north facade, clay shading is used to minimize the cooling effects of cold north winds.

Azore carbon factory:
 Emitters produced by the wood pellets based kiln is filtered by an electrical air cleaner.

Vertical axis wind turbines:
 They rotate in any wind direction, do not generate vibrations, and are not harmful for birds.

Construction materials:
 Burned earth is used in the construction of the back side of the factory. It is the best thermal mass, in which there are the kiln, water tank, wood pellets storage and other services.

Recyclable material:
 Clay can be recycled for making water.



Case 1: Labour intensive - it doesn't require much highly skilled labour but it does take a lot of low skilled labour.

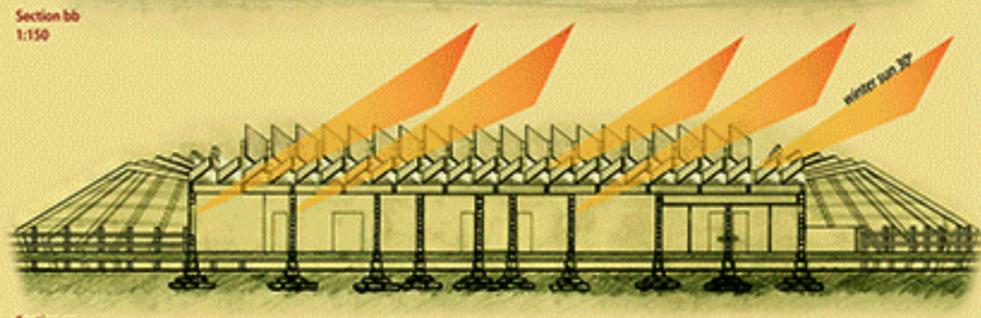
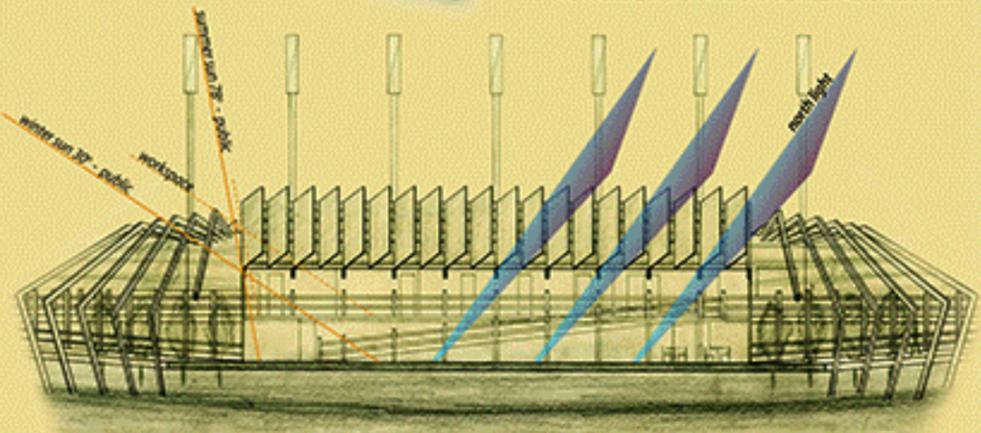
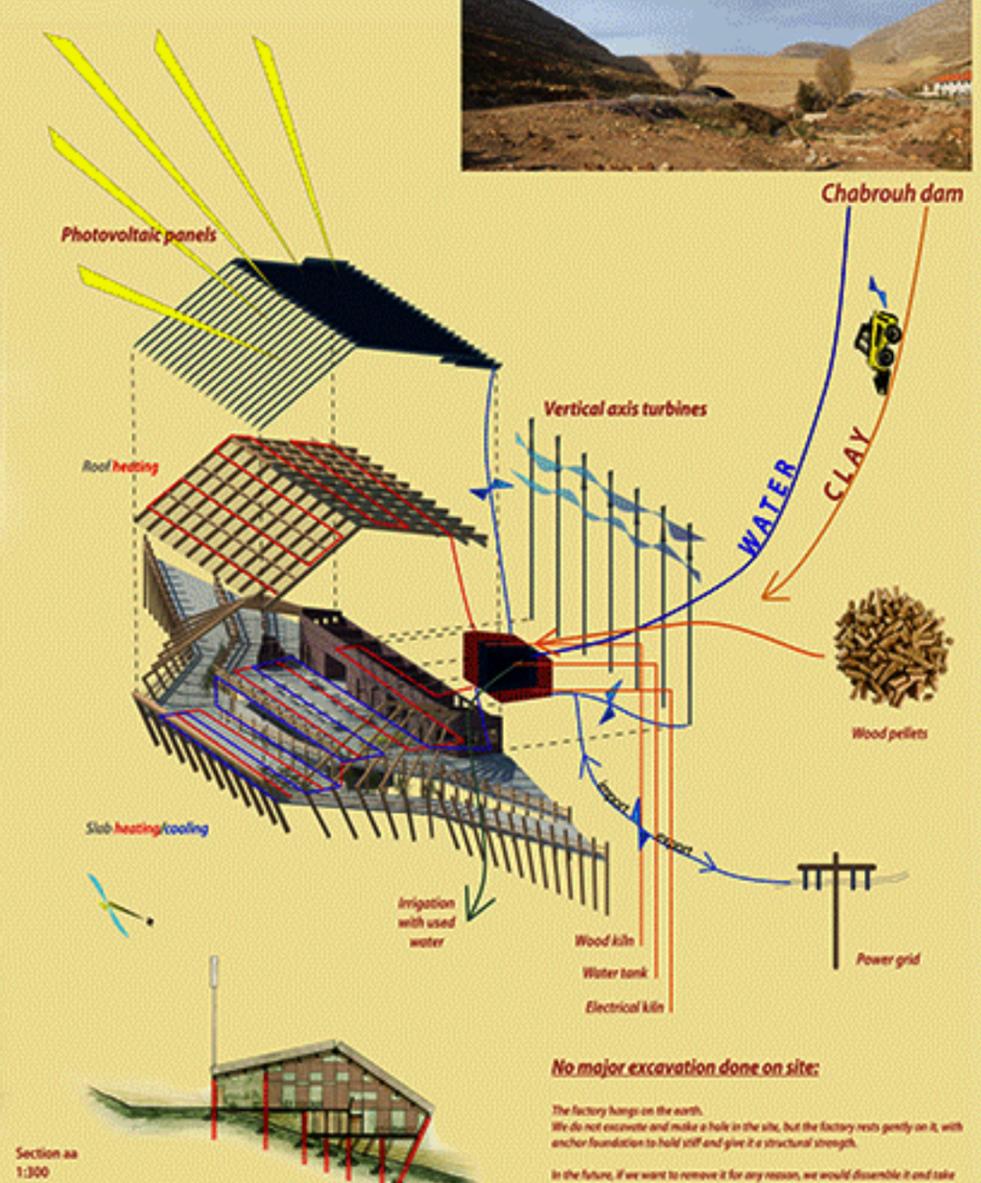
Case 2: Care must be taken to protect the walls from repeated drying rains.

Case 3: Regulations and inspectors - most will have no experience with this process and its too different from cement to fit into any related code.

Therapeutical uses:
 Clay is used as an oil diffuser for health products. Clay can detox the skin by drawing out poisons and impurities, thus deeply purifying and invigorating the skin. It can be mixed with food to treat stomach illnesses. It can draw wounds and stimulate damaged skin cells.



Resources:



Natural lighting, shading & passive heating/cooling:

Shading is assured by PV panels (photovoltaic) at the south.
 The south part of the factory needs some sun light for pottery preparation before entering the kiln.

Passive heating:
 During winter, back PV panels rotate to let sun rays enter into the back core of the factory allowing for passive heating.

Passive cooling:
 During the summer, the cooled back core of the factory will cool the interior space during the first half of the day by passive cooling.

Natural ventilation:
 The factory is ventilated by cross ventilation along the side facade glazing. Also, stack ventilation happens at the top of the structure, with openings in roof glazing.

