



## PANI COMMUNITY CENTRE

The Dutch foundation Pani commissioned the architecture firm to design an educational building in the north Bengal town of Rajarhat. The architect couple embraced this pro bono assignment via an open call on the Internet<sup>1</sup>. They took up the project to realise an environmentally friendly building that contributes to the community in a significant way. According to the architects, "The goal is to train the poor and landless in this Muslim community, improve hygiene, work on education, reduce child mortality and ensure economic independence eventually making the financial support of the foundation superfluous."

### FOR THE PEOPLE, BY THE PEOPLE

The starting point was to put up a building using materials and skills from within a 25-kilometre radius from the site. The drive was to encourage locals to become aware of the basic principles of sustainability and durable building concepts. Together with the local people, the architects looked at what products were available for use. The concept was to combine and optimise local techniques with local materials.

The strategy was to participate in the evolution and modernisation of the local construction processes without disrupting the know-how of the population. This began with learning the skills of the local construction workers, which were required for long-term planning, and developing confidence to bring into practice new knowledge and techniques. The building techniques used for this project were taught by the main

<sup>1</sup> Plaza view



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contractor and were easy to learn; it contributed to the modernisation of the local construction. Eventually, this has resulted in “great architecture for people that really deserve great architecture,” the architects said. The building has become the pride of the town—built by the people, used by the people and maintained by the people. The completion of this community centre has proved that conventional local resources and materials can be used to successfully build an eco-friendly building.

**ENVIRONMENTALLY FRIENDLY**

The floor plan has an east-west orientation and consists of three volumes under a large bamboo roof structure. The classrooms and lavatories are situated on the south side, and the workshop and store on the north side. Two sight lines traverse the building in all four wind directions. This composition of volumes housed under one big U-shaped roof (24 metres by 32 metres) creates interspaces that are open for public use. Each space has a function.

From a bioclimatic point of view, the orientation of the building allows for natural cross ventilation. The roof of the building is suspended at both sides (east and west), providing shade, protecting the largest openings against rain and collecting rainwater. Also, the architects wanted to take into account the nearby ponds in the design, which, together with surrounding vegetation, help to naturally cool the classrooms.

Situated on the ground floor is the covered plaza with public lavatories, workshop, storage, classroom and playground. On the upper floor, on top of the workshop, is a freely accessible assembly floor. There is a footbridge that connects this space to the classrooms on the other side of that level. The lifting of the roof high above the volumes has achieved a considerable reduction of heat build-up within the spaces.

The interior walls were coloured in light blue, a hue that flies shun, whereas the classroom windows and exterior walls were painted yellow, a colour that specific insects dislike. This colour also refers to the flowers of the mustard plant, a crop that covers large parts of the country from December to January. Grey and black were the other shades used, which in turn refer to the colours of the Bengal earth before and after rainfall, respectively.

**LOCAL MATERIALS**

Aside from local skills, the use of local materials such as bamboo; hand-shaped brick; mango wood; reused steel; local mortar; and wafer-thin recycled corrugated panels was another focus during the design process. Close to zero electricity or fossil fuels were used during construction and other necessities required for erecting this building.

Although bamboo is seen as an inferior material in the region, the architects have decided to use it for the whole roof—even the walls and French doors of the workshop are clad with it—as a reference to the bamboo bicycle frames that are made there.

In the north of Bangladesh, buildings are mostly constructed with bricks, so the architects also proposed the use of bricks but in an optimised and locally unknown brickwork bond that does not require whole brick walls for stability, thereby minimising costs and maintaining the primary advantage of using local materials and craftsmanship. U-shaped brick columns support the southern façade of the building, creating a row of small vertical windows. This is similar to a single stonewall, which gives sufficient savings on construction costs, time and labour. The dimensions were chosen with great care in such a way that direct sunlight into the classrooms is minimised, but still allows for optimal daylighting. This application of local bricks is less expensive and reduces the use

of construction wood by combining bamboo with thin concrete floors, minimising the shortage of wood in Bangladesh as well as future maintenance costs.

**BUILDING CONSTRAINTS**

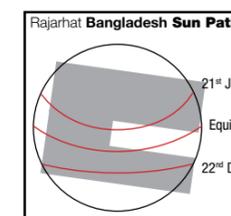
The building budget came from crowdfunding and gifts from friends of the foundation. The architects also financed this project from their own resources. Personal involvement was also essential so they worked and dwelled at the site for four times over a period of 10 days. The team faced an 18-month construction time with periodic monsoon interruptions. They came up with an idea to turn around the conventional construction process—first, by erecting the roof then building the volumes ‘loose’ underneath it. This made it possible to continuously build even during the rainy season. There was also unreliable power supply, which made them decide to design and construct the building using close to zero electricity. Except for welding of the steel work, all building activities were done manually; basically everything was handmade.

Because they wanted to use bamboo for the roof construction, they had to take into account the right harvest and conservation time. Language barrier (both are non-English speakers) and the inch-feet conversion had caused several problems. Lastly, both the contractor and carpenter could not read architectural drawings so they had to build a scale model on-site.

The couple has become ambassadors for the foundation and are still closely involved with the project and those who are managing the building in Rajarhat. The project has been recognised by several award bodies such as winning in Canada’s AZ Awards 2015; being a finalist for the Dutch Design Awards; and nominated for the 2AAA and Aga Khan architectural awards. – Edited by Karen Baja Dungalen

1 <http://www.the10percentclub.com>

**PROJECT DATA**  
**Project Name** Pani Community Centre  
**Location** 52 Hospital Road, Makurtary, Rajarhat, Bangladesh  
**Completion Date** November 2014  
**Site Area** 816 square metres  
**Gross Floor Area** 910 square metres  
**Number of Rooms** 10  
**Building Height** 7 metres (eaves)  
**Client/Owner** Pani Foundation (Arnhem, the Netherlands)  
**Architecture Firm** SchilderScholte architects  
**Principal Architects** Gerrit Schilder; Hill Scholte  
**Main Contractor** Mei (Rajarhat, Bangladesh)  
**Civil & Structural Engineer** PT-Structural  
**Images/Photos** SchilderScholte architects



2 A space for play under a footbridge  
 3 Classroom interior 4 View from across the pond