

# 54

## A CLIMATE-CHALLENGED WORLD

THE WORLD'S POOREST ARE THE MOST AFFECTED by climate changes. More than half the world's population—which are approximately 3 billion people who survive on about US\$2 a day—will bear the burden of changes in weather patterns and extreme weather conditions. The United Nations Intergovernmental Panel on Climate Change (IPCC) has estimated that the total carbon footprint of the 1 billion of the poorest will amount to not more than 3 percent of the global carbon dioxide (CO2) emissions. In contrast, the UN paper goes on to state that 80 percent of the cumulative buildup of carbon dioxide in the atmosphere since the Industrial Revolution come from the world's wealthiest nations. Time and again, the scientists have made clear that as the earth's

atmosphere heats up from 1.4 to 5.8 degrees centigrade, the poverty-stricken communities in the developing world will most likely be the first to feel the effects, and the least to be able to do anything about it.

Therefore, it is safe to conclude two indisputable things. First, global warming is occurring and this is partly due to human activities. Second, the cost of emissions in the atmosphere will not be carried by the emitter, but by the most vulnerable of humanity. So how come there has only been focus on solving climate change, like lowering pollution and changing to alternative sources of power, when the world should be rushing to develop technological advances to adapt the poor to the effects of extreme weather?

THE MILLENNIUM SCHOOLS COMPETITION was established for precisely this gap in knowledge, a way to seek innovative solutions to the persistent problem of disasters destroying school infrastructure in the rural areas of the Philippines. Schools in the provinces, which are places of learning during normal operations, happen to be the places of refuge in case of a calamity. Scattered across the archipelago, they are often not far from the dispersed poor communities in the provinces, such that when violent storms batter down their homes, most often the classrooms become the best and last resort for shelter. Unfortunately, the designs have largely been unchanged since the 1960s and these obsolete box-type designs have led to thousands of losses in educational facilities and thousands more in lives when adults and children become exposed to the storm.

Hence, the competition serves as a means to exchange insights among designers and architects around the world to come together in a collective effort and find solutions to redesign school buildings. The goal was to come up with an emergent technology, which would create sustainable and

cost-efficient new design solutions to improve the overall learning conditions of the children and to revolutionize the blueprint in making the structure resilient to strong winds and typhoons.

A major reason for holding an international architectural competition is the realization that there are many solutions to what appears to be a single problem. It is paramount that there be a global outreach where there would be a discussion on the shortfalls of the current Philippine local elementary school design; setting the parameters of what it would look like, then giving free reign to the variety of proposed solutions. In the past, there was massive building of standardized block classrooms with a fixed number of hollow-blocks and galvanized steel over a 50-square-meter floor area. Some contractors tend to build the classrooms using cheap materials, compromising the quality of the constructed classroom. In the competition, however, participants could set the degree of government intervention and the use of indigenous materials is encouraged. What was important is to disrupt the cycle of destruction-repair-destruction and shift to a design and build consideration that

had a longer shelf life.

The competition was launched globally at Harvard University in Boston (USA) on August 2, 2007. MyShelter Foundation ties up with National Disaster Coordinating Council, United Architects of the Philippines, Philippine Green Building, Department of Education, Private Sector Disaster Management Network, and Red Eye Productions for this project. It was also launched at the Shangri-La Hotel in the Philippines to gain an audience of Asian, American, and European architects. In the competition's website, almost 300 inquiries came in from all over the world and information packages were sent to inform them of the competition objectives and requirements. Of these, 120 decided to further participate from 15 countries such as Portugal, Italy, Greece, the United States, Japan, Singapore, the Philippines, and other nations. The submitted ideas were of the highest quality and research, but of all these, only 36 made it to the semi-finals. On April 15, 2008, after almost seven months of work, the three top winners were decided and because there were such impressive entries, four new honorable mentions were included.

# 55

## ARCHITECTURE AS BEST DEFENSE FOR CLIMATE CHANGE

Perspective view of the veranda and walkway outside classrooms

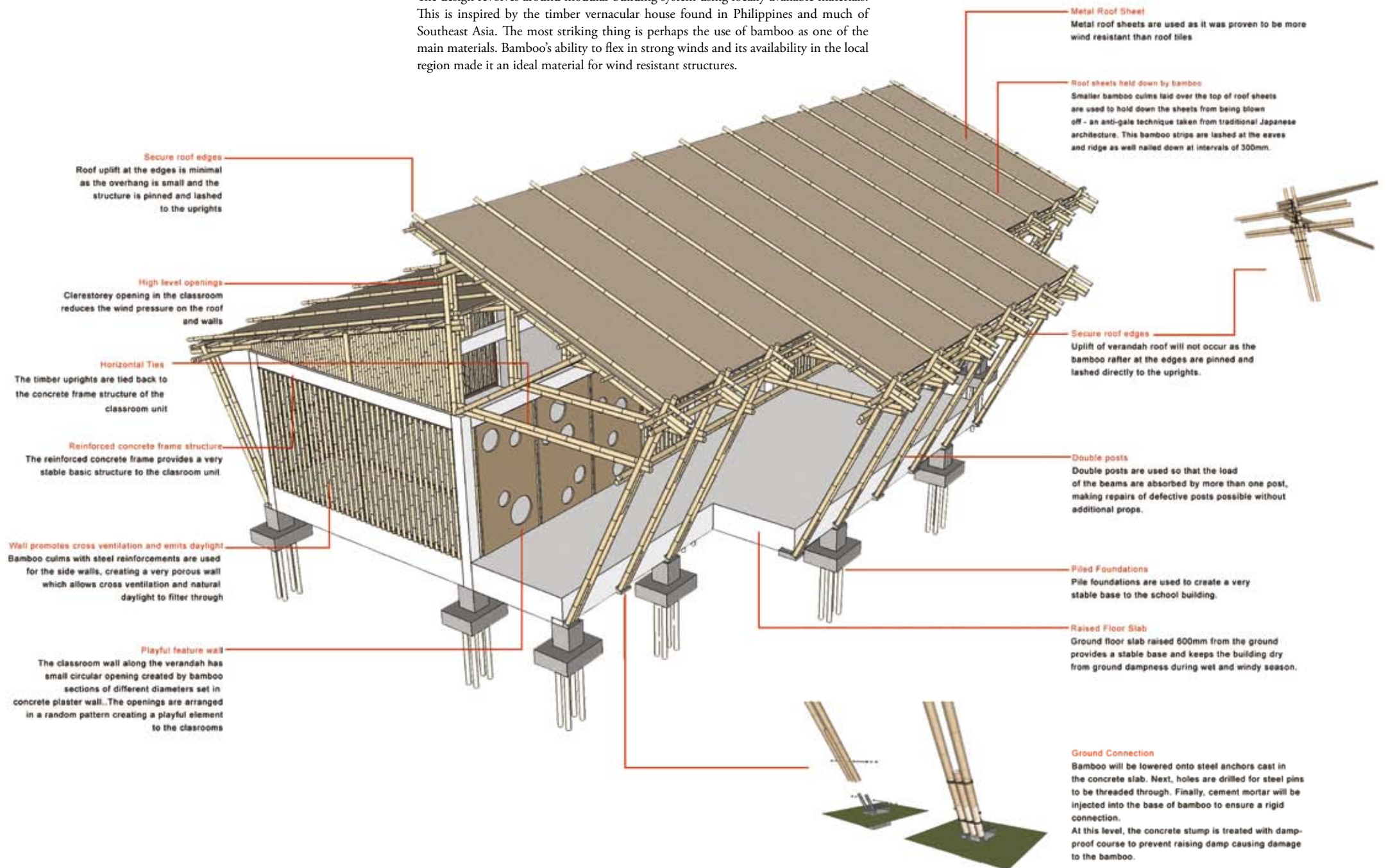


# 56

## BEST DESIGNS 1ST PLACE

1st place: MODULAR CLUSTER CONCEPT  
Designer: Ar. Elenna Jamil (Malaysia)

The design revolves around modular building system using locally available materials. This is inspired by the timber vernacular house found in Philippines and much of Southeast Asia. The most striking thing is perhaps the use of bamboo as one of the main materials. Bamboo's ability to flex in strong winds and its availability in the local region made it an ideal material for wind resistant structures.

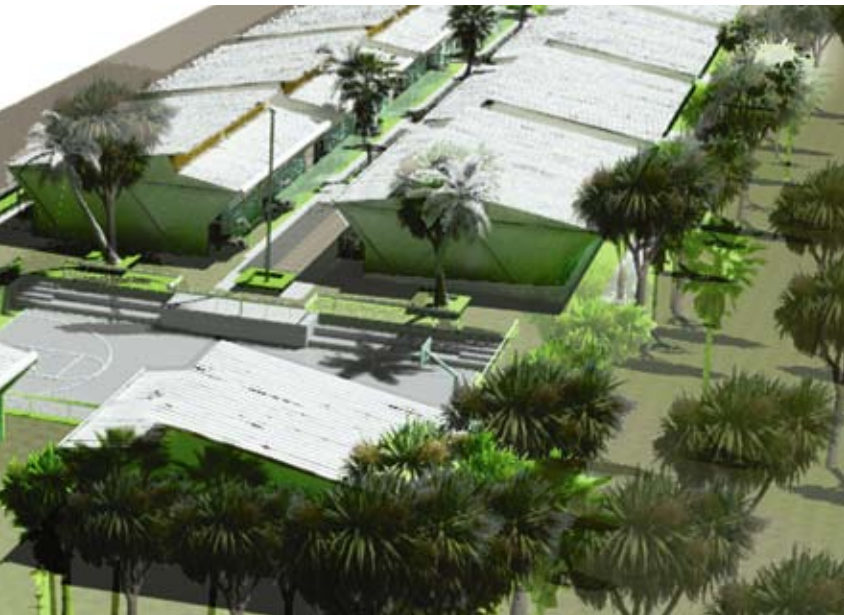


## 57 2<sup>ND</sup> PLACE

2nd place: DANCING WITH DISASTER  
Designers: Ar. Bronne Dytoc, Sudarshan Khadka,  
and Josiah Cunanan (Philippines)

Acknowledgements also go out to Kennex Camba and Norai Marquez

The team's concept is responding to the winds (rather than resisting it), much like the martial arts, hence the theme—"Dancing with Disaster." Being solid, yet lithe, with a touch of green, was the adopted posture. Instead of using the conventional concrete blocks (CMUs), which represent quite a bit of energy with little chance of reuse, the team opted instead for a modulated W-frame made of steel for its main support system. Maximizing surface area is a trademark response in tropical climates, thus the coconut lumber floor, which is permeable to air exchange. This also responds to possible local flooding while allowing the space below to serve as emergency storage areas during refugee-center mode.



## 58 3<sup>RD</sup> PLACE

3rd place: ECOSAN Concept  
Designer: Ar. Nicolo Precioso Del Castillo (Philippines)

Ecosan is considered as a solid and liquid waste disposal. The reuse of a person's excreta and urine collected in an Ecosan toilet can be used in making fertilizers. Its rainwater system makes water harvesting possible. The slanted walls and high windows provide comfort to the students because of the indirect natural lighting. Cocowood planks are used for its finishing.

## 59 HONORABLE MENTION

Mindkocoon  
Designer: Ar. Suzette Stoler (USA)

The design has a folding outer shell that dynamically turns the school into a shelter. When closed, the aerodynamic A-Frame dramatically reduces the lateral forces against the walls and roofs reducing the amount of damage during a typhoon.

Harnessing Nature's Inevitability  
Designer: Ar. John Patrick Buensalido (Philippines)

The design is meant to intrinsically weave the whole school with nature, making use of liquid lines and structures based on the resulting formations of the mountains and terrain created by tectonic forces.

The School of Tomorrow  
Designer: Ar. Fuyuku Makino (Japan)

The design provides educational spaces that embody the image of open-air classrooms. The core of the building uses recycled containers, while trees provide natural windbreak during typhoons.

