

# ZERO CARBON SCHOOL ROOMS

## CO-BUILT CLASSROOMS FOR IMMEDIATE USE



*Climate Volunteers from Lahore and Vienna co-built a Double Octa Green learning centre.*

### INTRODUCTION

Millions of people are without any cover after four and half months of a major flood disaster in Pakistan. Although much has been done with emergency supplies and provision of tents but most remain in a state of desperation. Similarly school children almost in Sindh are also bereft of any school buildings. It is estimated that over 22,000 original school buildings in Sindh are partially or fully damaged and can no longer be used for holding classes. Thus school going children in the province have been without any learning possibilities for the last several months. If the poor state of education because of COVID closures and the usual ghost school syndrome is added to the problem, it would seem that several million children have suffered throughout this period and are today without a smattering of learning. Do they have any chance of survival in the competitive 21st century?

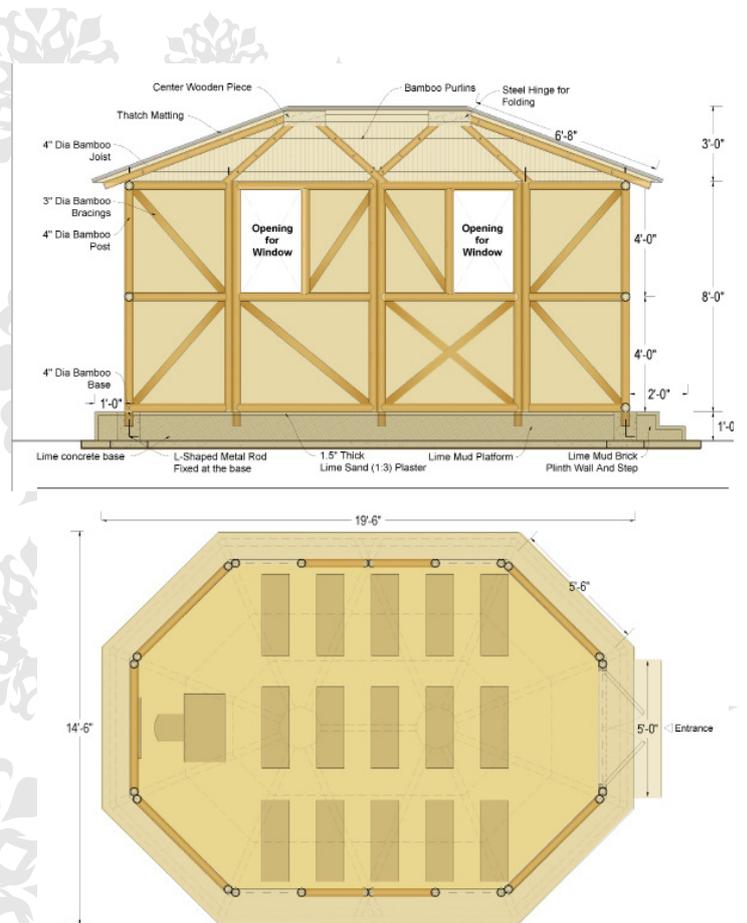
Urgent action is needed to adopt a strategy for immediate construction of as many one room class rooms in as many villages as possible. The problem is complex because of high cost of usual construction and non availability of funds to provide even a basic class room, let alone provision of toilets and potable water.

## ALTERNATIVE APPROACH

Millions of people are without any cover after several months of a major flood disaster in Pakistan. Although much has been done with emergency supplies and provision of tents but most remain in a state of desperation. Similarly school children almost in Sindh are also bereft of any school buildings. It is estimated that over 22,000 original school buildings in Sindh are partially or fully damaged and can no longer be used for holding classes. Thus school going children in the province have been without any learning possibilities for the last several months. If the poor state of education because of COVID closures and the usual ghost school syndrome is added to the problem, it would seem that several million children have suffered throughout this period and are today without a smattering of learning. Do they have any chance of survival in the competitive 21st century?



Classes in progress in completed Double OctaGreen.



Plan (below) and elevation (above) of Double OctaGreen as learning centre.

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However, if we could accept it as a challenge and work out sustainable solutions, we could use this opportunity to bring about the social change that is needed today. The basis of such a transformation would be accessible schools where girl children can take advantage of facilities available for learning. The best way to ensure female education provision of at least elementary classrooms in each village. In order to ensure regularity these elementary classrooms could be run by local young teachers and community committees.

## PROTOTYPE SCHOOL ROOM

The first school room as a prototype has been constructed in the zero carbon villages pilot in Mirpur Khas. In a short period of ten weeks, 1,000 households have become self sufficient through a combination of self building and use of zero carbon locally sourced materials. At a very low cost, with a combination of required materials, training and capacity building sponsored by us, they have acquired their basic rights based components as well as implementation of flood mitigation and environmental improvement measures. A parallel stream of barefoot enterprises in each village for income generation most of the villages in Pono Cluster have raised them above poverty line.

They are now ready to embark on the second phase of co building for social infrastructure. In view of the plight of school going children, we felt that focus on missing school rooms was essential. In the first week of December, the prototype was assembled in 3 days as a co-building activity by visiting climate volunteers from Vienna and Lahore, departments of architecture, assisted by community. After the completion of all wet works of walls and floors and installation of special bamboo door, village children have their room for learning.



Original class room in Pono village.



School room constructed in Sahib Sungshanji.

Soon afterwards we decided to take up construction of a school room in another nearby village Sahib Sungshanji along with two eco toilets, a solar panel and a waterpump as water source. This has been taken up as a co building activity with the village community. In this effort the participation of women has been remarkable. By providing all materials and expertise from Pono Cluster, the school room including finishing and installation of door was completed in 8 days. The most heartening part is the outstanding work that has been carried out by female members of the community. Without too much persuasion they got to work on finishing the plaster beautifully.

This school is being built as a prototype for interested organizations to examine it as a model of sustainable school building. It has been built to demonstrate the value of community engagement and the speed at which a safe school building can be built along with basic amenities at a very low cost. If this zero carbon model is taken up by relevant agencies, they could accomplish the challenging task of provision of thousands of safe schools within a couple of months of embarking on zero carbon schools programme. This can be accomplished

through use of prefabricated bamboo structures fabricated by trained artisans and finishing the structures by community particularly women. ‘

## PRODUCTION PROCEDURES

**W**e believe that by utilizing our speedy cost-effective methodology, artisan training and engagement of community particularly women, all 22000 one room schools could be built within a couple of months. The procedure would rely on setting up production centres in each district. For this purpose a work place would be set up which would be run by 3 trained master artisans. In the meantime we propose to provide training to at least 30 LOG artisans from local villages. These artisans, after receiving training will be able to work under the supervision and direction of master artisans.

**T**he total production every day is expected to be at least 24 structures every day. Thus the target of 1100 can be attained within 6 weeks. While the production of prefabricated units is in hand, simultaneously the work on foundations could be taken up in each location by trained foundation artisans who will begin working with the community. Thus, as soon as each prefab unit is ready it can be transported to the designated location and erected with the help of the relevant artisan with help of the community. We know that each Double OctaGreen one room

school can be completed within 8 days and be ready for receiving students. If the defined procedures are followed and training arranged for requisite number of artisans, it should be possible to get all 22,000 units completed within 2 months.

## STUDENT VOLUNTEERS

**A**mong important initiatives would be to encourage local universities and corporate sector to initiate a programme for joint school building with student volunteers and community on the same pattern as Heritage Foundation's Climate Volunteers. If all 22,000 schools could be built as a joint effort between university students and local communities, it will not only uplift the spirits of flood affected families, but will also introduce an element of humanism and empathy with those not as privileged nor as fortunate as ourselves to Pakistan's youth. This activity will introduce the importance of a cause to the young generation and emphasize the importance of helping people in need. .

**Target: 22,000 schools in 20 Sindh districts ‘**

**1100 schools required in each district.**

**30 artisans fabricate 1100 units in 45 days/Centre**

**Thus, 20 Centres will fabricate 22,000 schools**

**Each community finishes schools in 8 days**

**Construction of 22,000 in 2 months**





Village School- Interior View



Village School- Finished



Village School- Interior View



Village School- Finished



Village School- Interior View

