Hunnarshala: Learning from the Past to Build Future

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Abstract

Hunnarshala's campus is an extended metaphor of their experimental disposition. The aim is to provide temporary housing based on owner and community driven reconstruction leading to their expertise in low cost construction. The involvement and knowledge of local artisans form the integral part of design process leading to sustainable development. The research aims to propagate the idea of sustainable methodologies and emerging technologies of Hunnarshala for its further implementation in various projects.
Keyword- Low Cost Construction, Community Empowerment, Local Artisans, Sustainable Development

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OBJECTIVES

1) To study the approach of Hunnarshala in field of innovative low-cost building practices.
2) To understand the campus planning of Hunnarshala and its concept.
3) To analyze the implementation of such sustainable practices to overcome present challenges.

METHODOLOGY

A site visit to Hunnarshala campus in Bhuj District was conducted for the collection of data. Observations were made during the visit based on the use of different building type in the campus. Also, interaction with the staff further strengthened the study. The supporting material derived from various articles helped in analysis of existing need of such practices.

I. INTRODUCTION

Hunnarshala Foundation, a section 25 company as per the Companies Act of India, was formed after the massive earthquake of Kutch in 2001 with objectives to construction practices & technologies which are scientifically validated through research initiatives. The knowledge of these technologies is transferred to the local artisans who further link it to the contemporary market. The Hunnarshala Foundation has three main areas of the work namely,

- Community Empowerment including both Rural and Urban areas.
- Artisan Empowerment including Artisans Enterprise, Training Program and Technological Intervention.
- Artisan School

Fig. 1: Local artisans at work in Hunnarshala

II. THE INITIATIVES BY HUNNARSHALA

Post-quake reconstruction saw large scale implementation of earth construction. Interaction between scientific and modern building science and traditional knowledge suggested directions for strengthening engagement of artisans to deliver high quality infrastructure and community spaces. Three themes have emerged as cross-cutting for Hunnarshala for its direction and works:

1) The way in which people are empowered to shape their own habitats;
2) The habitat solutions that are more environment friendly, sustainable and disaster safe;
3) The local artisanal knowledge and skills that deliver high quality products.

A. Hunnarshala and Its Share Holders

Hunnarshala currently has about 80 shareholders. It offers its knowledge and skills for building designs, settlement planning, social housing, disaster reconstruction, waste water treatment systems, infrastructure development, etc. It is engaged in govt. Associations such as Indira Awas Yojana, Kosi Flood Rehabilitation, Kutch Earthquake Rehabilitation and Slum Redevelopment.

III. NEED OF STUDY

The word 'Hunnar' is used both in Urdu and Hindi and connotes the 'arts' in Urdu and 'skills' in Hindi. The idea found utterance in 2003 when the foundation was inspired to recreate its cultural significance for the building crafts that still flourish in Kutch. With the technology the architects have begun building homes for slums and have proposed more than 10,000 buildings under the slum-free city program of the Government.

IV. STUDY AREA AND DATA COLLECTION

Hunnarshala promotes that it is essential to stress on technologies and materials that not very energy consuming as well as recycling the waste our environment generates. The campus explores earth, wood, stone and several interpretations of climate and solar passive architecture.

Fig. 2: Prototype structures on campus made with traditional building techniques

The Hunnarshala campus building is completely an evolving structure itself. It is designed with a sole reason to demonstrate all the alternative constructional technologies. The building is an amalgamation and a contribution from several master artisans and architects who have worked with Hunnarshala over the last decade.

The dialogues with Mr. Mahavir Acharya ,(Member of Design team) has helped in understanding the whole basic idea behind the establishment of Hunnarshala and its objectives of sustainable practices and community development.

V. APPROACH, APPEARANCE AND SEMANTICS OF BUILDING

Hunnarshala comprises an unpretentiously campus, built in 2008 and accepted as'Bhunga' (traditional Gujarati circular huts) by the locals. Its form is cohesive withother buildings, and coherent in the arid climate of Bhuj.

The building was not designed in one go, but has evolved over the time with inputs coming from artists, artisans, locals and architects. The whole complex is open for all. The parking of the complex (as shown in the figure 3) also acts as a bus stop for the residents of the nearby areas.

VI. CAMPUS PLANNING AND ARCHITECTURE

According to Kiran Vaghela, founding member, engineer and designer, the campus layout suggests an "Indian bazaar". Ridged roofs, and forms reflect simplicity and swadeshi. The built form is unimposing and of human scale.The asymmetrical planning centered on a courtyard, and earthy textures bring spontaneity and authenticity to this bazaar.

The entrance resembling the old traditional bazaar concept which would open into a lane of different houses and shops (as shown in the figure 3)

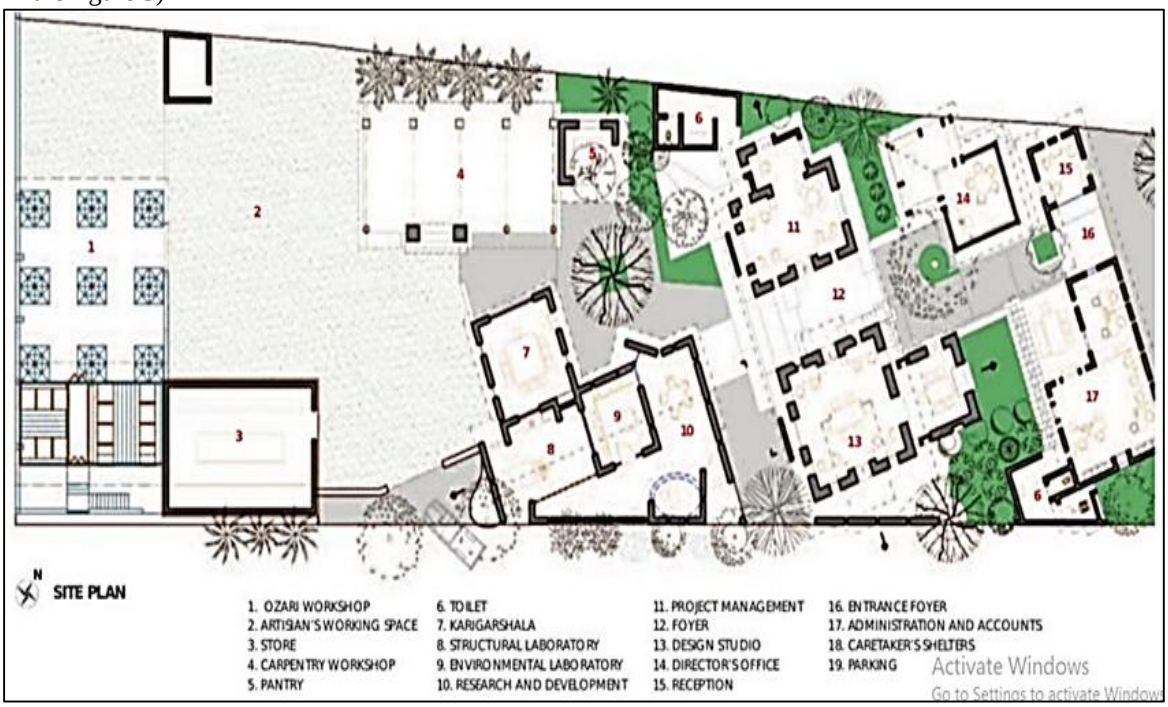

Fig. 3: The Site plan

VII. THE OFFICE

Building roofs hang low, mix thatch and Mangalore tiles – both supported by slender space frames; walls are rammed earth, interlocking blocks and stone with visible seismic resistance bands reminding that safety is paramount in this high seismic zone. They also have the age-old wattle & daub as both – exposed and plastered with lime.

Fig. 4: The Office and the Entrance

VIII. THE CLASSROOMS

In their classrooms, blackboards are replaced with frosted glass panels that double as a light source as though representing that knowledge is enlightening.

Fig. 5: The enlightening classroom

IX. THE KITCHEN

The kitchen walls were simply precast walls made out of the debris left after 2001 earthquake with pouring concrete along with it. Bamboo was added to give strength to it.

Fig. 6: The Kitchen and the Tree

Talking about the preservation of the environment, construction was made such that an existing tree was saved and still exists. The whole plan of kitchen was prepared such that there would be no harm to the tree.

X. KARIGARSHALA: THE ARTISIAN SCHOOL

In 2011, Hunnarshala set up an artisan school Karigarshala or artisan school where they train dropouts from the formal education system aged between 16 to 18 in carpentry and masonry. At the end of their yearlong training, they help them find work as artisans.

Fig. 7: Students learning at Karigarshala

XI. MATERIAL AND CONSTRUCTION METHODS

A large material palette greets visitors to the complex, with differences in each building. For instance, stone dust, industrial waste, construction debris is mixed in soil to build rammed earth walls that give it a white color. Best of all, the variety of architectural elements are tastefully synthesized, saving the campus from becoming a mish-mash.

XII. SHALLOW MASONRY DOMES

The tradition of building these domes is passed through the 'Ustaad-Chela' i.e., Master-Student system.

Fig. 8: Stepwise construction of the dome

There are two types of shallow masonry domes; dish type and the tray type. Two distinct methods, one with shuttering and one without shuttering are used to build these domes. Shallow Masonry domes can be a possible sustainable alternative to R.C.C slabs, which use more steel and cement. They are an excellent example of a roofing system that is stable and has low carbon footprint.

XIII. THATCHED ROOFS

The Balinese thatching technique (Figure 9) is incorporated in the roof which is inspired by the work in Indonesia. Along with rice husk from inside, the roof consists of mud rolls made out of local mud which help in temperature controlling of the structure.

Fig. 9: The Innovative construction

XIV. SPACE FRAMES

Research started on using materials other than steel to construct space frames for usage in high salinity conditions where steel is susceptible to corrosion. The final product was a combination of concrete filled PVC pipes and Bamboo supported on the edges in grid pattern.

XV. HOUSING FOR ALL PLAN OF ACTION (HFAPOA)

Under this scheme the government of Gujarat through Affordable Housing Mission (AHM) empaneled a group of consultants to study housing scenario.Hunnarshala was allotted eight cities around the state: Bhuj, Bhachau, Rapar, Jamjodhpur, Khambhalia, Chaklasi, Mansa and Dehgam.

XVI. SHELTER FOR URBAN HOMELESS

Taking forward its program with urban poor, Hunnarshala recently started working with urban migrants in the city of Bhuj. Homes in the City (HIC) helmed a study of migrants in the city which was supported by the students of Urban Policy and Governance Department, Tata Institute of Social Sciences, Mumbai.

XVII. MATHACHHAJ: AN INITIATIVE OF WOMEN EMPOWERMENT

Mathachhajin the local Kutchi dialect means “a roof above your head”, a beautiful metaphor and a strong illustration ofthis idea called “empowerment”. Kutchi womenare actually “building contractors”. After being trained to implement rice hay roofs by Hunnarshala

XVIII. CONCLUSION

Such innovative sustainable practices exhibit a greater model of design, which can be applied through various scales. Hunnarshala involves a participatory approach to bridge social chasms and empowered the marginalized. The buildings designed should be transparent and utilitarian by implementing the concept of sustainability. The practice should include the communities involved in the making and also care about the creatures without voices- the Environment and the Biodiversity.

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