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STEEL  
CONSTRUCTION  
SUMMIT



STEEL DAY  
MUMBAI  
2016

# STEEL STRUCTURES & METAL BUILDINGS

nerve of steel construction



AADITYA  
HEIGHTS

A SENSE OF  
OPENNESS



Client: **Palak Singh**Architect: **M:OFA Studios**Structural Engineer: **ROARK Consulting Engineers**Project Management Consultant: **Jade Consultants**Steel Tonnage: **60 Tonnes**Status: **Ongoing**

**T**he design of Aearth is envisaged as an art resort with an art gallery and nine cottages which could also be rented as artist studios during art camps, exhibitions and art auctions. A commercial venture which will work much like an art village in some sense, calling art enthusiasts to come and work together amid like-minded people, while at others will serve as a resort facilitating a serene hospitable environment to soothe the jostled minds.

#### Ideating the Design

This triangulated grid shell system was conceived through various visual and visceral connotations. The design took shape by manifesting the idea of a crumpled paper, where its multitude folds and crevices crafted the interstitial voids of the structure. The main building with the use of slate walls and pine wood windows features an origami roof unfolding over the structure that took subtle clues from the prevailing traditional architecture.

the design manifesting idea of crumpled paper

# A EARTH RESORT, MANALI





The overall form is envisaged to simulate a cavernous space or an ant hill, sporadically deriving its form from nature. The cottage pods and the roof for the main building have been designed as a composite structure using a skeleton of tubular steel framework covered with thin ferrocement shell. The austere skin of the roof gets a natural makeover by the local flora taking over and imitating like giant moss covered rocks in a forest.

#### Modular in Approach

An inward looking confined box-like concrete skeleton to be built in a context of rich flora, a gushing river and snow covered mountains doesn't sound synchronous to the architects. Instead, they chose to work on materials that resonates traditional architectural sensibilities of Naggar, while providing an opportunity to connect with the local craftsman. Being adept to such extreme weather conditions, collaborating with these people was essential as they can carry the construction process with much ease than anyone.

Steel is brought as modular units from Delhi and assembled on site. In casting a trapezoidal triangular form in the stated precinct, it has much more workability and efficiency than concrete. The cottage pods were divided and triangulated using steel frames where a thin sheath of ferrocement is poured over it. Through a few workshops, the local craftsmen were able to learn the technique of applying ferrocement together over the tubular steel shell, something as akin to their dexterity with plaster.

#### Harmonizing with Nature

Aearth Resort is nestled in the idyllic context of Naggar, Manali where its every facet harmonises with the sound of nature. The site lies on a slope with the access road on the top. A top down approach to the site looks into the valley where it brings enchanting views of the overlooking Kullu Valley, the snow covered mountains and the baes river.

The rear side is flanked with dense pine, apple and cherry trees. In order to develop a resort in a context of sparse populace and a few traditional buildings dotted about, it was not to build a RCC jungle having a substantially large footprint, something that would look irrelevant amidst the stated precincts but to mould a design language that settles harmony with the surroundings. Here, the architecture took inspiration from the geomorphic processes, on how the nature built habitats that grows from its lap.





The Cottage units are conceived as cocoons growing sporadically from the land, just like an ant hill, connected in its parts. This followed the experimentation to check the functionality of the pods. Anthropometrically, every cottage from inside is traced around the resultant silhouettes generated by various movements of the users inside, providing a cozy scale inside the cocoons. Since light plays a crucial role in imparting the space with a certain comfort quotient, double glazed skylights or the eyelids have been carefully planned to filter as much natural light throughout the prolonged winters while helping in passive solar gain.

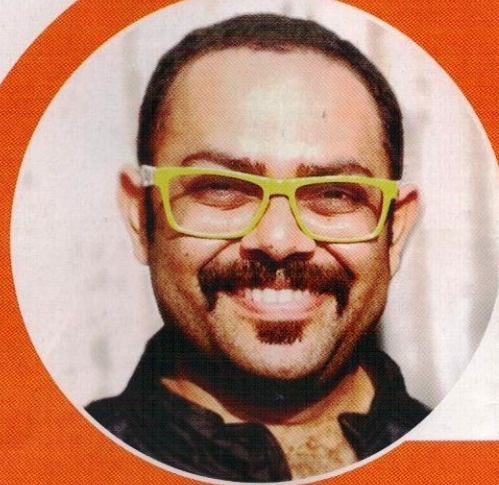
These skylights create desired cracks into this perceivable solid form for the exchange of light and removing the divide between inside and outside. Architecture presents a dual propensity in perceiving the inside-outside relationship. From outside it emulates a growth emerging out from the hills covered in vegetation while from inside, the adroitly crafted cracks of the cottages open up to the stunning spectacle of the valley.

### Designer's Voyage

The overall experience of the project has been one with tremendous learning. The design journey went through understanding various elements and constraints associated with the context, site language, built morphology, material palette and local craftsmanship. A project like this takes its own time, as nature and its varied processes are involved in contemplating the final design.

With every fleeting season, a new facet of the design comes to the surface. It reveals the natural growth of architecture emerging out of the hills, conspicuously carving itself through woods, and taken over by the local flora. The resort beautifies the inevitable ageing of the built form. Having the right materials in a subtle concoction, the architecture ages with grace. The local materials like wood, stone, and metal keeps the heritage of traditional timeless architecture alive, adding to it a rustic patina of age.

*(Contributed by: Zohra Khan,  
Media Researcher, M:OFA Studio)*



The prolonged winters in Manali causes a lot of snow to settle as thick blankets over the built form. The glare of the sun further hardens this sheath, making it enormously heavy and dense. This causes to develop cracks in the skylights or the snow falls down as heavy chunks causing injury to the person walking underneath. To deal with such an issue, we derived a technique of running high resistance thin wired cables over the structure. These carry a very low amount of current through them, which gets heated up and prevents the settling of snow as big chunks on the top. This simple design intervention saved from the extensive labour of clearing the roof top off snow and assured a long life of the structure

**MANISH GULATI**  
Principal, M:OFA Studios

