

POLITECNICO DI TORINO
FIRST SCHOOL OF ARCHITECTURE
Master of Science in Architecture Construction City
Honors theses

**DESIGN FOR AN ALPIN BIVOUAC MODEL FOR THE 150TH OF THE CLUB
ALPINO ITALIANO**

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The thesis work has dealt with the entire design process of a high altitude bivouac, built on two levels and capable of hosting twelve people for a limited period of time; the building has been studied to be constructed in a 1:1 scale.

This project, which was suggested by the Torino section of the CAI, has involved not only the students of Architecture, but also IAM, as consultants, together with teaching staff-supervisors, technicians and builders who have been called upon for a continuous verification of the correctness of the different design choices.

Thereafter, mountain experts, followed by specialists in the working of fiberglass, in alternative energies and in modular systems were called upon to examine the proposal, confirming some hypothesis and directing the work towards design concepts that would make the construction easier and which would lead to the most efficient building possible that would adhere to the initial preconditions, imposed by the customer, of a bivouac with a building and technological nature appropriate for a high altitude environment.

This environment can be considered interesting as it is currently the topic of an intense debate on alpine architecture, whose defenders and opponents find themselves faced with the dilemma of, on one hand, wanting traditional architecture that is able to be concealed in the environment and, on the other, contemporary structures that offer high technology and efficiency.

The path that was followed therefore attempted to find a response to this dilemma, and had the aim of defining a different image of mountain architecture that would be able to accept themes of connection with the new concept context. This was obtained by combining issues connected to theory and to the history of high altitude construction with more pragmatic aspects connected above all to the technological and environmental system of the building.

Considering the design in detail, a double series of investigations was conducted aimed at the search for solutions, both for the outside and for the internal functional organization, considering the architecture as a kind of filter between the wellbeing of man and the emphasis of the mountain landscape.

The first investigation led to the acceptance of the alpine morphology in the morphogenesis of the architecture, and suggested a building that, although standing out in the context, could recuperate the geometries and the layout and in this way resemble crystalline shapes (Fig.2).

The second investigation was instead conducted with the objective of housing up to twelve people in the smallest volume and surface possible, without having any negative effect on the internal wellbeing and, at the same time, without losing equilibrium and proportionality of the mineral object.

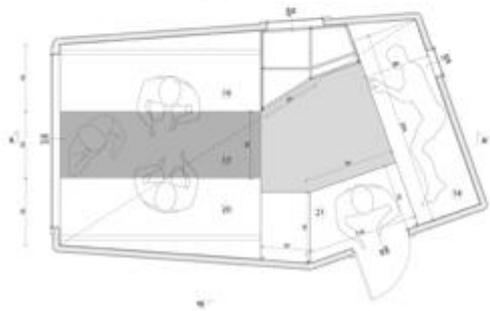
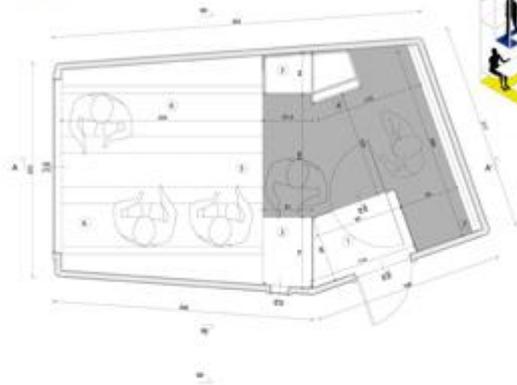
On the inside, the maximization of the space, which was obtained for a total volume of 50 mc (Fig.4), guarantees high flexibility of use, thanks to the two overlapping day and night zones, and a night zone (Fig.3) with five bunk beds arranged around a central distribution area made up of an entrance, a cooking area and a stairway/store area which allows access to the upper level.

The internal structure is made of aluminum profiles, which, apart from supporting the anti-condensation wooden lining panels, also respond to the requirements of lightness, quick mounting, versatility and costs. The external shell is instead made of thin, internally isolated fiberglass panels which are assembled on the site by means of transport by helicopter (Fig.1) and in which large windows are fixed in positions that can emphasize the panoramic views (Fig.6). The base, although it has a ground support surface of 2.5 sm , not only allows the plant components connected to the electric accumulation system to be contained inside, but also those of the water system (Fig.5).

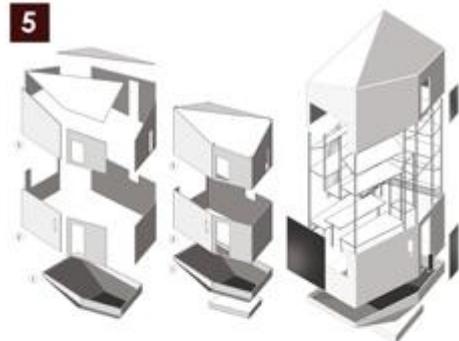
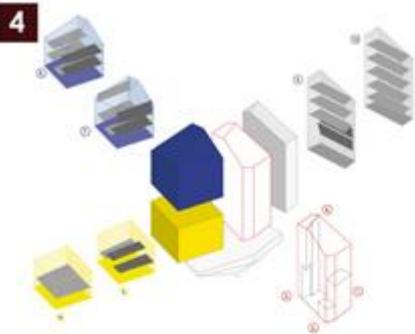
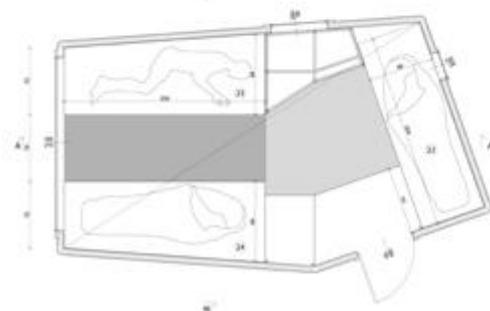
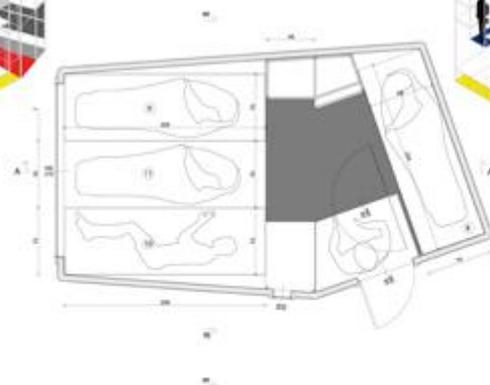
All these aspects were, and still are, the subject of a communication process, which has been obtained through the setting up of presentations, brochures and articles that have the aim of promoting not only the construction but also of bringing the inhabitants and users of the mountains closer to experimental, new generation prototypes.



3 CONFIGURAZIONE GIORNO



CONFIGURAZIONE NOTTE



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