

BOX IN BOX

REPORT OF THE PROJECT

“...Ease of transportation and ease of moving to a new location are essential. A small service truck can wheel this house to the proper excavated place. No foundations are required as the structure is completely self-sustained, in the same way that a car or an airplane are self-sustained.”ⁱ

Raphael Soriano

“J'ai un château sur la Riviera, mesurant 3.66 par 3.66 mètres. Elle est pour mon épouse ; elle est extravagamment confortable et généreuse.. »ⁱⁱ

Le Corbusier

« Ici je peux vivre simplement, dans ma hutte qui est si heureuse et si riche «ⁱⁱⁱ

Jean Cocteau

Living does not only mean to be on the earth but also to be beneath the sky.”

M.Heidegger

“ (...) modern self-conscious design has tended to result in places which are single-purpose, functionally efficient, often in a style independent of the physical setting, reflecting mass values and contrived fashions. The present trend appears to be away from the variety of authentically created places which reflect an interaction of diverse intentions and values with respect for physical setting and landscapes, toward non-place urban realms, international landscapes and placelessness. “^{iv}

Edward Relph

INTRODUCTION

The aim of this project proposal is to merge in a common framework, the four statements reported above. In the contemporary world, the very concept of home does no longer have to relate to traditional models, synonymous of permanence and stability. The contemporary house can easily be regarded as "a temporary" dwelling, an emblem of the dynamism typical of our time.

In the last decades, developments in architecture and arts have pointed out that the inhabited space, for its multifaceted communicative potential, can be essentially viewed as a 'place of relationships', that induces to re-discover and re-consider the dimension of its own space.

The modern theories of living (Heidegger, Norberg-Schulz...) focus on the strong links connecting the human living subject and the space surrounding him in terms of extension, belongings, identity and search of suitable conditions to develop his own activities. Living and the living space thus become both a symbol and an expression of one's personal view of the world. Therefore in modern architectural design, it is of paramount importance to understand how, and to which extent, the natural atmosphere and the social behaviour interact.

Certain external influences of the world, carriers of sudden social and cultural changes, find an inner familiar dimension, rest and quiet: at this point a metamorphosis is induced and these influences are revised, becoming a mental space with which the subject identifies and thus reaffirms his own existence and defines his specific identity.

It is perhaps for this reason that the mobile home has developed, throughout its history, not through the expertise of professional designers but through the pragmatic and aspiring desires of its owners and users, who have been free to create their own landscaping details, build additions and make alterations.

In that sense, the house is not only a space but also a mixture of feelings, emotions, colors, smells and perceptions. Our personal experience inside our home place makes us aware of the unity existing between humans, their homes and the cosmos and prompts us to search for an ever-improved quality of these connections. “ The relations between man and space would lead one to think that the man is from one part and the space is from another. The space instead is not something that stands in front of the man. Men don't exist, and neither does the space ” (M. Heidegger).

It is just in this direction that the architectural research is moving to discover the links between man and the space, as Heidegger had already surmised.

“(...) The latest technological developments would make possible the individual's unbroken contact with cosmic reality while eliminating its disagreeable aspects. Stars and rain can be seen through glass ceilings. The mobile house turns with the sun. Its sliding walls enable vegetation to invade life. Mounted on tracks, it can go down to the sea in the morning and return to the forest in the evening (...) ” (Ivan Chitchevlov).

The Mobile Houses provide a means through which one can again own the world and rediscover the links that had been wiped out by progress. If the Darkness and obscurity are banished by artificial lighting, the seasons by air conditioning, night and summer are losing their charm and dawn is disappearing, the Mobil Houses, on the contrary, improve the communication of the human being with the natural environment; furthermore their ease of transport encourages families and young people to open up to the outside, awakening their curiosity towards new cultures.

A pre-built and transportable house must have simple space solutions. It must rely on a common space that provides to all other rooms, pure cold or warm air depending on the seasons, light, acceptance, etc...

In addition, a pre-built house must guarantee the quality of life inside it by considering aesthetic criteria, such as harmonious dimensions that determine the perception of the

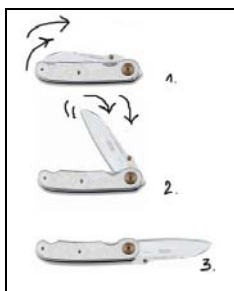
interior ambience, and combining comfort and functionality. In other words, a model is required that could be adapted to every man, **to a variety of living styles and to everyday needs.**

DESCRIPTION OF THE PROJECT

The Living Box proposed in my project is characterized **by its simple structure and structural flexibility**, being totally precast and mono-block, and for the great ease with which it can be transported on ground because, given its size, it can be associated to a “mobile case” (in Italian is “*cassa mobile*” is a kind of container) .

The basic structural module has in fact the largest size compatible with transport on ground, with no need any special transport carrier system (but just a wheel truck), that is 13,6 x 2,5 x 2,8 m.

Moreover, another convenient factor is that **this pre-cast home** does not need **any further** post-factory **assembly**. Once **set in its final shape**, the mobile home **can** in fact **be used immediately**, as any caravan or camping car, except that it contains all the comforts and the advantages of a real house for the quality of its design, the comfort of the materials and the advantages of an ostensible house.



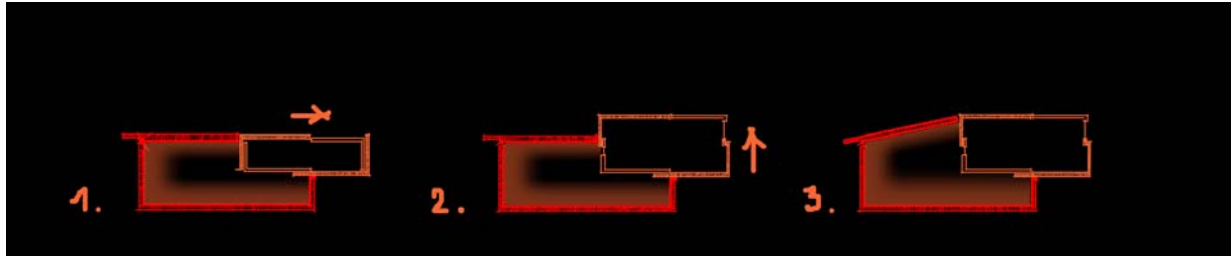
The basic principle of my project resembles that of the well-known small Swiss knife, which can be open and folded back with a simple spin of the two parts that compose it - the handle and the blade - around an axis. Similarly, the Living Box of my project, can be extended to be transported on ground and closed back - folded -

again to the expected size of 6,8 x 5 x 2,8 m, once it gets to its final destination to be used and lived in.

This operation can be verified *in the plan*. If the two parts of the small knife that rotate correspond to the handle and the blade, the corresponding two parts of the Living Box can be simplified as the Living space area and the Services. The Living Space area

contains a common space - the living room and the bedroom, with ample space for desk and computer, while the Services area, instead, contains the bath and the kitchen.

Another peculiar feature is to have " a box in the box ".



The bedroom can in fact be viewed as a box inside a larger Box. As shown in the figure, this is a mobile 'special element' that must first be unfolded outwards, and then upwards, to be used. This operation is simple and requires no special equipment or any other external means. It is just an openable box that slides on a two steel rail located inside the Box itself, above a storage space accessible from the outside. It is conceived as a special element because its panels are lined with wood and therefore distinguishable from the general steel box. Watching it from outside, indeed, the feeling and perception are just those of seeing a wood box hooked to a steel box. The wood covering would wrap the box structure in its entirety: that means that from inside, too, one would perceive a great ganhing wooden cube.



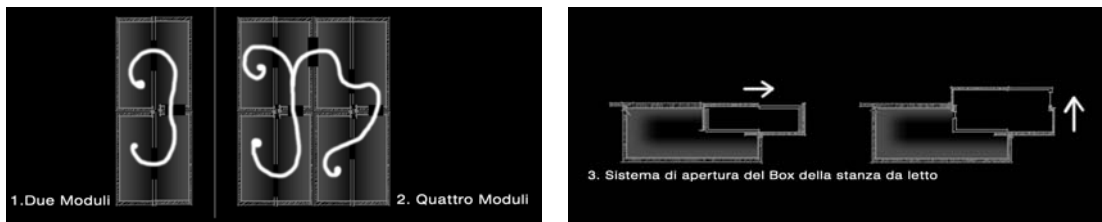
This is the simplest of the Living Box solutions, but one may plan a further development of that basic idea with the simple addition of another wood box that is can be unfolded in the same way (that is mean unfolded outwards, and then upwards or by simply pulling it outwards), hooked on the side of the living room or on that of the kitchen.

It is also possible to predispose a connection of this Living Box module - independent on itself - with another basic module of same size 13,6 x 2,5 x 2,8.

In that case, two trucks are indispensable to transport both modules, and the final dimension of the Living Complex Box doubles and reaches the size of 13,6 x 5 x 2,8

(Fig.1). The two basic modules come left open after transport and are hooked on their open sides.

Following up on this principle, one can also **foresee** a further linear development **by putting** several modules in **juxtaposition** and predisposing openings to allow communication between them (Fig. 2). In this case the used modules have a **specific and different inside design** that would differentiate each module individually in order to **achieve** a different distribution of the internal spaces.



The house is conceived as one little deep construction in order to maximize the natural ventilation. **To this end** the windows are designed to improve and create the circulation



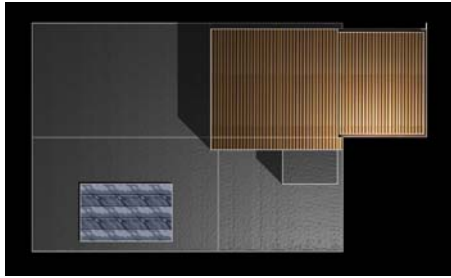
of fresh air across the house and remove the stagnant air. That would constantly favour both air circulation and spontaneous ventilation, thus **avoiding any other artificial device** or sources of energy. The fact that the windows are located at various levels improves the air circulation and ensures that every space and ambience gets

constantly renewed air.

The amount of energy demanded for the electric systems is supplied from the solar panel placed on the right side of the roof. Since the roof is a mobile component, the panel can be set in the most favourable orientation - towards south – and so **exploit solar irradiation at best**. **To this aim**, the Living Box with the highest elevation – that is, the one that has the main entrance door - **should always be oriented** southwards: another advantage of this orientation, besides the energy economy, is in the fact that the sunniest ambience will be in the living room area. **In this setting, the bedroom would be located in the northern orientation**. Finally, this distribution of spaces in

relation with the solar light cycle fulfils all recommended and suggested principles for the construction of an eco-sustainable house and residence.

The solar-derived energy from the solar panels is also employed for the entire water heating system. A tank for water storage is placed in the zone below the bedroom.



Such storage area **can also be** used as a warehouse and storage for systems. It is accessible from the outside, below the bedroom box. The way of delivery of used waters will be in accordance with the directions of the local authorities in the place in which it is decided to install it. The treatment could

take place in a Imhoff type tank or basin, or in a biological purification system, depending on the situation.

It is not strictly necessary to have **an electric wiring system extending all over the entire home**. Rather, in relevant sections **it would be more convenient** to create some “*light points*” from the ceiling that could be locally activated only in specific areas, and **gradually modulated according to the intensity of natural light**. This would create **favourable conditions for saving energy** because the ambience will be illuminated specifically where required and not **randomly spread everywhere**. It is neither foreseen nor necessary to connect to the public electric system. This increases the range of potential places where the *Living Box* can be installed because turns out as an independent and self-sufficient system, let alone self-sustainable.

The window frames are in aluminium with a *thermal cut*. The type of glass to be used is chosen so as to ensure control of factors important to the comfort and well-being in the ambience, such as radiation, “*trasmittanza*” (*another factor, I can't translate in English*), effective thermal and acoustic isolation **from the external environment**. In any case, **when necessary**, glasses and protective screens can be easily assembled in a few minutes. Any adult can be able to change the type of external panels or filters when required, **without any specific knowledge or experience**. Colors **can also be changed**

according to the seasons in order to modulate the amount and quality of the natural light introduced inside the rooms.

The structure of the frame is realized with metallic profiles (IPE beams) of suitable outline. The external walls are made of *sandwich panels* and are endowed with galvanized sheets and expanded *poliuretano* to keep a constant temperature and



avoid heat dispersal. The total wall thickness is 12 cm. The internal part of the perimeter wall is covered with plywood, resistant to impact and to the external *sollicitations*, to humidity, and it is fire proof. Moreover it could be personalized choosing between one immense applicable finish range: to tempera, enamels, wall paper, according to one's taste. The external part is covered with nailed steel sheets.

The box corresponding to the bedroom is also constituted of a frame structure in steel, externally covered with wood plates pre-assembled on an independent scaffold.

The roof is also made of *sandwich panels*, with an upper part consisting of galvanized *grecale* sheets and galvanized pre-painted sheets, and a lower part made of insulated sheets of galvanized pre-painted expanded polyurethane. The level of insulation provided the external wall can be modulated as needed and can be adjusted to suit specific environmental conditions. The thickness is of 18-20 cm, thick enough to install the electric wiring and the light equipment. The solar panel on the roof is integrated in the structure of the roof for safety and for better practice of use. The roof acts as a rigid horizontal diaphragm, able to rotate on hinges placed in connection with the structure,



on the main side. This allows it to reach the same height as the wood Box once it is opened.

The floor of both the living room and the bedroom is covered with wooden parquet while that in the kitchen and bath is made of *truciolare melamminico* hydrorepellent (I can't translate too) homogenously covered with a vinyl layer.

There is only one internal wall in the plan, and it is located in the bathroom. It is made of plywood plates and the finishing is in chalk. The door of the bathroom is in wood and can rotate to 180°. It can also be used as a separating element between the bedroom and the Living room. A door that can open to 180° also allows a double use, that means in both directions: from the living room to the bedroom and vice versa.

A 50 cm gap separates the floor of the living box from the ground, thus allowing a better isolation of the upper structures from humidity problems. A flexible steel staircase allows access to the box through the main door. During transportation the staircase can be folded within the floor structure.

CONCLUSION

This Living box is not only a *Holiday mobile* house, but can also respond to extraordinary conditions, including unprecedented mobility, natural disasters, war, population shifts and homelessness. Globalisation has in fact opened the doors for immigration and the world is an increasing mixture of different ethnic cultures, big and smaller cities are exploding with cultural differences and aspirations. Never before have we been such a mobile society, able to communicate with friends and family from any imaginable location. This migratory impulse, coupled with a change in tourist trends, away from the luxury spas and resorts to packaged vacations in “authentic” sites, has opened up an exchange of cultural ideas. Admitting that there are a lot of “extreme” creativity experiments that draw this kind of new dwelling, my intention is to design ‘simply a necessity’, what passes for protection – insulation, comfort - that is informed by techniques. A *self-building-box* that means freedom and near liberation from the order of the city.

ⁱ “Raphael Soriano”, Wolfgang Wagener, Phaidon, pp. 120

ⁱⁱ “ I have a castle on Riviera, measuring 3.66 by 3.66 meters. It is for my wife; it is extravagantly comfortable and generous. Sonia Faure, *Hideaways*, Editor Flammarion, p. 118

ⁱⁱⁱ “ Here, I can live simply, in my hut which is so happy and so rich.” Sonia Faure, *Hideaways*, Editor Flammarion, p. 70.

^{iv} “ Relph E, Place and Placelessness, London 1976, p.78