

FROM PAPER TO HOUSE: SMALL EXPERIMENTAL ARCHITECTURES

Lola Ottolini

Department of Architecture and Urban Studies, Politecnico di Milano (ITALY)

Introduction

“A novice is the person who approaches, for the first time, a certain type of activity in relation to which public opinion is of great importance.”¹

As a lecturer in Architecture for undergraduate students, I have often reflected upon the meaning of ‘esordio’, the Italian word for ‘begin’, which means start, debut but also, according to its etymology (the Latin exordiri), “to begin to weave.”

In our case, beginning to weave the fabric of expertise and knowledge, on which the threads of the structured stitches of experience will then be embroidered.

In general, the beginning is “the departure”, “the beginning of other things”² and, from the teaching point of view, dealing with this specific phase represents an interesting challenge.

We have the opportunity of introducing students to their future profession, directing them towards the topics that interest them the most and offering them concrete possibilities of experimentation.

These considerations led to the teaching and research project “One Man Living” which, if on the one hand introduces students to the fundamental topic of architecture, that of living (in its meaning of minimal dwelling) on the other, it offers them the chance to experiment it “practically” through creating, in real life, a small space for one person to live in.

The reasons

The topic of living, as proposed to the first-year students, is taken in its most general meaning: the inhabited space is not considered only as a domestic place, but as a space where man lives and where he performs specific actions, one or multiple, alone or interacting with others. This allows extending the field of investigation and transmitting the project’s sense of non-unambiguity of the project.

It is a particularly topical subject and can include new urgencies and thematic ideas, as it is closely connected to the economic circumstances of the historical moment; the configuration of inhabited space is the “mirror” of the changes of places and behaviour. Today, for example, we design not only to build from new, but we reckon with existing spaces, historically connoted and rethought to accommodate new functions moreover spaces are designed paying great attention to sustainability, intervening in emergency situations, using new materials and so on.

The “ways of living” have changed: people move, people live “temporarily”, family geographies change, new places, previously considered marginal or not very attractive, are colonized...

The project of living, in short, opens up to newer and newer issues which involve the whole social sphere and offers ideas for further study and interaction with other disciplines.

From the teaching point of view, it is also a topic suitable for the debut of young architects, as it can be directly experimented by them: the house is the space we live in, which can be measured in real life, in which the hypotheses of work can be verified.

The area concerned can be measured, the margins defining it and the objects it contains can be analysed, the space necessary for man to enjoy it and for his movements can be verified, but, above all, the theme of small living space can stimulate the students to seek, in an ‘original’, way project solutions that are not stereotyped.

In 1959 Le Corbusier asked a young student:

“How do you make a door? How big? Where do you put it? How do you make a window? But, incidentally, what is a window for? Do you really know why they make windows? If so, you will be able to explain to me why a window is arched, square or rectangular. I want reasons for that, and would add: Think hard: do we need any windows at all to-day?”

In what part of a room do you make a door?...

Perhaps you have several solutions. You are right, there are several solutions, and each one gives a separate architectural sensation. You see-these differences of solution are the very basis of architecture. According to the way you enter a room and according to the position of the door in the wall, you get a particular impression, and the wall which you pierce takes on particular characteristics. You feel you have discovered architecture. [...]

Now try solving one of the most intricate of all contemporary problems: the minimum house.”³

In order to be able to concretely create the project, we decided to interpret the more general topic from a particular point of view, that of the “small scale”.

A minimal home is not synonymous with a lesser home nor the result of a design simplification. It contains a complex geography of activity and relations, of intersected spaces and diversified needs, to be able to be understood as a “condenser” of topics and design opportunities.

Above all, for a student in the first few years, it is offered as an opportunity to acquire the project-development instruments necessary for any kind of work, on whatever scale; as an opportunity to deal with a limited number of variables, proper to every architectonic object: functional, distributive, structural, related to the installations, morphological and psychological; lastly, as an opportunity to introduce the variable of “time” as a design topic, thinking of flexible, even temporary architectures.

By small steps, towards building

The design of the small space to live in, which will then be produced, is preceded by some preliminary exercises, both of the analytical and of the empirical-project-development type: a historical research on iconic small architectures and some ex-tempore practical exercises.

On the one hand, there is the objective of constructing a cultural context of reference which contributes to creating that repertoire of knowledge and images which is an indispensable instrument for the next experiences of the project.

On the other, this is based on the conviction that it is right to bring the students immediately face to face with their future activity, through some brief design exercises during which they can gain confidence with space, its modulations and the elements through which it can be modified (light, boundaries, dimensions, materials, colours...). The analytical and research work proposes the study of some small modern and contemporary architectures, through an investigation of the data and problems that contribute to their final configuration. From a documentary and informative approach of the work of its designer and of the historical-cultural context in which it is placed, the architecture is redesigned and subjected to “dismantling”.

Its formative elements are interpreted: space (dimension, distribution, function), structure, horizontal and vertical boundaries (walls, floors, ceilings, connecting elements), light (natural and artificial), materials and colours, fixed and mobile equipment; to make a three-dimensional model which restores it in its spatial relations with the surrounding area.

The set of all the works aims to trace a hypothetical evolution of living and to build up an atlas of references, useful for subsequent design exercises.

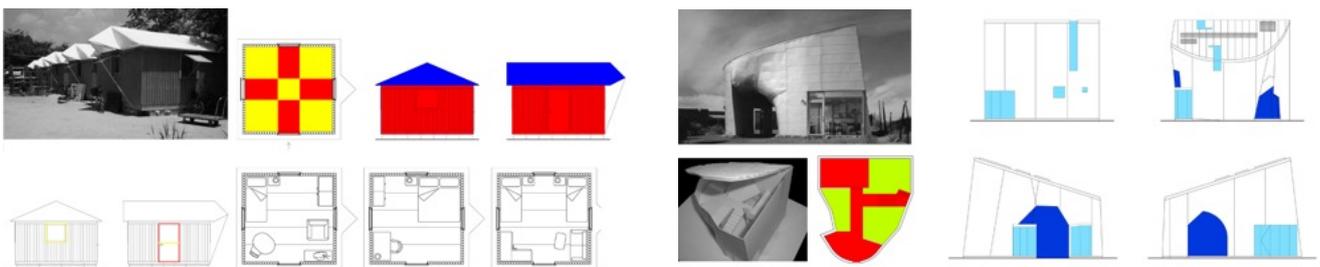


Fig 1,2. Analytic exercise

Paper Long House, Shigeru Ban, 1995, Giappone.

Turbulence House, Steven Holl, 2005, USA.

As far as the short design exercises are concerned, which we call ex-tempore due to their character of a brief duration and instinctive approach to the topic, these are some reflections around the key word of the architecture project. “Ex Tempore” comes from the same Latin expression which indicates the start of the action in the precise moment of the proposal. They are fast exercises, without prior preparation, which want to receive a fresh and spontaneous response, without conditionings. They ask questions, offer ideas and are an opportunity for reflection and closer approach to unknown topics seen for the first time.

The various ex-tempore activities include:

“Folding Architecture” in which the students were asked to design a three-dimensional space starting from a white card in A3 format. Through controlling the folds, the cuts and the curving of the card, they constructed the model of an architectonic space that is inhabitable, designed in relation to the human figure and which can be measured in relation to it. Students could choose the scale and had to verify the proportions.

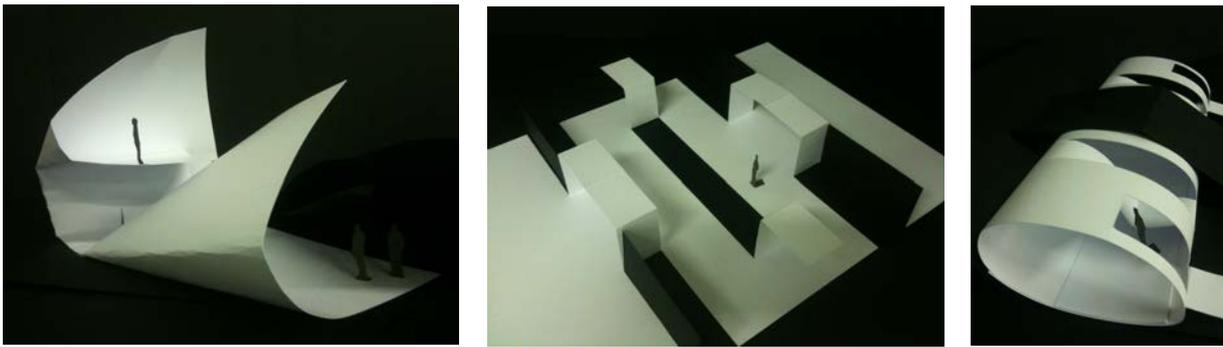


Fig 3,4,5. Folding Architecture

Or the “Lighting box”, in which the reflection concerned the key word “light” and proposed creating a space, once again designed in relation to the human figure and measurable in relation to it, with light going through it.

The students received a small white cardboard box measuring 20x10x10 cm. and were asked to design the light for it. It could be zenithal, lateral, diffused, reflected or spot.

They chose the origin and methods of diffusion of the light, they made holes or cut the box transforming it into an inhabitable space lit according to their purposes.



Fig 6. Lighting box

There was also “Spaces in a box” where, starting from a small parallelepiped cardboard box, understood as a regular stereometric space inhabitable by one person, they designed its modifications and alterations. They added walls, lowered ceilings, made differences of height, eliminated parallelisms and gave new dimensions, introduced colour and different textures. They created their “Space in a box” for one person, played out on the sensory experience of a non-conventional space.

After these, other exercises to gain confidence with space and its attributes, construing it physically, even though in scale and beginning to use the architect’s tools.

From paper to house: the final project

Speaking of the singularity of architecture, Ettore Sottsass said: “Architecture is inhabited, while art is looked at; this is a fundamental difference. Architecture is a physical and sensory experience because you go inside it.”⁴

We want our students “to go inside”, to practise it, to go through it and not only that... that they produce it as well.

This way, after the brief preparatory exercises, on paper and with paper, on an unreal scale, we give them the chance to do their first real project, to experiment, in short, the whole cycle of an architecture.

The work is organized in different phases; the contract is structured on the basis of a call for entries proposed by a group of lecturers. In order to simulate reality as closely as possible it includes the definition of a client, the prescription of dimensional requisites, of the use of a specific structural material, of limited economic resources and of dry building systems.

The students are invited to design a minimum space for one person (hence the title “One man living”) with different purposes, as an emergency unit, as the first housing for immigrants and the homeless, as homes for singles, as studios for artists, as shelters, etc...

Over the years, various building materials have been experimented, which all have in common that they are inexpensive, recyclable, produced industrially and can be dry assembled. In particular, the following have been used: cardboard, wood (USB panel), pre-pierced aluminium profiles (normally used in warehouse shelving) and PVC tubes (normally used in plumbing installations).

As in a real architecture competition, a jury made up of external professionals (architects, lecturers, photographers, designers...) selects the “winner” from the numerous participants: the minimal architecture, which as well as meeting the requirements of the call for entries, is able to express its own design poetics and the best synthesis of composition.



Fig 7,8. Jury at work

All the projects are then studied and developed in detail, through final drawings; the winner is rewarded with the practical realization as a real, one to one scale, prototype. In this phase, all the students of the laboratory, with the help of lecturers and tutors, are engaged in a week of workshops.

The result, displayed on the Campus, is the One Man Living exhibition, with the projects of the current year and the construction of the selected prototype.



Fig 9,10. Students at work



Fig 11-15. Some of the realized prototypes

References

- ¹ G. Devoto, G. C. Oli (editors), *Il Dizionario della lingua italiana*, Florence/Italy: Ed. Le Monnier, 1995.
- ² AA.VV., *Treccani 2014. Dizionario della lingua italiana*, Florence/Italy, Ed. Giunti Scuola, 2013.
- ³ Le Corbusier, *Le Corbusier talks with students*, New York/USA, Princeton Architectural Press, 1999, pp. 86-87.
- ⁴ D. Duva, M. Invitti, E. Milia, M. Pirola (editors), *Maestri del Design*, Milan/Italy, Bruno Mondadori editore, 2005.