

THE ITALIAN FULL SCALE MODELS LABORATORY

By Alessandra Carini, eng.

The Housing Research Center OIKOS has its offices in Bologna and is runned by a non-profit association of public and private Bodies. Among the members of the Association there are the University of Bologna, the Polytechnic of Turin, the Municipalities of Bologna, Turin, Venice and Brescia, the Emilia Romagna District, the National Builders Association, The Building and Housing Cooperatives, the Public Housing Association of Bologna, several building industries and so on.

A few years ago OIKOS proposed a research to the National Housing Committee of the Ministry of Works. The object was to create in Italy a full-scale models laboratory, as well as a few European Countries had done before. We visited the Laboratories of Losanne, Lund and Amsterdam. The National Housing Committe acknowledged the opportunity of this kind of Laboratory, which is an important tool to experiment and control in advance technical, architectural and use features of housing spaces.

The research has been carried on by OIKOS in three phases:

- Preliminary studies (i.e. analysis of foreign experiences, analysis of characters, requirements and use of the laboratory);
- Setting up of the prototype (i.e. design of the set of instruments, building of prototype components, drawing out of the work programme);
- Building of the laboratory and starting up of activities).

We are carrying on the third phase at present and we hope that the Laboratory will have carried out the first studies within this year. We are now in a temporary building, but we have already the plan for a new building which we will build in Bologna on behalf of the Ministry.

Our studies have taken on great account the experience of the other

Laboratories, with regard to both activities and instruments. We have shown the foreign experiences (chiefly Amsterdam, Wageningen, Losanne, Eindhoven, Lund) in an exhibition in Italy in 1983. On that occasion we published a catalogue which can be sent to those who are interested in getting it.

The common feature we have found out in the above Laboratories consists in a strong relationship among research objects, instruments, field of study and users.

The Italian Laboratory has some typical features. Being the first in Italy this has mainly an experimental rôle, and it should be the test for future laboratories.

It should be suitable for the needs and the requirements of different classes of users: University, building contractors, professionals, public boards for housing financing and building and for standardisation, dwellers associations.

We had therefore to plan a Laboratory suitable for different uses, that is to say, a flexible laboratory able to meet different requirements and to develop in the future.

The result of this "pilot project" will become the foundations of other laboratories, which will have more detailed aims and fields of work.

As I said before the Laboratory is financed by the National Housing Committee, so it will deal chiefly with public housing and housing facilities.

The users of the Laboratory are:

- dwellers associations;
- planners (architects, engineers, technical offices);
- building contractors (both in the public and in the private field);
- building manufacturers;
- public housing management boards (both at national and at local level);

- research, standardization and quality control boards;
- universities and technical schools.

Technical features of the Laboratory

The CER-OIKOS Laboratory is planned to carry out programmes of housing quality control at different scales, from the single room to urban environment. Therefore it has different simulation instruments: the full scale model -which is the most important-, small scale models (1:20 and 1:100) and electronic instruments with CAD software.

In short, the set of instruments amounts to:

- a load bearing structures system (columns, beams and floors) which makes up "supports" to be placed at different heights. The floors are 7,50x7,50 mt large; they can be moved or modified with simple operations (both automatically and by hand) to create spaces on different levels, at double height and so on;
- a modular bricks wall system, made in polystyrene. The bricks can be connected each other quite easily and quickly and it is very simple to modify the form of the walls in a model.
- additional systems, like flooring panels in honeycomb aluminium, simulated windows and doors, simulated furniture, water and electricity supply, simulated stairs and so on.
- small scale models with a video camera recording system to simulate and study dwellings (scale 1:20), buildings and groups of buildings (scale 1:100).
- CAD work station, both to check the full scale models in advance and to make abstract three-dimensional simulations.

Kinds of activities

They are divided into five groups:

- 1- RESEARCH. The aim is to get significant outcomes in the field of

design of public housing, by studying the relationships among function-space-human behaviour;

2- STANDARDIZATION. The aims are quality control and statement for housing and the study of new standards;

3- AID TO PEOPLE PARTICIPATION. The aim is that the Laboratory can get into self-help programmes to promote their development;

4- TEACHING. In this field the Laboratory can be a new instrument to involve students in experimental design activities;

5- DOCUMENTATION. The aim is to collect, organize and make known housing studies and data in order to promote the discussion.

We have already planned to develop, in the second part of the year 1987, a few pilot-researches together with the Public Housing Association of Bologna and the National Builders Association, under the National Housing Committee research programme.

Conclusions

The shortage of time does not make it possible to get into details of technical aspects, activity programmes and management of CER-OIKOS Laboratory.

We will really be pleased to explain these subjects in a bigger paper for the proceedings of this Conference.

We thank our hosts sincerely. We hope that this first Conference will be the beginning of a deep kind of cooperation among full scale models Laboratories, with exchange of information, papers and experiences.

To sum up, we hope that one of the next conferences might be held in Bologna, as we believe that the activity of these Laboratories could really give a contribution to the growth of quality in housing planning and building, at an international level.