A SURVEY ON THE THEME OF
DWELLER - DWELLING DESIGN RELATIONSHIP

A Master's Thesis

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We certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science in Architecture.

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A B S T R A C T

A SURVEY ON THE THEME OF

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Today, as a result of constructors' and building technologists' preference on the easy way, nearly all kinds of user interferences are eliminated, during the dwelling's production phase. The formation of a dwelling has become an off-line process by the elimination of the user's decisive rights on their own environment. In this study, methodologies and realized examples aiming to have user interference are observed.

The first chapter introduces the problem. Evaluations on the existing situation of user - dwelling relationship, from the point of user's decisive rights are given in the second chapter. Realized examples allowing user interference during the design or living phases have been observed in the third chapter

according to their decision phases, user alterations and their feelings about the process.

Key Words : Responsible Design, User - Dwelling Design Relationship, User Alteration.

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ÖZ

KULLANICI - KONUT TASARIMI İLİŞKİSİ
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Konut üreticilerinin (müteahhitlerin) ve yapı teknisyenlerinin kolay yolu seçmelerinin sonucunda, günümüzde kullanıcılar üretim ve kullanım süreçlerinde müdahale haklarini yitirmişlerdir. Kullanıcının kendi öz çevresi hakkında bu karar verme hakkının elinden alınmasi ile, konut üretimi bir "off-line" yönteme dönüşmüştür. Bu çalişmada, kullanıciya bahsi edilen karar verme veya müdahale etme hakkini tanımayı amaçlayan tasarım ve üretim yöntemleri incelenmektedir.

Birinci bölümde problem anlatılmıştır. Mevcut kullanıcı - konut tasarim ilişkisi, kullanıcının karar verme hakkı ile ilintili olarak ikinci bölümde değerlendirilmiştir. Tasarım veya kullanım sürecinde kullanıcıya karar verme veya müdahale etme hakkını

amaçlayan tasarim yöntemleri ve uygulanmış örnekler, üçüncü bölümde incelenmiştir. Bu kısımdaki değerlendirmeler; Projelerin karar aşamaları, kullanıcı müdahaleleri ve kullanıcıların yapim süreci ve yöntemi hakkındaki hislerine dayandırılarak yapılmıştır

Anahtar Kelimeler: Uyumlu Konut, Kullanici Müdahalesi, Karar Aşamalari.

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CHAPTER I

INTRODUCTION

Present efforts to answer the quantitative housing demands imply uniformity and constancy where the concept of home requires individuality and uniqueness as no two persons are alike.

Each human being needs a special, personal environment in order to develop and grow. This, in turn demands an interaction between the human being and his environment.

Everywhere evidences of alienation can be seen, causing the breakdown of community. Commercial products of the architectural market contribute to these trends where planning professions must shift the focus of their concern to human behavior and to design, in Perin's terms, "with man in mind" (Perin 1970:137).

In today's production system, the individual houses are mostly designed by architects which may seem as the proper solution at the first glance; but as they are remote from the people (indirect connections with

the clients) , often not even able to know the families because very often the families have not yet been chosen , houses are designed to be standardized. This is bound to be inhuman, far from the tendency of 'individualization'. Under such circumstances, what most architects can do is to imagine the range of things people might wish to do in the living unit (Rabaneck, 1974: 100).

The existing relationship types between human being and the process of creating his environment which break down the speciality and personality of the architectural product are criticized and explained in the second part of the study.

Several systematic approaches (both user originated and designer- constructor originated) allowing users make decisions on their own environment are evaluated in the third part of the study.

CHAPTER II

USER - DWELLING DESIGN RELATIONSHIP TYPES

2.1. Habraken's Relationship Typology

According to Habraken , today man lives an unnatural relationship with his own dwelling.

This artificiality becomes apparent when the existing types of natural relationships are known. There are six natural types of relationships.

The 'seventh type of relationship', the one which holds good for mass housing, is a non-relationship. Under such a circumstance a home is not a thing that a designer can design. Housing can start as soon as designers stop designing homes. A home is an act (Habraken 1972: 220-223).

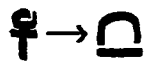


Figure 2.1 Habraken's first type of relationship between man and dwelling.

"The first individual relationship is the simplest. The occupant builds his own house with his own hands. This is a type which we no longer meet in modern cultures, unless it be the result of an emergency or on a camping site.

There are of course still civilizations where this happens without any question of an emergency arising."

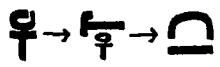


Figure 2.2 Habraken's second type of relationship between man and dwelling.

"The second type of individual relationship is that in which the craftsman (e.g. the village carpenter) offers his services.
The craftsmen mentioned here could also be a group of craftsmen."

This form is familiar to us from history. This relationship was very often responsible for housing in western history.

Also the much admired traditional Japanese house-building is a good example of how this relationship can lead to a splendid, harmonious living culture.

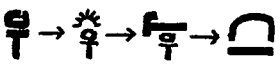


Figure 2.3 Habraken's third type of relationship between man and dwelling.

"The third type of individual relationship is that in which the architect acts as intermediary between occupant and craftsman. This is the type to which we are most accustomed. The type which we tend to consider as normal.
There are only very few people who can afford this type of relationship since

for this it is necessary to commission an architect to design a house for a privately-owned piece of land.
Architects prefer to think in this type of relationship."

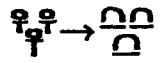


Figure 2.4 Habraken's fourth type of relationship between man and dwelling.

"The fourth (and the first collective) type of relationship is that in which the community builds collectively the houses it needs, and does this without delegating the labor to craftsmen. This type is found in the so called 'primitive culture of the past, but still in the present, too. This, like other types of relationship, coincides with a certain type of community life."

Here, as in the collective types of relationship described below, the individual is still very directly concerned in his housing.

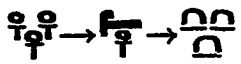


Figure 2.5 Habraken's fifth type of relationship between man and dwelling.

"The fifth (and the second collective) type of relationship is that in which a community as a whole has the type of houses constructed which it needs, thereby having the work wholly or partly done by craftsmen. This type, too has its historic examples.
The first and the second collective types of relationship merge, of course, very quickly into one another and are not always clearly divisible from another."

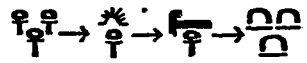


Figure 2.6 Habraken's sixth type of relationship between man and dwelling.

"The sixth (and the third collective) type of relationship is that in which between the community of inhabitants and the craftsmen who are doing the actual building- the architect acts as the specialized intermediary.
The building society originated from this type of relationship, but naturally it is no longer to be found in presentday building societies."

2.2. Deasy's Relationship Typology.

Deasy (1974) makes a classification according to 'feedback' types.

According to Deasy, the main advantage of the communication is the ability of having healthy 'feedback's.It is his view that only in primitive societies -where architect, builder, and user are one and the same- that anything approaching perfect feedback, exists. In primitive circumstances, as users alter and modify their environments over time, typical building forms emerge that are specific to a given area and a given way of life. Since they are the result of continual feedback from the users, who have only to act to correct a deficiency, the resultant form is

beautifully adapted to both the available resources and the existent human needs. When an individual in this kind of society needs a house, he doesn't need to ponder the question of what kind of house; the term "house" is totally descriptive of material, form, structure and process.

Only slightly different from the primitive process are the relationships and feedback channels in what is called "vernacular architecture". In this case the user works with a designer-builder in the construction of a building type that is common to their area and well known to both of them (Deasy 1974: 127-133).

These two feedback types of Deasy matches the first six types of man-dwelling relationships.

The third feedback type of Deasy (1974: 133) , with his words;

> "...The apartment house tenant can complain to the building superintendent, who may or may not relay this to the building owner, who may or may not tell the designer. With such a complicated and uncertain feedback channel, modification of the system to provide a better reflection of user needs a long time if it occurs at all."

This matches with Habraken's (1972: 223) ideas;

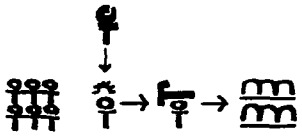


Figure 2.7 Habraken's seventh type of relationship between man and dwelling.

"The seventh type of relationship is a non-relationship. None of the previous types of relationship are found in mass production building.
This seventh type of housing is characterized by the fact that the occupants really take no part in it. They are unknown during the process of decisions which leads to the production of dwellings.
They are an anonymous multitude.
This process takes place exclusively within circles of specialists. The occupant is abstractly represented by an image during discussion among these specialists so that they can begin work. To this end they observe and examine 'the occupant' who, of course does not exist as such.

Rabaneck, Sheppard and Town (1974, 101) have supporting ideas as: The process of mass housing has been institutionalized which affects the product of mass housing directly . Only the architectural expressionism varies.

The public sector response to housing design problems has been to research user needs as a means of generalizing the condition of "invisible" clients of public housing architects.

> "It is for this reason that in the above diagram (figure 2.7) nothing reaches the architect from the group of the 'anonymous multitude' of people. The architect is commissioned by another specialist who is no more the occupant than he is. Both the architect and the people who give the commission do their best to solve this dilemma by studying 'the occupant'...the cause of much half-knowledge. In this case there is really no question of a type of relationship in which the occupant can be recognized."

2.3. Evaluation of the Existing Relationship Types

In this part, existing relationship types between users and their dwelling designs are analyzed.

In general, today man is excluded from the decision process of his own environment (Miller, 1972: 316) as a result of professionally designed environment.

According to Willis (1972: 315) this is an 'off-line' process. In the diagram it can be observed that the 'user' or 'inhabitant' is not a parameter.

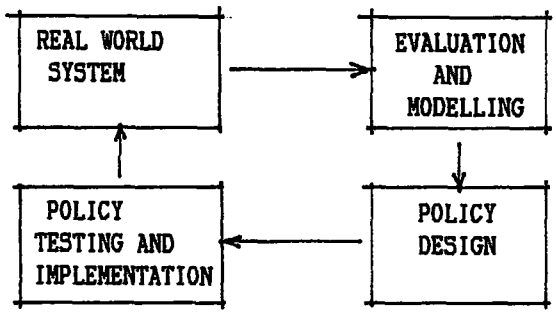


Figure 2.8 Willis' professionally designed architecture diagram.

As a result of such an organization, in physical terms present design characteristics reveal (Rabaneck, 1974:102):

1. Spaces are generally designed for one function only and are difficult to use for any other purpose, e.g., use of bedroom as living room.

2. Room proportions are in keeping with intended use.

3. Lighting and socket outlets are located according to the plan function of the room, e.g., wardrobes in bedroom.

4. Windows are designed to reflect the function of each room, e.g.,small windows in bedrooms, larger windows in living rooms with lower sills.

5. Generally one living space only is provided.

6. Single door access to all rooms.

7. Relations between rooms are generally based on shortest distance between associated functions, e.g., kitchen next to dining room, bath next to master bedroom.

2.3.1. In General

In this part of the study, 'thoughts' formed as responses to the existing relationships will be quoted and commented for evaluation.

According to Habraken (1972) the predetermined unification of mass housing that deny the human beings

right to control physical space, is rooted in 'decision-making mechanisms' and not in the presumed uniformity of industrialized building technology.

From Habraken's statements it can be understood that the problem is not a result of technology, but it is a result of being 'product orientedness' instead of being 'user orientedness'.

Terner and Turner use a different terminology but achieve a similar result, instead of the difference in the thought path. According to them the problem is, both the industrialization and the technology used are 'process' oriented but not product. If the problem was concerned with both 'qualitative and quantitative' values, then industrialization and technology would be both process and product oriented.

According to Terner and Turner (1972: 220-231);

> First, however it is useful to distinguish briefly between the concepts of 'partial industrialization' and the 'intermediate technologies'. The former term refers to the manufacturing process, and the number and kinds of industrializing techniques employed in the process.The latter term refers to the house itself, and the components which form it viewed as an end product.

In today's production system, it has become common to expect houses to be assembled from mass-produced components (small or very large). But the variety which can be produced by mixing components is always still variety within the system.

Dwelling constructed from mass production elements or components may be classified as 'mass product'. It should not be understood that this will cause 'forced uniformity'. On the contrary it can help on achieving varieties.

According to Habraken, the uniformity of the product, MH (mass housing) should not be laid over industrialized production process. The important point is the composition formed by the standard elements. With Habraken's (1961: 74-75) words;

> It does not matter to the factory what dwellings look like, whether they are uniform or not, as long as the parts can be made in series which are large enough for us to talk about factory mass-production. This requirement MH (mass housing) cannot fulfill.

As Sommer (1968: 242-244) has pointed out, a design problem is a value problem. It is a question of whose interests are being served. From a humanistic point of view, this must mean that the interests of the users, those who experience the building most

intimately as workers or residents must be served first. Nevertheless, any method of evaluation that ignores the users evades the principal issue.

According to Deasy (1974: 130-131), the personal tendency of the architect is still important;

> ...the decisions he makes about form, materials, color, texture and detail should be made in terms of what these choices communicate to the user rather than his own philosophy or the fashion of the moment. It can be argued that the gifted designer does exactly that and, in addition, opens new experiences and new visions for the user. That may well be his intention, but in considering architecture as a communication medium, it sometimes appears that the course of design seems to be directed deliberately toward mystifying rather than communicating.

Under such a circumstance, according to Becker (1977: 51), the user's messages to his environment about status, class, prestige, values, political ideology, and taste are decided with someone else's guess.

Giancarlo De Carlo (1984: 12-13) set out the steps that describe the flight path of most building projects as;

1. Function established 2. Location chosen 3. Financing arranged	Owner
4. Spatial organization defined 5. Form and structure drawn 6. Construction overseen	Architect
7. Use	Users
8. Management, repair 9. Recycling 10. Demolition and replacement	Owner

A world that comes into being, defines human activities, structures time and space, nearly excludes users, and then changes or disappears in response to the invisible hand of the market, is a recent phenomenon. It is the result of the transformation of everyday life. The scope of involvement in housing, in work, and in city life has been narrowed.

According to Deasy (1974: 133), some modifications to the process should be made;

> Our tendency to push together in great urban centers demands an increasingly sophisticated technology to solve our common problems.
> ...That doesn't mean that we have to settle for impersonal environments that are beyond our control; the basic change that is required in our present methods is the introduction of a direct feedback loop in the design process that would make designers more responsive to the human needs of users.

De Lauwe's idea (1955: 72) as; "The organization and use of space changes with social and family structure, education and personal vision, " may be applied to De Carlo's categorization. It may be understood that such a number of parameters' coincidence is nearly impossible (social and family structures, educations and personal visions of user, owner, architect are the parameters).

Abrams'(1969: 288-300) ideas about those parameters are that environment is more than a physical environment, it is a combination of physical, social and personal factors. To these factors should be added political, psychological and economic considerations, the processes and methods of attainment as well as the goals.

Noble's (1963: 112) ideas about the correctness of the research methods during the stages of design as;

> As architects we shape people's future behavior by the environment we create. At all stages of design we make assumptions about human behavior and the success or failure of our work may depend on our ability to predict human behavior.

Althusser (1977: 123) seems pessimistic when user decisive rights on his own environment is considered. His statement fits to the evaluation part

of De Carlo's 'flight path of building projects', from the point of user's view, as;

> We can see the neutralization of the communities even on deciding on their own environments by the inhuman and abstract process appearing in various scales.

An optimistic idea belongs to Winston Churchill (1944: 118) as; "We shape our buildings and afterwards our buildings shape us."

This may be true when it was stated. Because after the end of the World Wars there were not many buildings to shape anyone.

According to Rapoport (1968: 300-307), the design of dwellings, as of so much else, is no longer done for the individual. More and more it is done for generalized categories of people. In the case of housing, the result has been the development of large scale projects (related with the commercial architecture mentioned) rather than either the individually designed house or the spec-built house (Rapoport 1968: 300-307).

Hertzberger (1984: 12-20) in a text about his Diagoon Houses tells that;

> Architects must not show what is possible. They must also, and especially, show what should be possible for everyone. What matters is that there is a lot to learn from how the occupants react in individual situations to the superabundance of instigators they are offered. We must not forget that things have been put into practice here, however insufficiently, which we are sometimes tempted to brush off too easily."

According to Schulitz (1974: 44), responsibility and power of decision should not be wholly placed on the user, who is often unable to formulate his requirements and needs the help of a specialist who will know the needs of the occupant that are properly assessed.

Friedman (1979: 156) goes further on the same direction with Hertzberger and Schulitz as 'user should a have right to make decision on his own environment'. He states that, methods envisaging self-design have to fulfill two basic conditions as:

> . They should facilitate for the future user of the object to be designed to express his ideas and expectations.
>
> . They should contain a "warning device" which signals certain intrinsic particularities of the object to be designed, particularities which make possible for the future user to evaluate his chances to fulfill his expectations."

Friedman (1979: 157) also tells that, if a method is conceived for the use of a specific group of people it has to be formulated in such a way that this people should be able to understand it and to operate it.

The system should not evaluate the user's alternative as good or bad, only possibility or impossibility should be informed, according to him.

A good realized example can be the 'Adaptable Row Housing in Norway', which published a detailed 'Occupant's Manual' aiming to help the users (detailed information will be given in the next chapter).

2.3.2 Existing Position in Turkey

Dwelling production process in Turkey can be classified as;

- Squatter,
- Social Security Organization Funds,
- Housing Cooperatives,
- Local Administration,
- Builder - Seller,
- Specialized Construction Firm, according to the organization of marketing of housing (Bulca, 1978; Tekeli, 1978).

In this section the mentioned organizations will not be explained in detail; but their (1) formation, (2) aim and their (3) user- design relationship types will be studied, briefly.

2.3.2.1 Squatter

1. The roots of the squatter situation go back to early 1920s, when the decision was taken to develop Ankara as the new capital of republican Turkey (Smith, 1976: 249).

2. The aim of the process was to obtain houses to the low income class and immigrants from various areas of the country ,in the beginning. This changed

course in time as a lack of bureaucratic control, which is beyond the scope of this study.

3. The user - design relationship fits the first type of Habraken's (1972) typology, as this is the simplest one. As Habraken (1972: 220) states "the occupant builds his own house with his own hands." This is the only illegal organization mentioned in this study but according to Acar (1978: 36) with the dynamic production process and interval, the squatter is an important tool as an image of social change on space.

Acar also reveals that, mass housing production organizations in countries like Turkey should consider the lessons taken from the squatter process.

2.3.2.2 Social Security Organization Funds

1. Funds collected by social security organizations used for housing finance became widespread after 1960's in Turkey (Tekeli, 1978: 85).

2. In the examples like SSK, OYAK, BAG-KUR it can be seen that these organizations share the aim of making someone owner of a house. Some of them form the dwelling production organization, some give the job

to the existing production organizations.

3. From the point of user's view the different part of this organization is the financial part; as the aim of the organization is not profit. The user - dwelling design relationship part is similar with the other organizations. According to Habraken (1972: 223) this type of relationship is a non-relationship.

2.3.2.3 Housing Cooperatives

1. Housing cooperatives in Turkey can be seen with two different organization alternatives according to Tekeli (1978: 85).

> The first alternative is that the developer buys a large piece of land, makes its lot plan and sells the lots individually. The second is the organization of demand in a cooperative in order to open those new areas to use. In Turkey, the second alternative has developed in the first stage.

2. Cooperatives share the aim of making someone (someone can be themselves) owner of a house. Generally they give the job to the existing production organizations.

3. An example fitting the second alternative will be studied in the next chapter. The example is

"Edirne S.S. Cumhuriye Mahallesi" by Cengiz Bektas. The cooperative is supported by the local administration and some researches were made to form a healthier relationship between user and his dwelling's design.

2.3.2.4 Local Administrations

1. According to Bulca (1978: 43); local administrations have to produce something concrete as a result of elections' social pressure. The pressure of elections over the local administrations increases the realization chance of the projects.

Municipalities have the chance of mobilizing the masses around specific subjects and organizing them.

2. and 3. An example fitting this organization will be studied in the next chapter. The example is "Izmit Yenilikci Yerlesmeler Projesi" by Tuncay Cavdar. In this organization the Izmit- Local Administration aimed to produce low-price housing with considering the user's needs.

2.3.2.5. Builder- Seller

1. Build-sell method has become widespread in Turkey after 1955 according to Tekeli (1978: 86).

> Parallel to the capitalization process, the fact that the land speculation in its advanced stage provides flat ownership, gives rise to a new kind of small entrepreneur called the builder-seller and creates a new market organization.

2. The aim of the builder- seller is only gaining more and more profit. As can be understood from its formation, land speculation is also used as a tool for more profit.

3. The user- dwelling design relationship type in this organization fits Habraken's (1972: 223) seventh type of relationship which is a "non-relationship".

According to Tekeli (1978: 85);

> Because the owner is defined after the construction, the builder-seller is in a position to decide for the to-be owners before their existence. The builder-seller builds according to the most commonly-shared values in the housing market, trying to maximize the exchange value. Therefore, in the dwelling units realized by the builder-seller the use value is neglected but the exchange value has gained a further importance.

2.3.2.6 Specialized Construction Firm

1. First examples of the private "mass housing"

firms like ME-SA and OR-AN were formed with small capitals, then they began to produce housing with the support of cooperative credit firms (Birkan, 1978: 18).

2. Aim of these firms are similar with the 'builder-sellers'.

3. As a result of similar aims, similar relationships between users and their dwelling designs are formed.

CHAPTER III

APPROACHES TO USER - DWELLING DESIGN RELATIONSHIP THAT ALLOW USERS MAKE DECISIONS ON THEIR OWN ENVIRONMENT

3.1. A Historical Survey

According to Collins (1965: 221), the talent of housing architects since World War II has been almost solely devoted to solving the two problems of 'architecture' defined by Durand around 1800: the problem of private building, which is to provide the optimum accommodation for the smallest sum of money; and the problem of public building, which is how to provide the maximum accommodation for a given sum.

The poor relationship between man and his dwelling's design may be based on this statement. But there are lots of different kinds of relationships between man and his dwelling's design, formed with or without intention. In common they are human oriented.

An example of these methods of building were to be found even in early historical times; The housing of the Pueblo Indians of New Mexico were spontaneously

reconstructed when they no longer fulfilled their original function."With the simple building material of loam, an optimal adaptability of the building to the needs of the occupants and the requirements of the climate was achieved." (Wienands 1974:53).

The Japanese housing architecture has always paid particular attention to the needs of the occupants: A module based on the size of people, the unit size of the tatami mat, is used as the basis for the internal dimensions of all buildings. In addition, adaptability of the inner rooms is achieved through the use of a number of movable walls, a flexible organization (Bubner 1975:42).

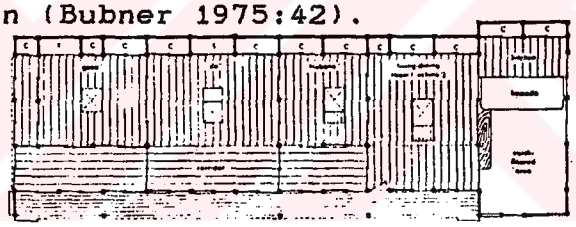


Figure 3.1 19th Century Nasu House on Kyushu Island, Japan. It consists of four rooms plus kitchen arranged in a row with sliding partitions between, to permit whole house to be opened up.

Frank Lloyd Wright was influenced by the construction of Japanese Houses and was speaking of a house as an organism. He developed this thesis in a free and flexible ground plan for the inner rooms. According to him, adaptability in a house meant incorporating the various rooms into a single enclosed entity (Bubner 1973:41).

In Germany and Netherlands, the true Modern Architecture gained the bonus through the works of Ernst May and Martin Wagner. The major opportunities for modern architects in these countries lay in the field of mass housing, especially in Germany where it found a chance of wide application (Rabaneck,et al.1973:699).

> While the construction of primitive people, the houses of the American settlers and also the industrial buildings of the 19th century only met the existential requirements of variable buildings, the constructions of Wright, Perret and Horta at the beginning of the 20th century showed, for the first time, how adaptable buildings could be planned from the outset with adaptability in mind.

According to Bubner (1975: 43);

> The demand on architects, at the beginning of our century, to design sufficient accommodation, was almost always linked with the demand for an adaptive method of construction.

In 1924 Van Doesburg put forward in his theory of elemental construction, an area of protective surfaces (the surrounding, the perimeter) and dividing walls that could be arranged as required (inner partitions) (Frampton 1985:143).

In the same year Rietveld's (1924) house for Mrs. Schroeder is designed 'to the end of achieving an individual mode of modern living'. It consists of largely open floor plans with wet services arranged around external walls and a central staircase. Sliding partitions from the perimeter to the stairwell provide a variety of spatial possibilities. The importance of this 'masterpiece' for this study comes from its user's relationship with the designer. In this house both flexibility, adaptability and design participation were used.

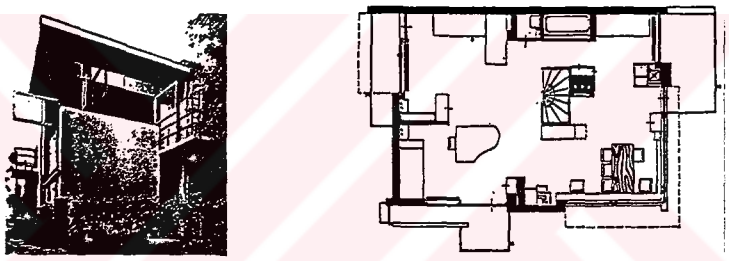


Figure 3.2 Schroeder House, 1924, Designer: Gerrit Rietveld

The starting point for flexible housing in Germany was the 1927 *Weissenhofsiedlung* exhibition at Stuttgart. The scheme was set forth to enable the most advanced architects of the time to put revolutionary ideas into practice. The scheme was dominated by Mies van der Rohe's steel framed apartment house, 'in which the inner walls could be disposed according to the liking of the tenants, in whatever manner they choose.

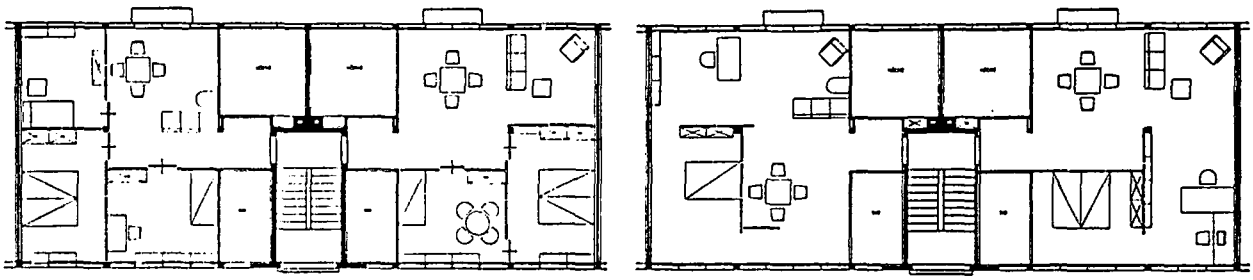


Figure 3.3 Variations on the layout of apartments 10 and 12 designed by Mies van der Rohe.

The idea of 'transformable' space can be seen in Le Corbusier's, 'Project d'un immeuble locatif'(1928/29) and Maisons Loucheur of 1929.

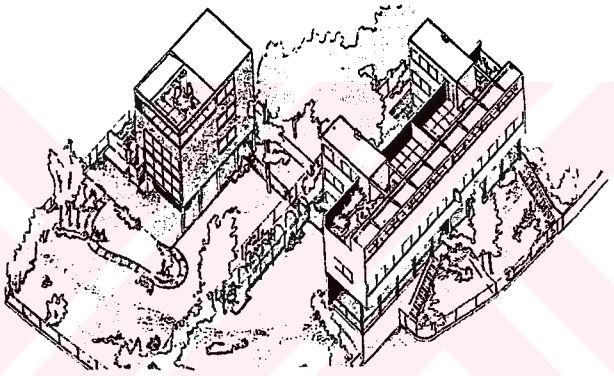


Figure 3.4 Houses 13-15 in Weissenhof

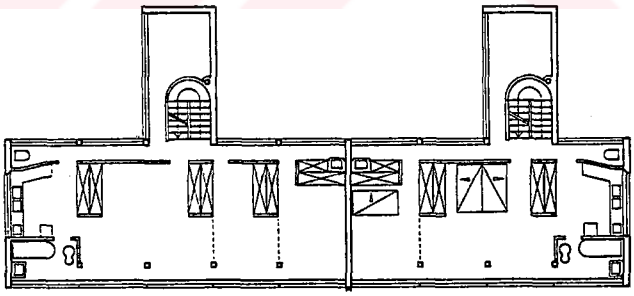


Figure 3.5 The transformable spaces in the House 15, by Le Corbusier

In 1961 Habraken published his thesis 'Supports of the People'. The essence of Habraken's theory is that the role of the community and the role of the individual in housing are distinct. If they are

confused or rolled into one, the result is the 'perfect barracks' of mass housing as presently practiced.

In 1965 in Berlin, there was initiated the competition of the European Coal and Steel Community for the development of industrially fabricated housing units; more than 3000 architects and construction engineers participated in it.

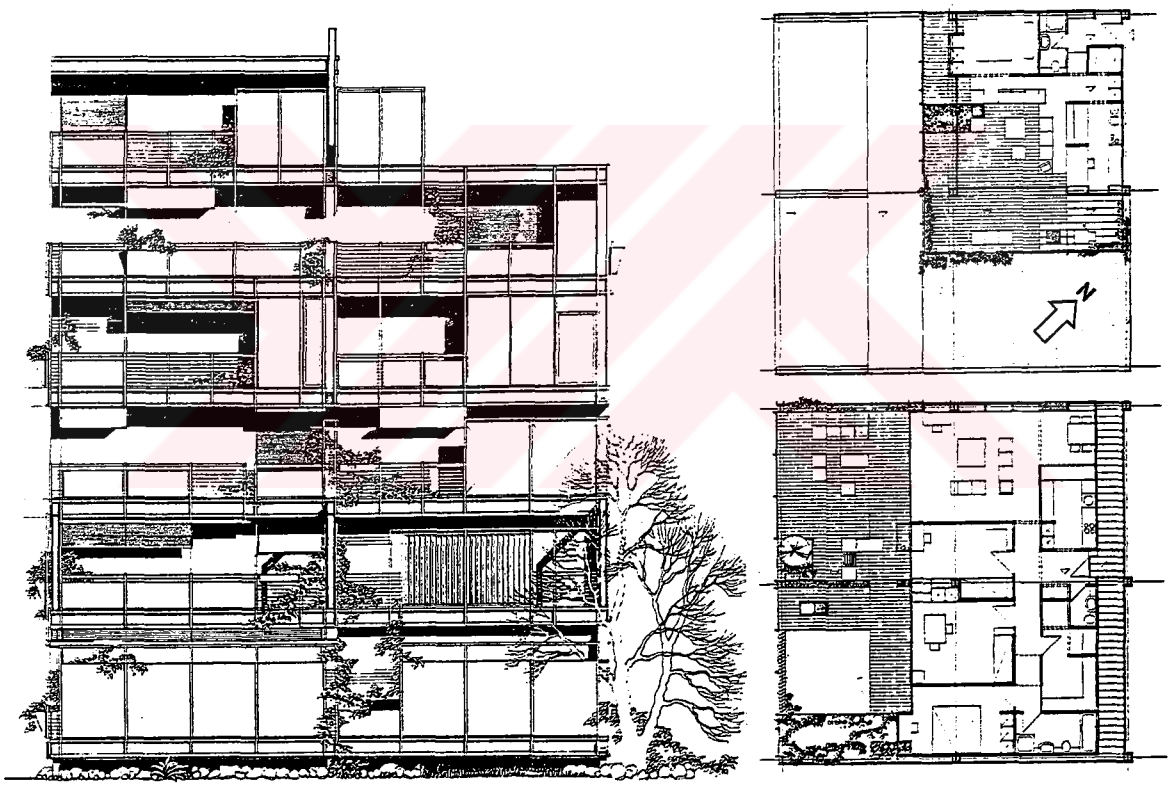


Figure 3.6 Elevation elements and plans of different floors of the same block.

The building was based on the "baukasten" (building-block) system developed by Jochen Brandi and Partners from Gottingen. Its main feature was that it

was deliberately developed by architects as a means, and it opened up many different design possibilities. Finally it was a successful applied test project about open building systems for housing.

Between the years 1971 and 1973 three architectural competitions were held in Germany with government support concerning this study with their aim and objectives.

One of the aims of the competitions was to promote industrialized construction methods in housing combined with an answer to psychological needs, like visual differentiation, functional indeterminacy, possibilities for user participation and so on.

The first contest in 1971, Flexible Wohngrundrisse (Flexible Residential Floor Plans) was concerned with the changing user requirements within apartment flats. The task was to develop proposals and plans for a multi-story residential housing development with flexible interior spaces.

Some objectives of the competition were:

- The principle 'the user has to adapt to his apartment' has to change into 'the apartment has to adapt to the user.'

- Building structures should allow several cycles of change of inter space requirements caused by changing living habits during their life-span.

- Active involvement of apartment dwellers in the layout of rooms and space creation.

- Partitions should be relocatable by occupants without damage or special equipment. (Rabaneck 1974:76-91).

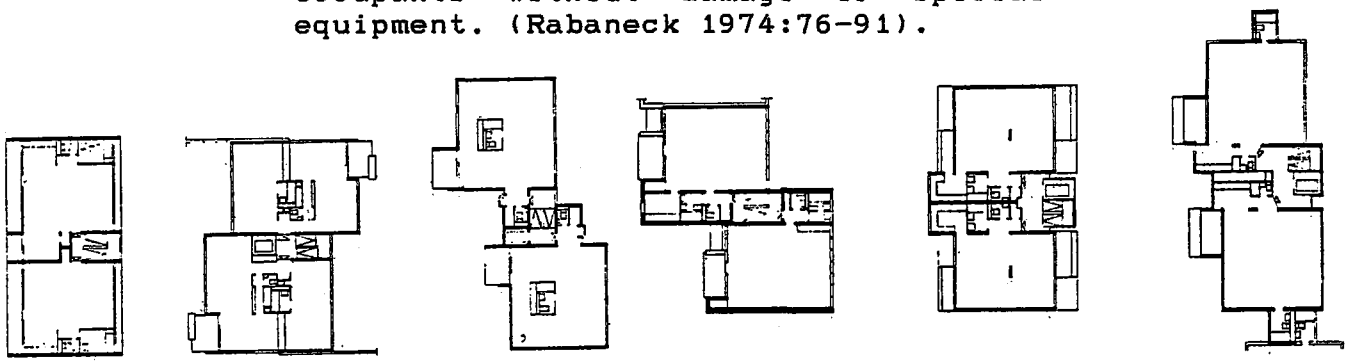


Figure 3.7 Flexible Residential Floorplans'competition in 1971. Plans of the six award winning schemes.

The winning projects were realized, but stayed as only paradigms, not as frontiers because of their being over-complicated and too technological.

It may be useful trying to explain the reason of rejection of these libertarian tendencies asked by the same people: "Why satisfy expectations when people are grateful for legislation that ensures the satisfaction of basic needs?"

The second competition in 1972, Elementa, was not only concerned with the interior flexibility of buildings, but with whole residential structures and the problems of industrialization.

Some objectives of this competition were;

- Flexibility of external elements to define living space and to provide means for a strong architectural expression.

- 'Second Generation' building systems, offering not only technological and economical advantages, but with a better consideration of 'soft facts' like architectural psychology, social and human factors."

The competition was promoted by a German magazine and the winning project was built at Bonn.

Figure 3.8 Winning project of the 1972 Elementa Competition.

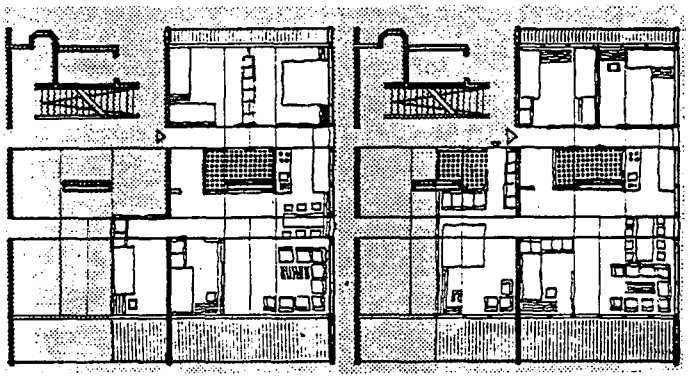


Figure 3.9 Neue Heimat's system catalog submitted for the 'Elementa' competition, showing varying configurations of plans.

In 1973 the third competition, Integra was held. It tried to find new concepts for the central-city redevelopment. The mixture of dwellings, recreation offices, stores, parking and the like to be integrated in one building system was the goal.

Some objectives of this competition were;

- Separation of parts and features of environmental structures that will not change, e.g. the load bearing parts, and flexible secondary structures to be altered during the life of the building.

- Building structures where large interior areas are free of structural obstacles so that free organization of commercial and living spaces is possible and which can be refitted at later stages.

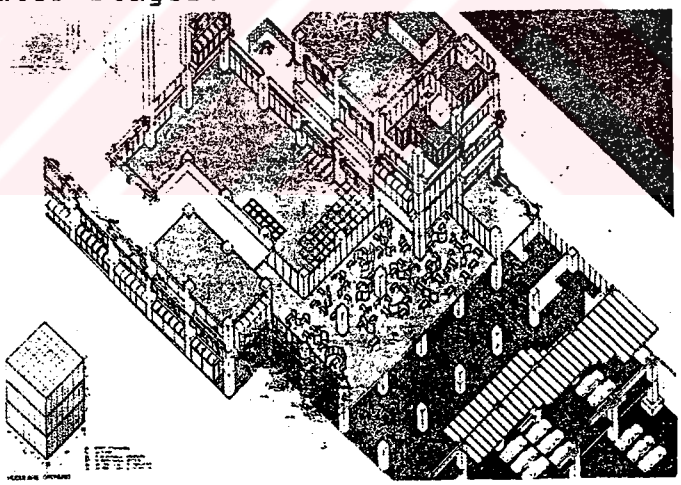


Figure 3.10 Award winning project of the 1973 Integra Competition.

An interesting result of these competitions has been to throw light on the gap between highly industrialized construction methods for the structural parts and extremely uncoordinated secondary systems

(meaning internal and external walls, ceiling and floor products, built in furniture, kitchen and bathroom appliances).

As well as the technological progresses, the research during the construction period and the investigation of user behavior in these new types of structures shows us that these studies were human oriented. According to Turner and Terner's terminologies these studies were both product and process oriented.

3.2 Types of Approaches and Systems

The common aim of the systems studied in this part is to achieve 'Socially evolved architecture', in general. Most of them try to achieve this by applying the 'on-line system' in principal.

Socially evolved architecture is an on-line process according to Miller (1972: 314) as he states;

> On-line system is any system in which the operations of control, evaluation, decision and execution are carried out at the same rate at which the system itself operates.

This could be abstractly represented by Ashby's (1972) diagram. In the diagram, it can be observed

that 'the inhabitant' is a parameter with inputs and an output; this is the main difference with the 'off-line' process (as mentioned in the evaluation of the existing position Section 2.3 ; the inhabitant is not a parameter in the off-line process).

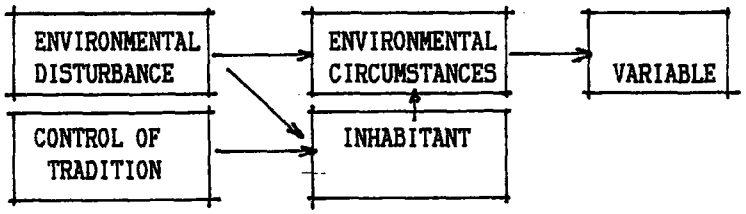


Figure 3.11 Ashby's socially evolved architecture diagram.

The socially evolved architecture can be achieved during the construction, distribution, planning and layout principles' decision. In this part of the study, dwelling production methods aiming to have the inhabitant as a parameter will be studied. Realized paradigms of these methods will be evaluated according to some criterias, as:

- Levels of decision,
- User alterations,
- User feelings- satisfaction.

This is made in order to analyze the advantages and disadvantages of each model, generally from the point of user's view .

A brief information about the models and

projects, which will be studied in this chapter is given as an outline.

In the Add-in method, it can be understood that it is not a systematic design approach which mostly appears as modifications. Generally users aiming to increase the "usable space" within the "fixed" envelope prefer this way. This method is mostly made to gain the lost roof spaces under the pitched ones.

The Add-on method also appears as modifications mostly, but it is more systematic than Add-in, in general. Christoph Mackler's project in Frankfurt is a typical systematic approach whereas the alterations made by the users in Pessac do not go further than being modifications. This position confused the architect when he saw the difference between his intend and the occupants' wants.

In Aktepe Squatter Prevention Zone, several methods were applied as; cooperative, aided self-help, core, saver and prefabricated houses. The aided self-help method was a systematic Add-on approach and according to the researches made by Kangal, it was the best implemented method in Aktepe as it allowed the users to design their own living space in the planned environment in connection with changing needs.

According to Rabaneck (1973: 698-711), the adaptability approach is based on carefully considered variations in room sizes, relation between rooms, generous openings between spaces. This can be achieved with the planning decisions.

The houses in Delft by Hertzberger were on principle incomplete. The plan was for a certain extent indefinite, so that the occupants would be able to decide how to divide the space and live in it. An experimental housing in "Wohnen 2000 Exhibition" held in Stuttgart in 1993 may inform that, adaptability and flexibility patterns will not lose their importance in the near future.

In the Housing Project in Skjetten near Oslo, Prof.Lund and his partners produced a system giving possibilities for a great number of different plans, a total of over two million types. This was achieved by a group of designers that hope the houses in Skjetten would in time reflect the preferences and life styles of the families living there. The result is similar to the result in Pessac, but the big difference in Skjetten is the consistence of designer's intent and occupants' wants; They were the same.

It can be understood that the participative

and flexible methods have positive motivating effect on the users . People like their environments more when they have the decisive right on their own environments, housing at Les Marelles is a good example (the users made the landscaping around their homes, themselves as a result of participation's motivating effect).

In the applied projects formed with flexible and participative systems it can be observed that design functions are divided into two levels which fit Habraken's "supports" and "infills".

Habraken in his book "Supports- An Alternative to Mass Housing" in 1961, tells that; The "supports" are the hard part, skeleton of the dwelling decided by the designer and the "infill" is the additional soft part on or in the skeleton, decided by the user.

The "support" and "infill" principle can be seen in the Les Marelles, Molenvliet and Eleven Housing examples.

Pinney (1972: 193) makes a similar categorization for the same process as;
-Level 1: Metadesign (for designing the supports),
-Level 2: Contact Design (for designing the infills).

Metadesign is the level of general decision making that requires a high degree of competence and knowledge in all dwelling design areas. This may be resembled to the 'hard' part of Habaraken's supports which is decided by the designer.

Metadesign is basically a planning operation which determines the demographic characteristics and anticipates the needs and preferences of the potential users. It also recommends fundamental control policies affecting decisions on project economics and performance criteria. Since the specific users are most often unknown at this stage, the decisions on criteria can be made using information such as surveys of sample groups with similar attributes to the target user group.

Contact Design is the level of specific decision making that requires a high level of sensitivity to the needs, requirements and preferences of the users. Metadesign, with its focus on macrosystems and Contact Design, with its focus on microsystems are convenient in recognizing and dealing with the difference in the time cycles of change.

Contact design is the stage where the actual users naturally appear in the design process and become engaged in the physical design of those spaces and

facilities that affect them on an individual basis. According to Pinney (1972: 198), Contact design consists of the following steps:

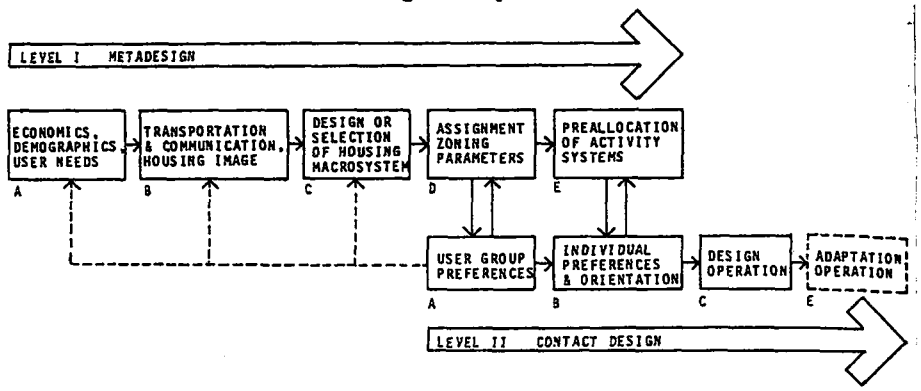


Figure 3.12 Participatory Design Streams.

A. Sensitizing Level I to the real user group values and preferences (which may influence decisions on zoning and the design or selection of the housing macrosystem). This information may be gathered through a survey.

B. Mutual orientation between individual users and operators of the method (which may influence decisions on activity system allocation).

C. Design operation with users and operators.

To enrich the user's cognitive and expressive potential, he is introduced to scale models of the housing components which he is encouraged to manipulate, to copy or alter standard plans, or to create his own. Basic stimulus material of this kind, together with assistance, from the consulting designer, forms the basis of design actions, the costs and consequences of which are relayed to the user by

computer operator and model builder through the consulting designer. As new developments in computer aided design and visualization methods become available these can be introduced in this process.

D. Adaption operation. This can occur at any future time with individuals or groups of users requiring change. They would again interact with trained representatives of the building management who might be recalled from the previous metadesign group if the adaption operation is complex.

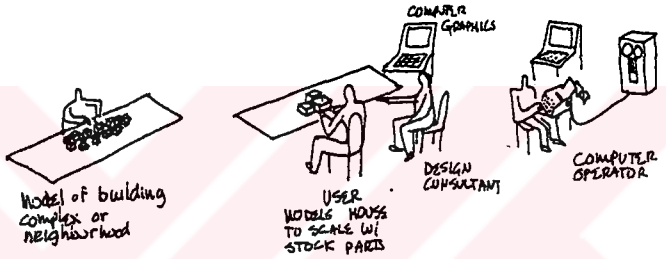


Figure 3.13 Contact Design Operation, Methods of Assistance.

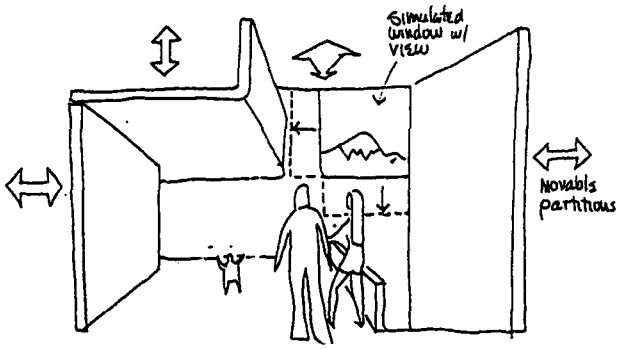


Figure 3.14 Contact Design Operation, Enclosure Simulation.

In general, the contact design stage may be categorized into two phases as;

1. Initial participation: Is formed by the first and second phases of the Contact Design (User group preferences and Individual preferences, orientation). If given the opportunity, prospective users will become engaged and participate in the design of their dwellings and shared spaces and facilities in an effective way. This can be observed in every participative and flexible projects.

2. Capacity to be altered: This is the last phase of the Contact Design (Adaptation operation) which means the user's decisive right to design his own environment in the long term. Once the dwelling has been designed and installed, additional needs will emerge as the original or new user's requirements change through time, and his continued participation would assist in reshaping his dwelling. As this specification needs some technological or physical precautions, this can be seen mostly in the flexible systems.

For example in the zoning system a building envelope is defined which recognizes differential attributes of the site such as segments with better views or more attractive end areas (this fits Habraken's "margins and zones") , and can allow maximum adaptability and community facilities. A user (with assistance) would decide what area relative to views,

access, relationship to basic ground, and distribution of service and activities in which he desires to be located, and how many modules of space he needs. Surrounding this primary zone are 'expansion zones', on no less than one but possibly on four sides of his primary zone, which can be utilized in various ways immediately or in the future.

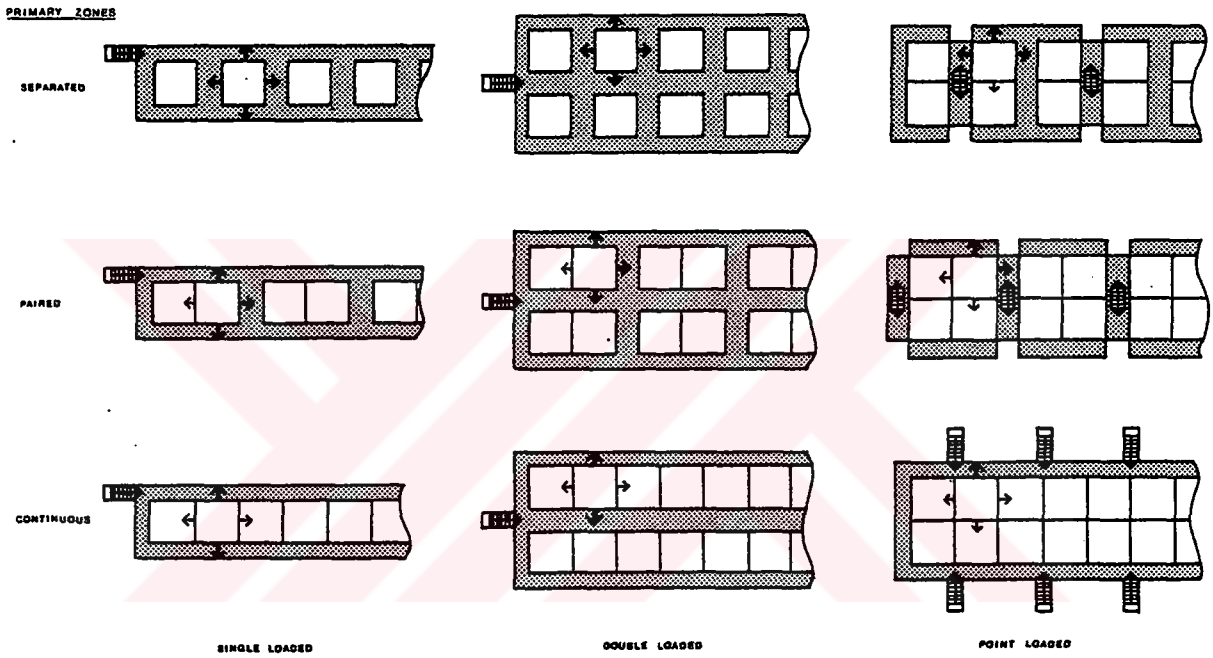


Figure 3.15 Alternate Zoning Possibilities

3.2.1 Add In System

By 'add-in', the gain of usable floor space without actually increasing the ground area occupied by the house is meant.

The advantage is that the infrastructure and

land costs are written down within the initial investment, and the 'envelope' of the house is built to suit the eventual density of the area.

This principle is mostly applied when the space no longer fulfills the needed area.

In Holland where roofspace extension is popular, some responses with specially designed rafterless roofspaces for use between crosswalls can be seen.

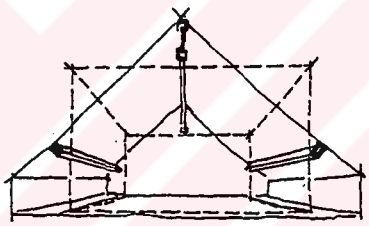


Figure 3.16 Dutch solution aims to recapture lost roof space in a steep pitch by means of long-span Stramit insulation.

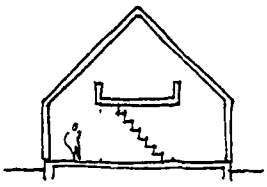


Figure 3.17 Maximum space approach entails free standing add-in that is not dependent on envelope.

3.2.2 Add On System

Add-on mostly existed as an approach to make more space available without having to move. In the past, or in the towns and villages, it was normally possible to add-on or extend a building as requirements dictated, because of greater availability of land, lack of development controls and regulations, and universally accepted forms of construction.

One characteristic and realistic (can be applied to most of the dwelling types) example is Christoph Mackler's work in Frankfurt made in 1992.

The client wanted to get the most out of the view from his top-of-the building apartment; so instead of rehabilitating it, a radically new layout was decided on. The home occupied two levels; mansard and attic, but the latter was practically useless because of the low ceiling and the joists that cut headroom even further.

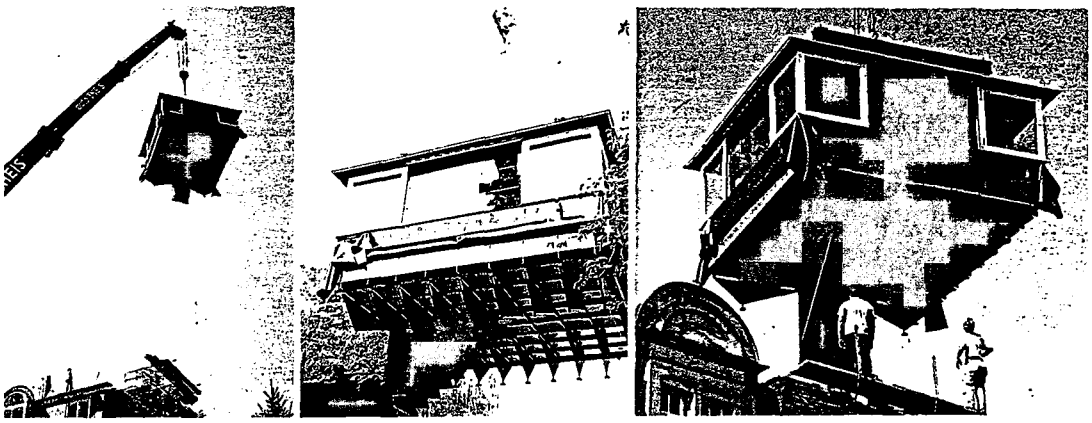


Figure 3.18 Various installation steps

Mackler's solution was to cut a 5x5-meter hole in the roof. In it an enclosed roof terrace was inserted independently above the old roof. As a result of the time problem the structure had to completely be assembled where it was fabricated. This allowed work in the apartment to continue. The roof terrace rests on the walls of the existing corridor.

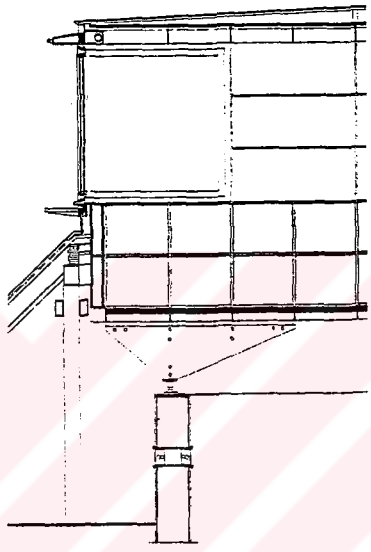


Figure 3.19 Partial section through roof terrace. The steel supports rest on the walls of the hall on the floor below.

Le Corbusier's settlement 'Quartiers Modernes Fruges' near Pessac is another example for add-on system.

Levels of Decision

The story of the Pessac settlement is as; After the end of the I. World War M. Fruges wanted to

show his country that it was possible to solve the housing problem. The building firms, from the smallest local contractor to the architects, were worried about the new methods, which could destroy the positions they have acquired. Fruges said to the architects:

> I authorize you to put theories into practice and to carry them to their most extreme conclusions; I wish to achieve really conclusive results in the field of low-cost housing: Pessac must be regarded as a laboratory.

Fruges once told Le Corbusier to do the work "in his own way"(Boudon, 1972: 8). In the end Fruges and Corbusier agreed that some of the villas should be individual dwellings while others should be designed for two families.

The decisions were made by the developer and architect, Fruges and Corbusier. No user was allowed during the decision-making phase.

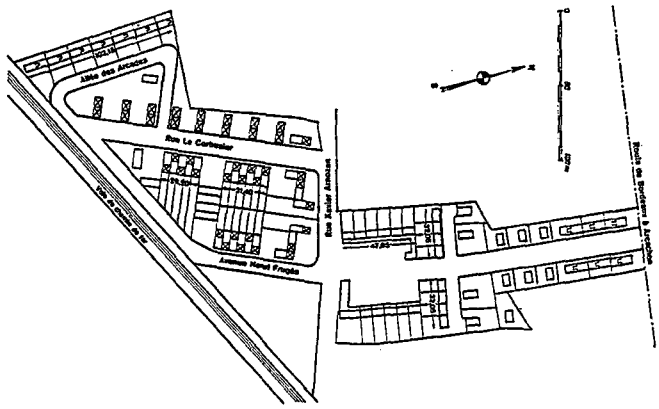


Figure 3.21 The site plan of the Quartiers Modernes Fruges

Tenant Alterations

According to Lefebvre (Boudon 1972:i);

> And what did the occupants do? Instead of installing themselves in their containers, instead of adapting to them and living in them 'passively', they decided that as far as possible they were going to live 'actively'. In doing so they showed what living in a house really is: an activity.

The occupants worked on the houses offered to them, converted them, added to them their own needs. They introduced personal qualities. They built a differentiated social cluster according to Lefebvre.

Figure 3.21 Proposals by Le Corbusier

According to Boudon (1972: 2) Le Corbusier was confused when he saw the houses' position in Pessac as there was a real conflict between what he intended and what the occupants wanted.

Le Corbusier claims that he finds the modifications 'amazing' made by the occupants and tells;

> In this conflict the architect considered himself to be in the wrong: 'You know, it is always life that is right and the architect who is wrong...

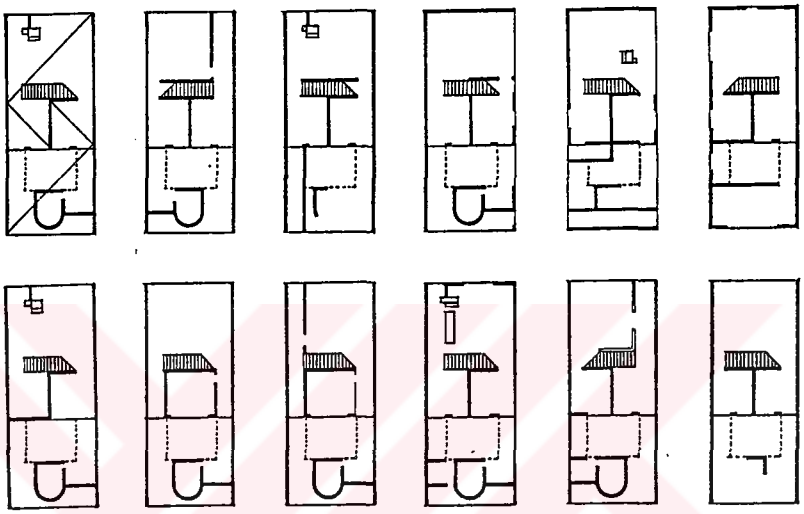


Figure 3.22 Le corbusier's original design is on the top left. Others are occupant modifications.

In Pessac Tenant alterations can be seen in different ways. Modification of the interior walls, elevation elements, terraces.

Figure 3.23 In this terrace not a single wide window has survived. The outline of the original window is still visible on the second house from the left.

Figure 3.24 Another converted facade. The newly rendered sections of the wall stand out quite clearly.

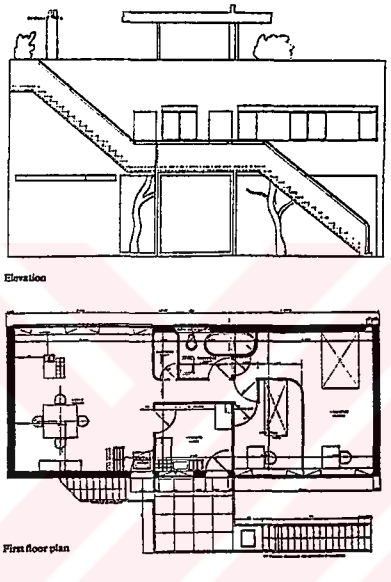


Figure 3.25 The open staircase on the front facade of this detached house was one of Le Corbusier's most attractive ideas. The landing of the staircase was used as verandah and the area beneath the stilts were enclosed, by the tenants.

User Satisfaction

According to the results of the interviews made with the users;

- They did not like anything when they first took the

houses, partially with contemporary press reaction's pressure. The users reasoned the 'style', as being more than modern, Moroccan, Algerian.

- In time they claim that they got used to their houses (may be with the help of modifications made by the users).

- In general people preferred the interiors to the exteriors

> Visitors tend to say: I would never have believed that the interior was so pleasant. With that staircase you could imagine yourself on board a ship. Very nice! But the outside is not so good.

One of the housing types (Aided Self Help Type), made in Aktepe Squatter Prevention Zone can be evaluated as another example fitting this type of user-dwelling relationship.

Five types of dwellings (according to their designs or construction techniques) can be observed in Aktepe, as:

1. Saver Houses,
2. Cooperative houses,
3. Aided Self-help houses,
4. Core houses,
5. Prefabricated houses.

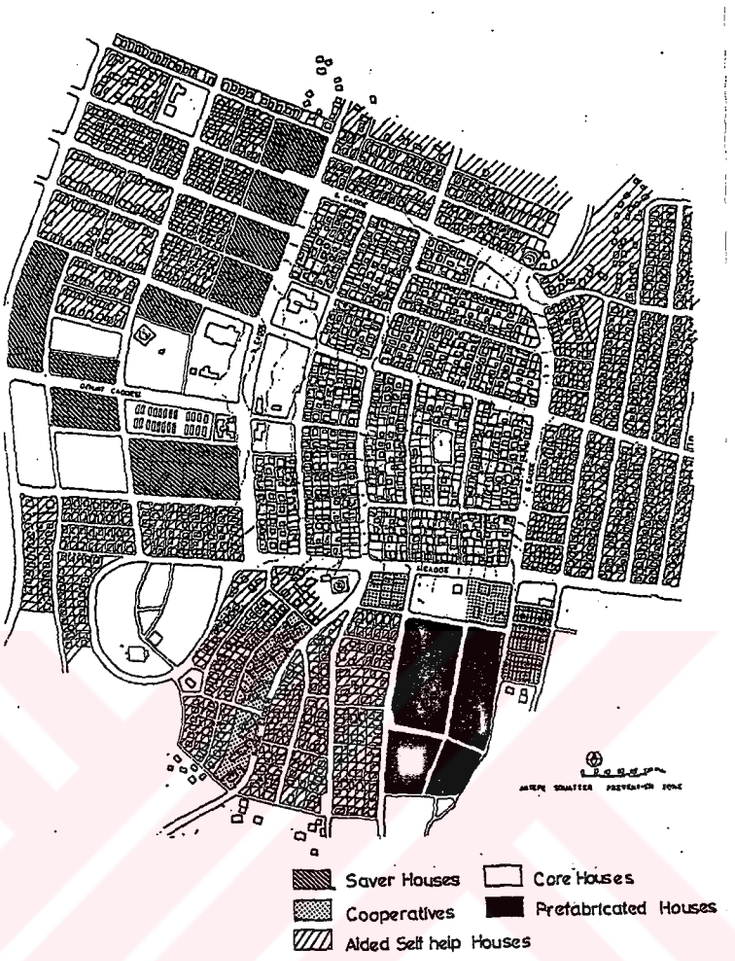


Figure 3.26 Aktepe Zone Map According to dwelling types (Source: Kangal)

The following results are achieved from the evaluations of a study by Kangal (1986) researching the fitness of the plan types to the users' life styles, in these mentioned housing types.

Levels of Decision

Levels of decision were different between the dwelling types as;

1. Saver Houses: These were completely pre-determined by the designers and constructors. They were 5 storey high blocks including 3 types of dwelling types as:

80 square meter type, 2 flats/storey

60 and 45 square meter types, 4 flats/storey

75 square meter type, 3 flats/storey

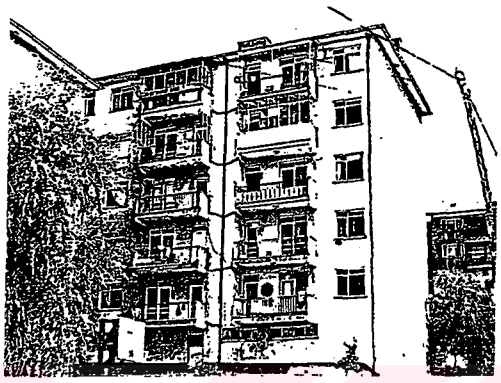


Figure 3.27 Saver Houses
(Source: Kangal)

2. Cooperative Houses: Similar to the Saver Houses, these were also completely pre-determined by the designers and constructors. These were better than Saver Houses, in quality. 5 storey high blocks with 2 flats/storey. Dwelling areas differ from 60 to 99 square meters.

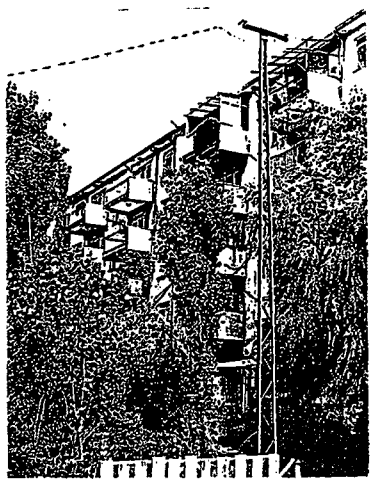


Figure 3.28 Cooperative Houses
(Source: Kangal)

3. Aided Self-help Houses: A process very similar to the Squatter's. This is more healthy and regular, by the help of the supervision of the state.

This definition nearly fits Abrams' (1964: 187) one idea as he says, squattering process should be directed an sponsored by government.

These houses had the flexibility in both vertical and horizontal directions.

Figure 3.29 Aided Self-help Houses (Source: Kangal)

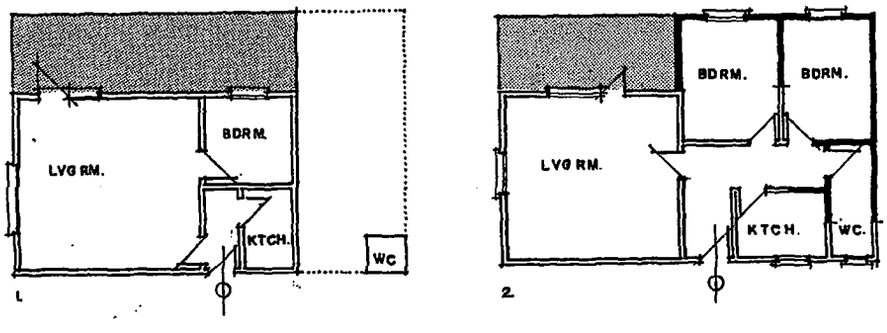


Figure 3.30 Two phases of Aided Self-help Houses (Source: Kangal)

4. Core (Nuclear) Houses: These were single storey, detached, 40 square meter houses.
81% have developed horizontally,
9% have developed vertically by adding stories.

Figure 3.31 Core Houses

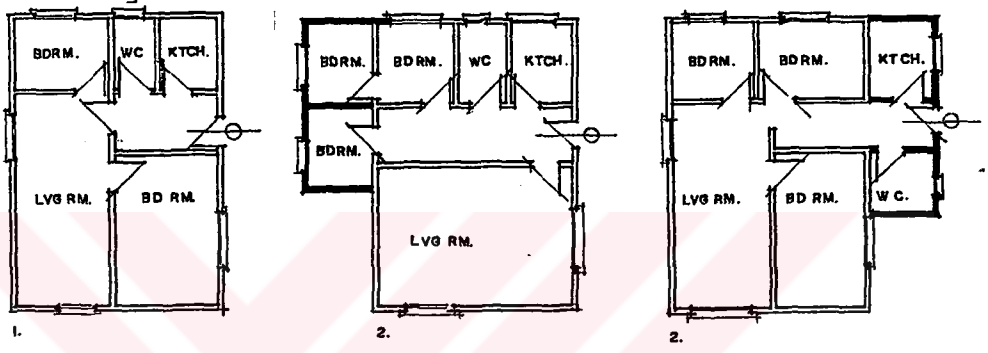


Figure 3.32 Two phases of Core Houses (Source: Kangal)

5. Prefabricated Houses: These were 40 square meter big and pre-determined by ministry. Some of the one storey highs developed horizontally.

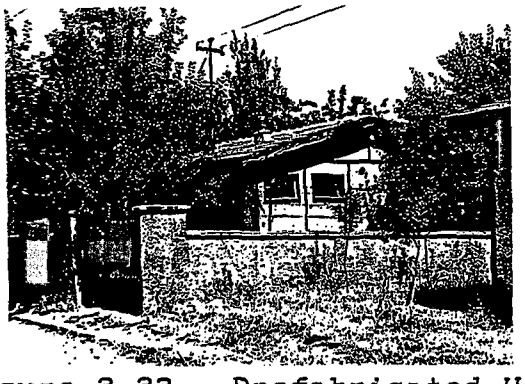


Figure 3.33 Prefabricated House (Source: Kangal)

User Satisfaction

According to the survey held in Aktepe by Kangal, the best implemented method was used in the Aided Self-help Houses. It provided the users to design their own living space in the planned environment in connection with changing needs and behavior patterns. There is an environmental flexibility in the zone of self-help houses.

Inflexible characteristics of apartments does not fit the social characteristics of each dwellers (also the problem of high initial expenditure has a negative affect, too).

3.2.3 Flexibility

Since the beginning of this century, proposals for flexible housing can be seen as rapid applications of technology. As the designers of the dwellings don't know the peoples' preferences and conditions, the most they can do is to imagine the range of things people might wish to do within the living unit.

There is no example of traditional or vernacular flexible housing in the western architectural tradition. This is probably due to technical and climatic reasons but also to culturally

preferred plan forms which do not need flexibility. There are some examples of traditional and vernacular flexible housing in the eastern architectural tradition (as a result of both climatic and geographic conditions).

In Japan, there are many plan types that could be described as flexible. The Nagatomi house by the Inland Sea is an example. Absence of internal circulation can be seen. All fusima partitions in quest suite of three rooms may be removed to accommodate parties of up to 30 people.

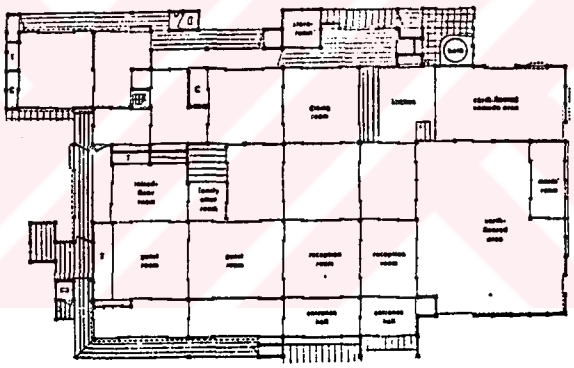


Figure 3.34 19th Century Nagatomi House

Tatami house is a traditional Japanese house, used the double square tatami mat both as a basic planning module and building components. Wall partitions from the house are removed for a summer configuration.

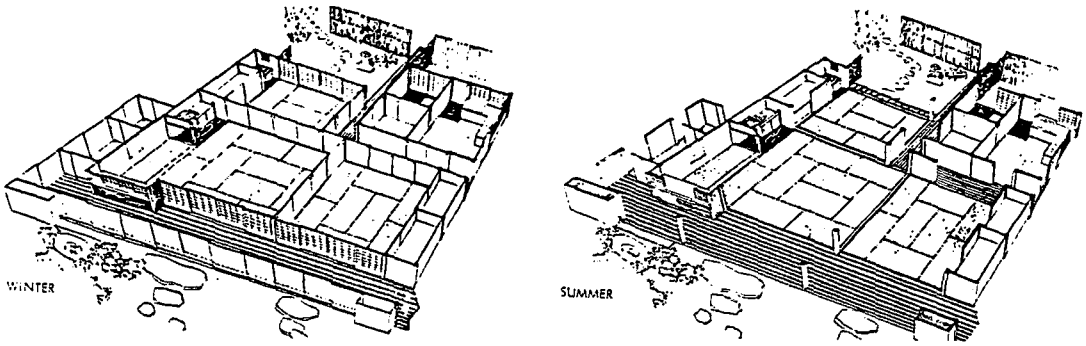


Figure 3.35 Tatami House in different seasons.

It can be told that the most important inspirations' father about flexibility in mass housing is N.J.Habraken, both with his ideas and methodology.

Pointing out that dwelling is an act, not a product, he argued that the architect's task is to create a system through which individuals and families can house themselves. In 1965, he organized the Stichting Architecten Research (SAR) at the Technical University of Eindhoven to develop the architectural and institutional means for returning control over urban housing to its users.

According to Carp (1984: 23); the objectives of SAR were;

1. To investigate what measures can be taken to improve the utility of the built environment and specifically the dwelling environment

2. To develop design methods that can stimulate these measures

3. To promote these measures and design methods, the Foundation aims especially at

4. Investigating those measures in the decision and production process that will lead to control over the environment by its users.

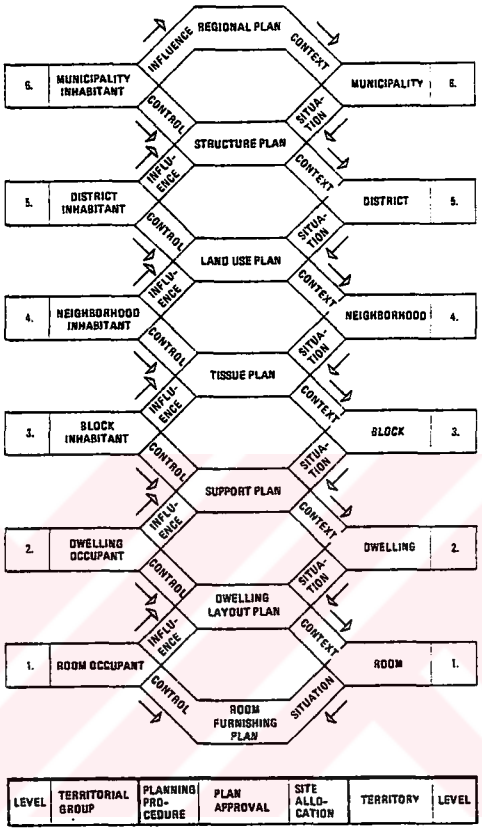


Figure 3.36 SAR's Levels of Control. The chart shows the desired relationships of influence or control- from the spatial level of the private room all the way up to the neighborhood, the city and the region.

The influence of SAR on architects in Holland and throughout Europe has been significant. A good number of housing projects that adapt the SAR distinction between Support and Infill that have permitted residents to design their own dwelling plans have been completed.

It can be understood that SAR aims to form a 'relationship' between man and his surrounding; as giving a decisive right to the dweller about his own environment's design.

For this, SAR principles of user control have been explored at three levels- control of individual 'infill' plans, control of dwelling unit distribution, and control of the Support.

A well-known application of SAR system is the Molenvliet Project, in Netherlands by Frans van der Werf. Werf won the national competition in 1969 to build 2400 dwellings in Papendrecht in Holland.

Werf proposed a Support/Infill scheme in which each tenant would be responsible for the design of his own apartment.

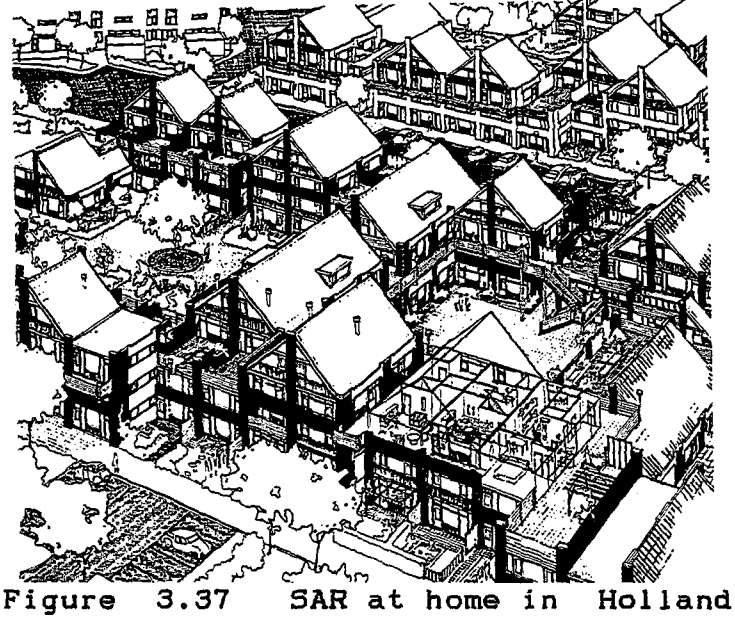


Figure 3.37 SAR at home in Holland.
108 adaptable dwellings in Molenvliet.

According to the designer the Support would express the collective beauty, and the Infill the individual beauty of the people and their place.

Levels of Decision

The designers distinguished four levels or scales of design, each with its own specific decision making process and list of concerned participants- from government ministers at the highest level to housing society officials, neighbors, and inhabitants (Werf, 1984: 31).

Level 1. Overall plan of the district which locates the building sites, the major circulation system, and the green areas.

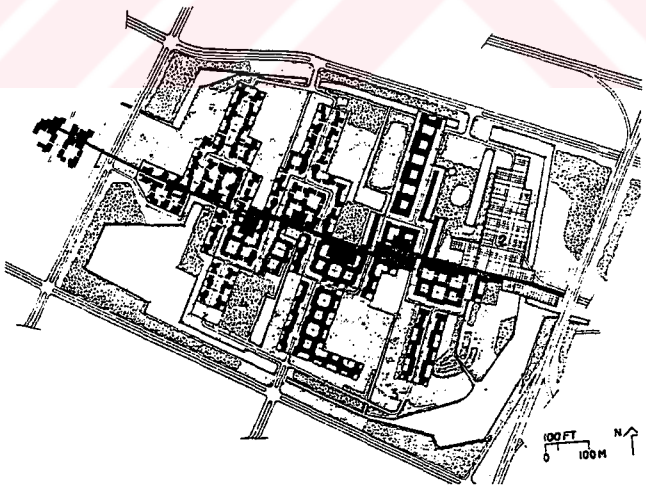


Figure 3.38 Site plan of the Molenvliet district

Level 2. The tissue plan in the form of open spaces and building zones as described.

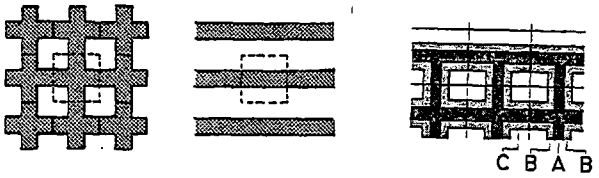


Figure 3.39 Stages in the development of the site plan: building depth and width of related open space established. SAR concept of zones and margins at the tissue level: A areas are built in all cases, B margins can become either part of A or of C, open spaces.

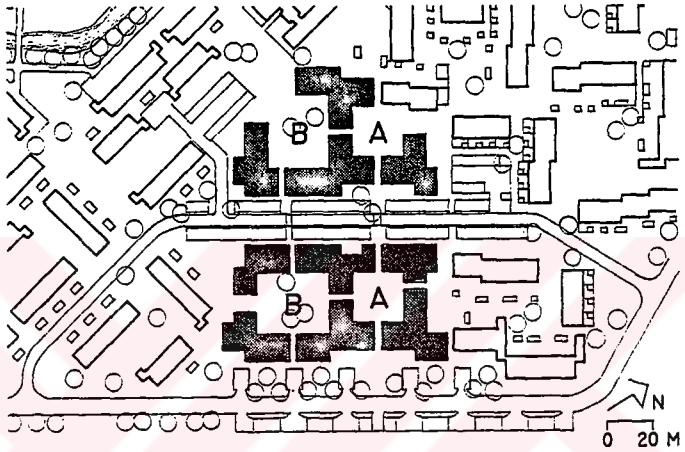


Figure 3.40 The completed portion of the scheme consists of four courtyards: entry courts are marked A, garden courts B.

Level 3. The plan of the Supports themselves which will accommodate

Figure 3.41 The support and the tissue model. Beyond this point the users are in charge.

Level 4. The Infill partitions, mechanical equipment, and facade elements of dwellings, shops, offices, etc., as required by the program.

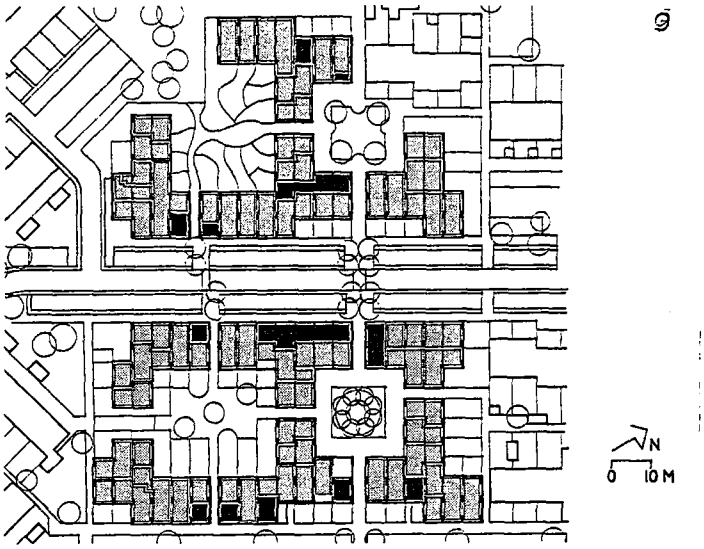


Figure 3.42 Subdivision of the Support into dwelling units. This is one of the many possible ways to use the interior space. Dark areas are circulation and storage.

According to the designer, the design of the support structure is much more fascinating than the design of ordinary row houses; the design process is much more surprising and inspiring and deals in a more fundamental way with the 'act of housing'. Maximum flexibility is not the important aspect; power of control in the decision-making process is much more important for the occupant.

The support structure contains many 'hooks to hang something on,' so many starting points for occupants to create in many different ways is allowed.

Tenant Alterations

Tenants at Molenvliet have altered their dwellings both to personalize them further and correct mistakes made in the original planning.

When a new tenant moves in, as a result of the participation process and the flexibility of the building system, interiors are specific and personal that there is a chance that he or she would refuse it. The spatial organization of the Support, the SAR planning grid, and the modular construction make it relatively easy for them to see the possibilities inherent in the space they are given.

Users' Satisfaction

The most interesting result of the Molenvliet project is the effect, participation had on the satisfaction of the residents of this project.

After a year in residence, three-fourths of the tenants were satisfied with their floor plans. Only a few were dissatisfied which had not participated at the beginning (according to the results of the sociological inquiry). This indicates the importance of participation on user's satisfaction, as all the other conditions of the users' are similar (their only

difference is their participating or not participating in the decision-making process of their own environment). This makes a comparison possible.

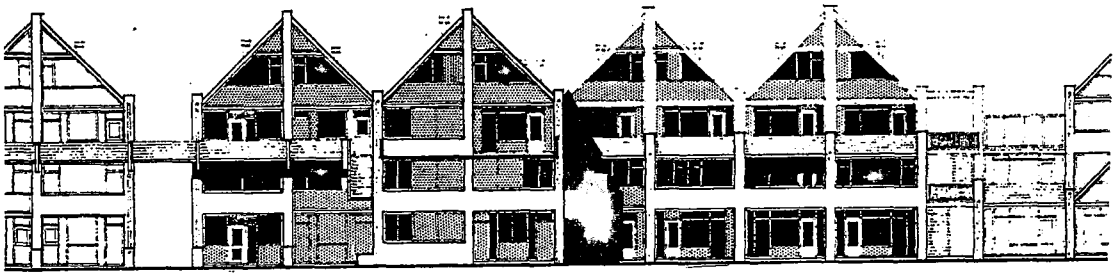


Figure 3.43 Typical elevations

Figure 3.44 The support beginning to receive its infill

Another well-known application of SAR system is the Les Marelles Project, in France by Georges Maurios (and his social scientist partners).

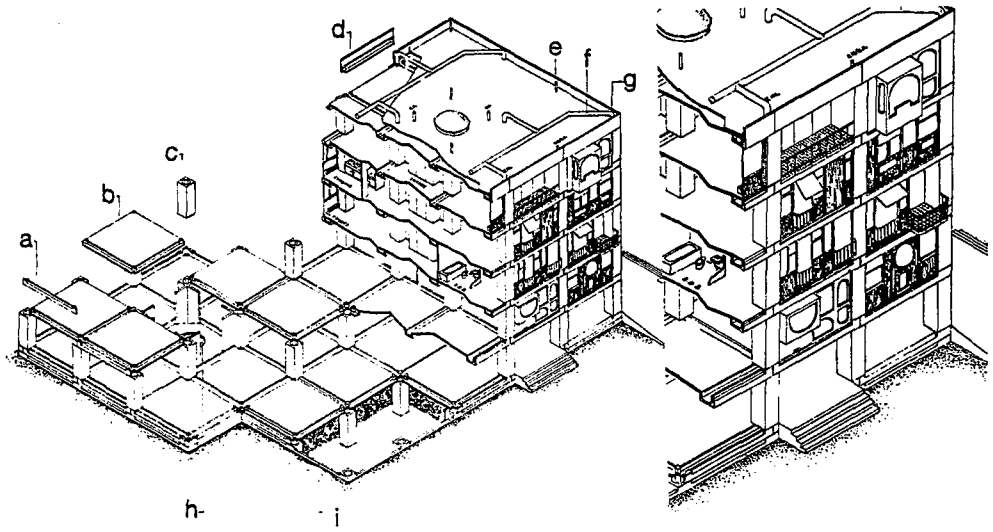


Figure 3.45 Axonometric drawing of the Les Marelles building system: a,b,c,d, pre-cast beam floor slab, hollow column, parapet wall; h is a special slab to accept a prefabricated staircase; e,f,g are elements of the mechanical system which is housed in the edge-beams and columns, i is a conventional foundation. Conceptually, facades are to be designed by inhabitants (this part is zoomed on the right side).

The floor space to be constructed was approximately 7100 m2, which represented between 70 and 104 dwellings, depending upon their final size. This total area was divided between three buildings, which are three and four stories high.

According to Rabaneck (1975: 567-570) this government supported experimental project is;

> "... process oriented rather than object oriented, concerned with what housing does to you rather than what it is. "

Levels of Decision

The architect and his social scientist partners formulated two hypotheses to guide their work, as;

1. Future inhabitants are guite capable of making concrete plans for their dwellings, and specialists such as architects and engineers should provide support and technical assistance in this process, instead of leadership.

2. When people participate in the conception of their dwellings, they develop special feelings about themselves and about their homes.

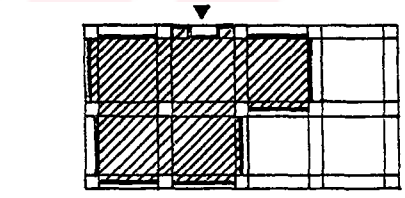
With considering these hypotheses, the team came up with a method of planning, construction, and financing which put these powers in the hands of future users. The method was formed of two levels of decisions, as;

Level 1. involved site planning and the determination of overall building plans. This was under the control of the architects.
Future inhabitants were then given the possibility of choosing the location of their dwelling within the buildings already under construction and also the amount of floor area which they wished to occupy.

Level 2. had to do with the planning and the subdivision of the interior dwelling space, and this was left entirely to the inhabitants, with the assistance of the designing team.

To test the hypothesis that ordinary people are able to layout and equip their own homes, the architect and sociologists developed a marketing method which affords the maximum possibility of expressing housing desires. The method comprises information plus planning tools.

Information takes the form of publications explaining the financial and technical aspects of the project, the 'rules of the game' explaining what is fixed and what may be chosen according to the purchaser's wishes. This information was given and explained by a receptionist permanently on site and by the user's handbook prepared by the architect.



	Nombre	Surface
	5	76,05 m2
	5	14,62 m2
	5	11,70 m2
	1	0,90 m2
Surface utilisable		103,27 m2

Figure 3.46 Space-planning guide from the users' handbook prepared by the architect.

Tenant Alterations

In Les Marelles, the future users were given the possibility of drawing up the plans for their homes. The role of the architect was reduced to technical help. The experiment showed how much the participants became emotionally involved in this task. The architect says, "their housing can be considered an extension of themselves." On the other hand, so many restrictions were involved that the inhabitants had no real power of decision over anything but the interior design. The location, the environment, the form (apartment rather than a single family dwelling), the cost, the financing, the neighbors, and the pattern of daily life were all determined for them.

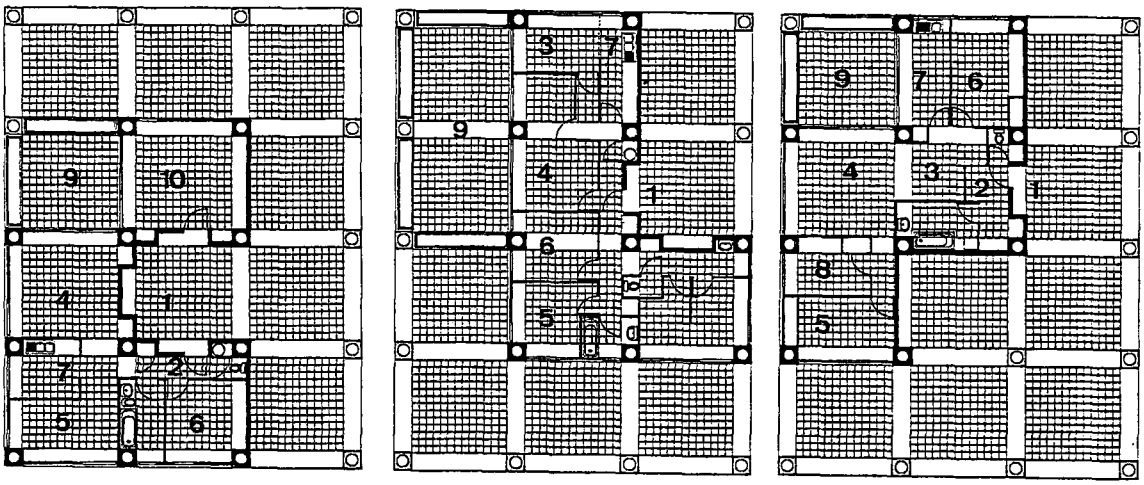


Figure 3.47 Examples of apartments.
1:Entry. 2:Foyer. 3:Dining rm.
4:Living 5:M.Bedrm. 6:Bedrm.
7:Kitchen 8:Study 9:Terrace
10:Professional Office or Studio

User Satisfaction

In Rabaneck's research on the users of Les Marelles Houses he achieved the result that purchasers are generally very pleased with their homes, and are becoming actively involved in the collective issues of the project, as landscaping.

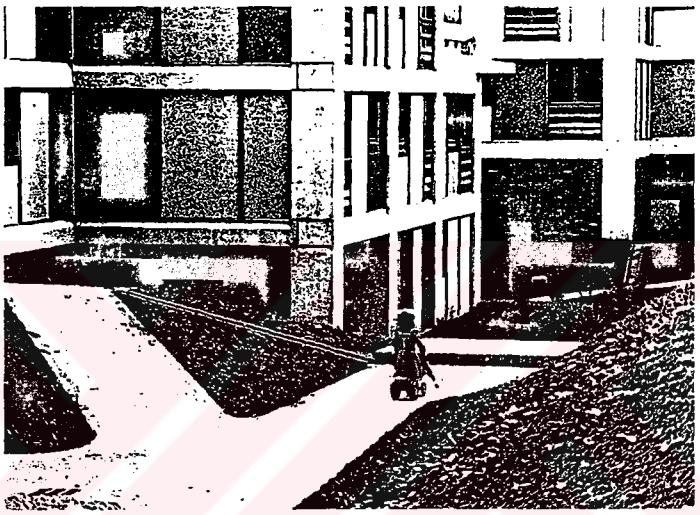


Figure 3.48 Tenants' landscaping of communal external space.

Maurios (1984: 64-76) tells about his project period;

> "Some families found the situation filled with anxiety.
> ... or saying the color selection didn't satisfy them, or they didn't know how to make a plan. But for those who followed the process through to the end, satisfaction is tremendous. The pleasure taken in the completed dwelling is enormous. The apartment becomes 'my home'. The sociologist working with our group reported the appearance of a special consciousness among those who had participated. They

felt themselves part of a special group- those who had made their own dwellings and who were responsible for them."

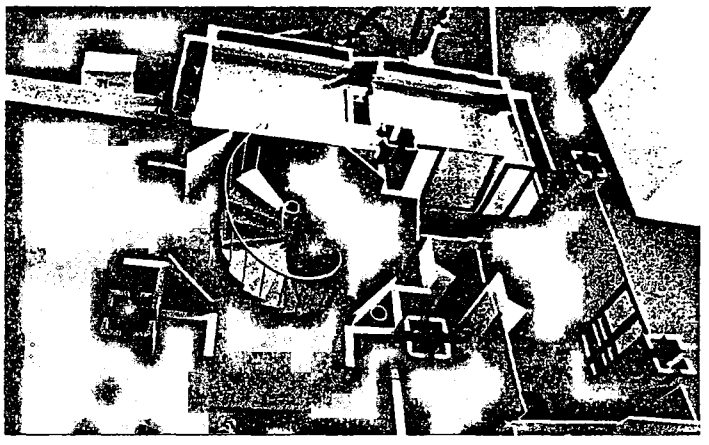


Figure 3.49 The model used by buyers to plan their apartments.

Figure 3.50 Support and infill: Views of Les Marelles

Another applied case about flexible apartment units is the Experimental Housing Project in Uppsala, Sweden.

The Department of Building Function Study at the Lund Institute of Technology conducted this survey of tenants in a block of flats in Uppsala which had been specially outfitted by the building contractor

with flexible partition walls and accessories (Allen, 1972: 212).

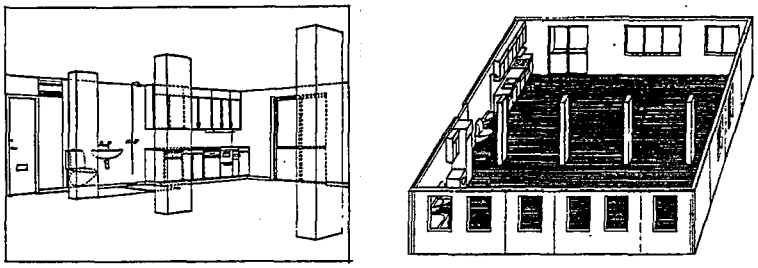


Figure 3.51 Two diagrams of the fixed construction of a typical apartment.

Levels of Decision

In the 1960's Swedish consumers demanded housing units designed to comfortably accommodate a wide range of families with differing life styles, ages, and spatial requirements. In search of a building system that would allow continuous production without modification for three years, a building firm abandoned attempts to provide a wide range of unit types. Instead a selected design which utilized the necessary standardized shell and interior components, they formed one which allowed flexible adaptation of the interior space by the tenant himself, after moving into its completed form.

The experimental apartment building consisted of 16 one, two and three bedroom units spanning the

depth of the structure. A service wall between units contains the ventilation, water supply, and drainage systems for the kitchen, bathroom and laundry. The facade windows and entrance stairway occur in fixed positions and there are two to four fixed columns evenly spaced along the centerline between the exterior walls. All other interior components were designed to be movable by the tenants. Even a movable electrical service was attached to each door and wall element.

Tenant Alterations

The following changes were made in the sixteen apartments over a two year period (Allen, 1972: 214):

1. New living rooms were added on three occasions.

2. Living room walls were positioned to create new space on seven occasions.

3. Walls were moved to change room proportions on two occasions.

4. Walls separating corridors and living rooms were removed on three occasions.

5. A cabinet or a wall was used to create a room partition on two occasions.

6. Walls were set up without changing living room boundaries on seven occasions.

7. A wall or a cabinet separating two rooms was removed on two occasions.

In a number of cases tenants made modifications that conflicted with the Swedish national housing regulations for 'good housing', several had bedrooms smaller than the minimum standard, and one had a living room without direct daylight. The basic function of a room was changed on six occasions. In no cases were bathrooms, laundries, or shower rooms significantly modified because of the permanent location of the plumbing.

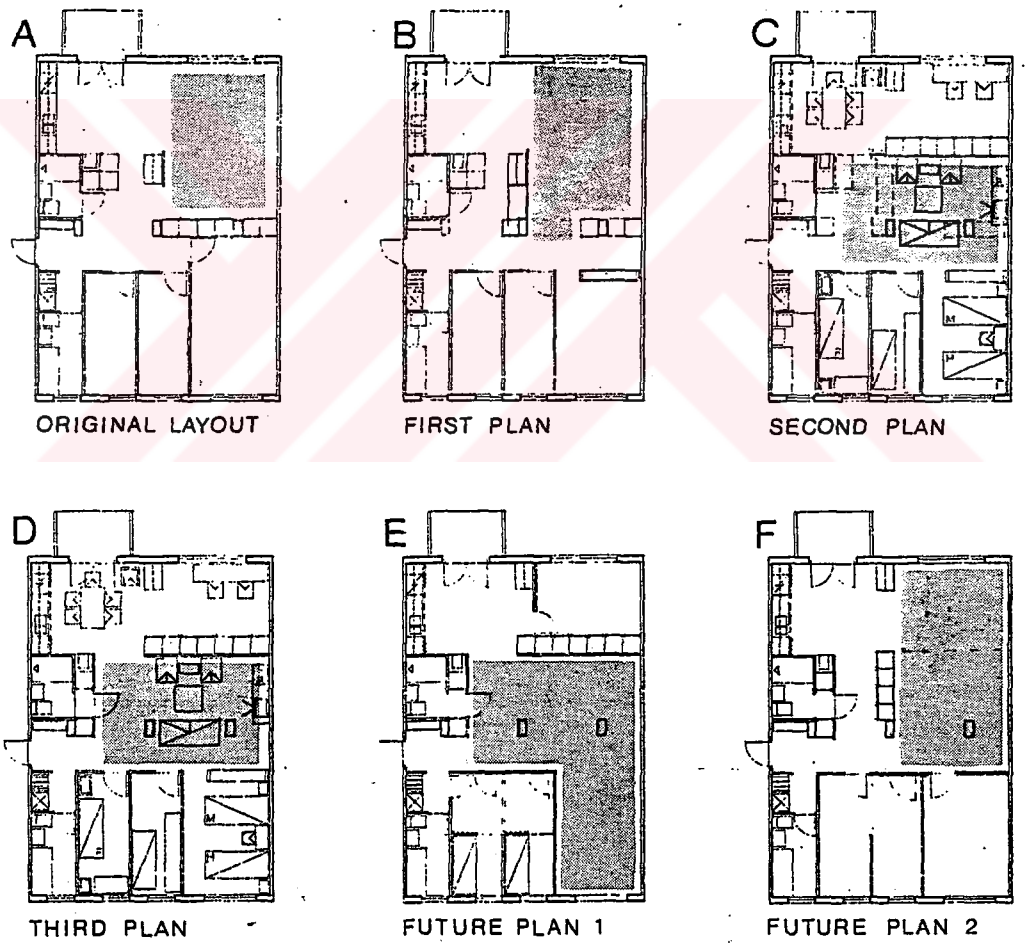


Figure 3.52 Six versions of the same apartment. The living room in each one is shaded.

User Satisfaction

Tenants residing in this experimental apartment block were interviewed for this study two years after they had moved in. Most tenants had taken advantage of the flexibility within that period and were generally positive about their apartment environment and the opportunities it provided.

Complaints recorded by the interviewers were focused on the quality of finish of some of the interior components, and to poor sound insulation between rooms within the apartments. Twelve of the sixteen tenants felt the apartments were 'flexible', three felt they were 'not completely flexible', one said 'inflexible'. Tenants felt most restricted in their flexibility by the columns in the middle of the apartment. One factor which was studied and which gives a measure of the desirability of the movable wall system was the fact that of the eight families who were planning to move, none were doing so to find an apartment environment without flexible walls. Two were moving to find lower rent. Of the last six families, two with small children would like to have movable walls in their next dwelling, and two with teenage children would not. Only two of the sixteen tenants stated that they did not feel flexibility was a significant factor in the comfort and enjoyment of the

home.

The relationship of flexibility and satisfaction with the apartment environment was clearly positive in this study according to Olsson and Nilsson (architects of this project).

Izmit Innovative Settlements Project can be evaluated both in this and in the 'design participation' part, as this example includes patterns from both of the methods.

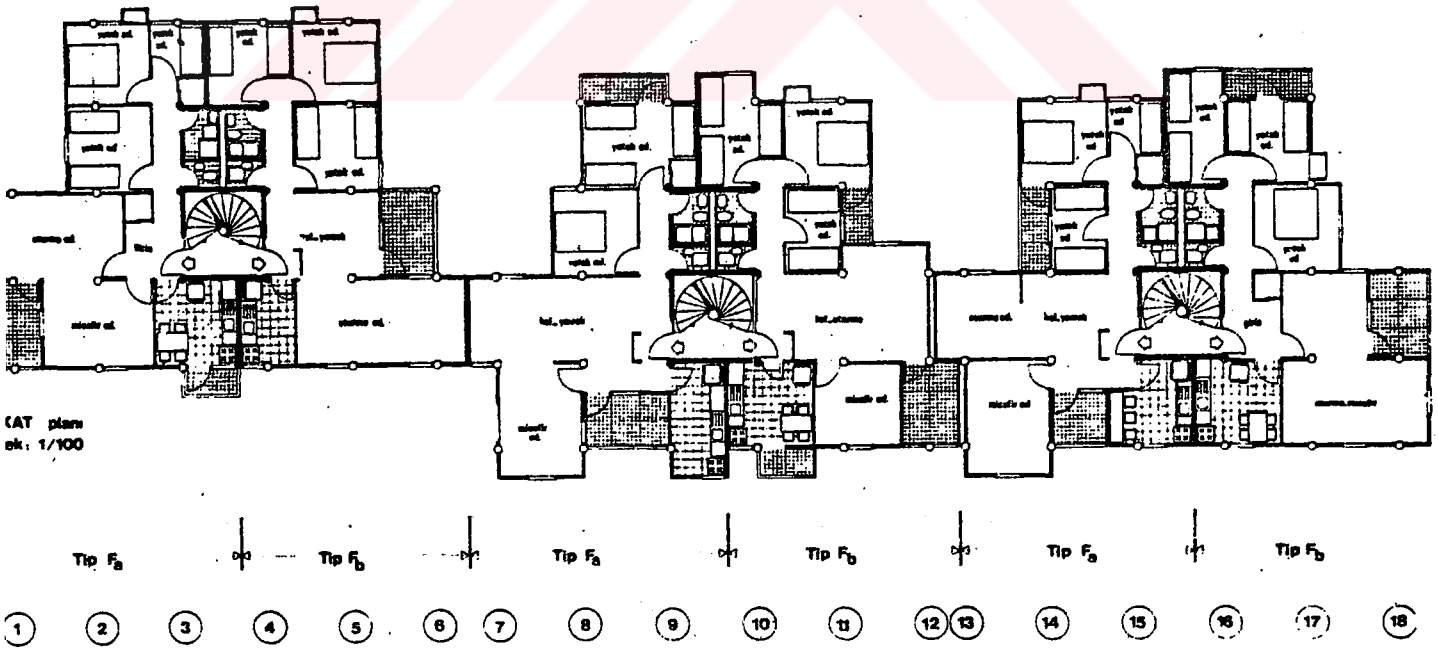


Figure 3.53 First floor plan

Levels of Decision

In the earlier phase, a social survey covering 1000 households was carried out. The entire survey was completed with the addition of a second survey. The aim of such a survey was to define the socio-economic context of the future participation process and to assess the salient problems of the potential participants undergoing rapid social change.

The results of the research were evaluated and the problems related to space organization and technology were approached with a method similar to the 'pattern language' of C. Alexander.

One pattern, for example, was the possibility of increasing the number and reducing the dimensions of bedrooms in view of crowded families and flexibility allowing to follow the changes in time.

The validity of the patterns was evaluated during participatory dialogues with the users and this gave rise to new patterns based on deeper insights of the participants' cultural evolution.

After the evaluation of these patterns they were fine-tuned. The example pattern mentioned above, changed as:

Flexibility and economy are generally contradictory concepts. Considering the limited resources of the participants, the flexibility margin has to be resolved externally between the structural nucleus and the maximum extension envelope.

At the planning office, the records of the decision-making dialogues were translated into construction projects using a system that reminds the identy-kit procedure manipulating previously prepared zoning alternatives and superposing them on the selected basic plan structures.

The steps followed in the process were as the following:

Step 1: Records of the decision-making dialogue are transposed on a 'spatial requirements form'.

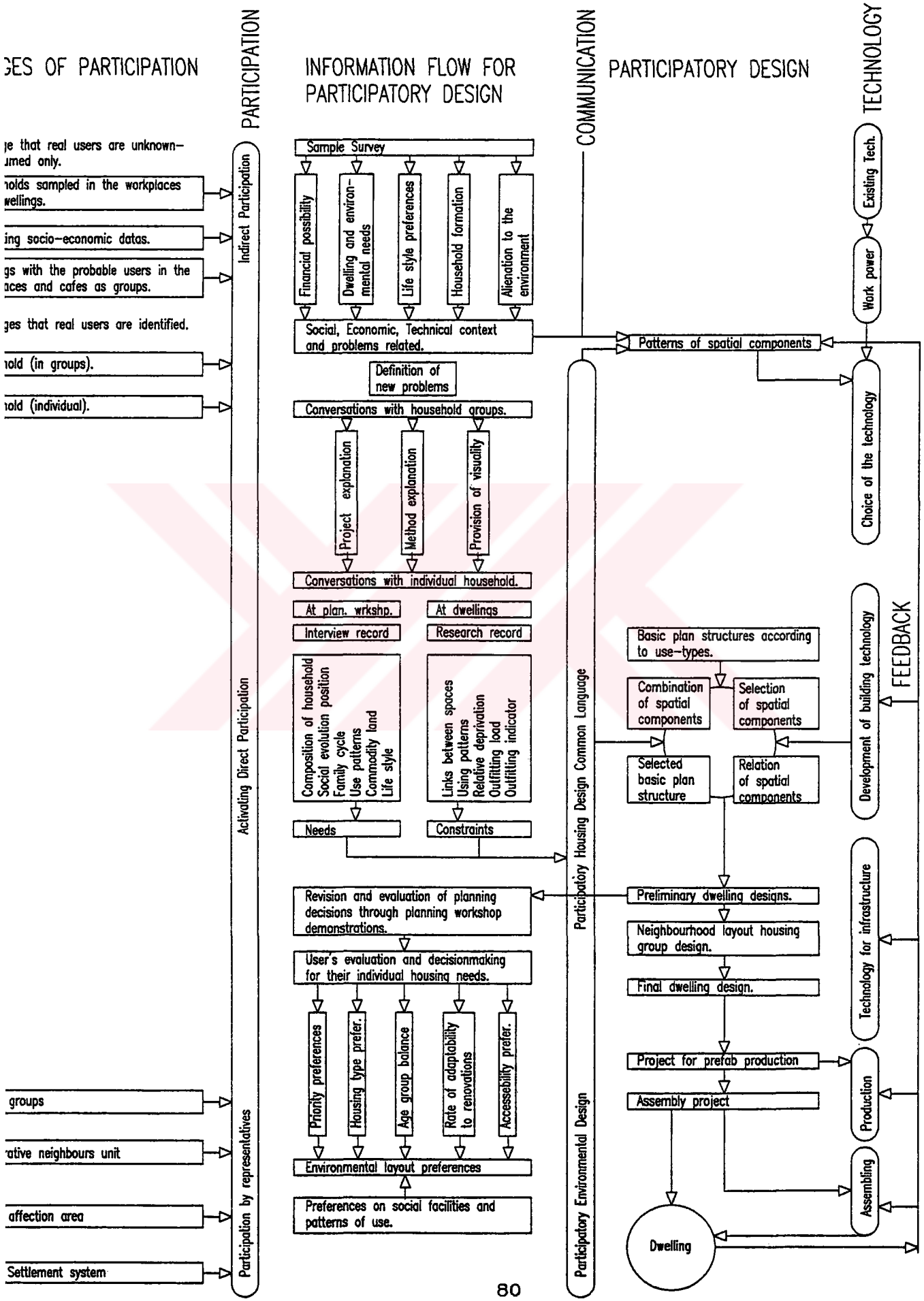
Step 2: Housing type preferences are checked.

Step 3: Links between and importance given to the zones according to the life-style preferences determine the basic plan structure.

Step 4: Spatial components, determined according to individual family needs and their spatial configuration allow for the selection of two basic activity zones.

Step 5: The two selected zones are combined on the basic plan structure.

Table 3.1 The Participatory Design Process Flow in Izmit Innovative Settlements Project



As the prefabrication components used in each zone were predetermined ,the corresponding financial total of the combination was automatically revealed. If this total did not correspond to the buying capacity of the participant, the planner referring to the priority given to different trade-offs determined at the decision-making dialogue substitutes a new zone configuration re-dimensioning the plan.

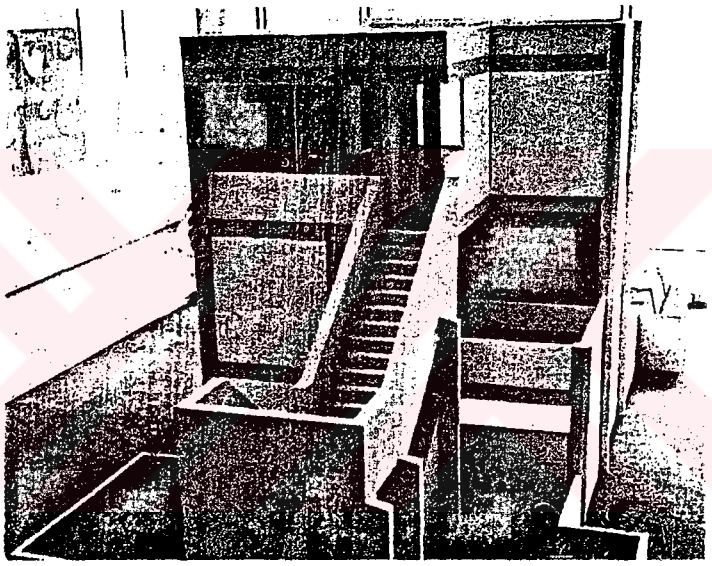


Figure 3.54 A big scaled model used during participation sessions.

Tenant Alterations

As can be seen in the previous part, the users participate with their decisions about their environment during the first four steps of the design process (which is similar to the technology and organization of Les Marelles project).

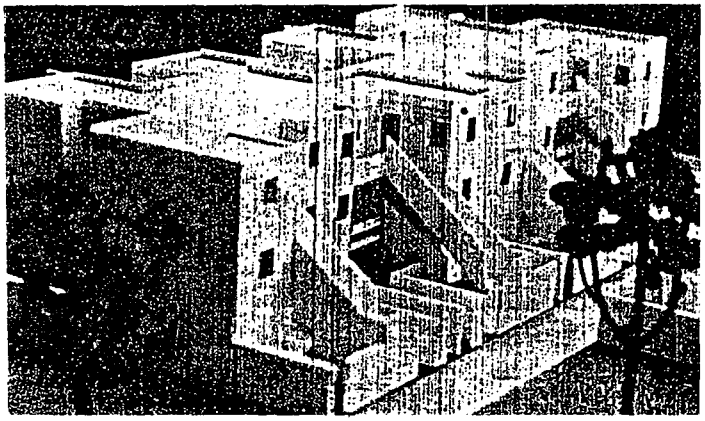


Figure 3.55 Models used during participation sessions

User Satisfaction

Any dialogue with the tenants can not be found about this settlement (as the project could not find the chance of being completed, because of the hierarchical control mechanisms), but the architect of this project claims that their experience with 1500 families in providing plans for the first year's production has proved that the planning phase, taken as a continuous participatory process, has not only been successful in answering individual needs but also that it has played a prominent role in forming mass-consciousness towards more democratic decision-making.

3.2.4 Adaptable Systems

The designer makes a planning which can be evaluated in different ways. Spaces with potential of different kinds of uses.

> The adaptable approach, in contrast to the flexible, emphasizes planning and layout rather than the constructional technique and services distribution. It is based on carefully considered variations in room sizes, relationship between rooms, slightly generous usable floor area, generous openings between spaces and little overt expression of room function (Rabaneck 1973:698-711).

As it can be understood from Rabaneck's statement 'adaptability' can be achieved with the planning decisions.

During the design period some criteria should be considered according to Rabaneck, as:

> 1. Rooms and spaces within the unit should, as far as possible, avoid extremes of size.
>
> 2. Rooms should be neutral in terms of form (i.e., simple volumes).
>
> 3. Doors and windows should, as far as possible, be placed to allow a variety of uses to be made of the room.
>
> 4. Central lights and other space making physical constraints should be avoided.
>
> 5. Plan form should allow many

different allocations of functions to rooms, and variety of zoning possibilities.

6. Plan form should allow a variety of possible interconnections between rooms.

According to Schutzenberger , a definitive solution embodied in a 'hard' design that will remain valid for the complete life span of the building is impossible. What designers have to search for is a 'soft', adaptable design that can be made to respond over a short period of time to the changing needs of its occupants (Miller 1972:314-316).

Hertzberger's Experimental Diagoon Houses in Delft, Holland are good examples when adaptability is considered.

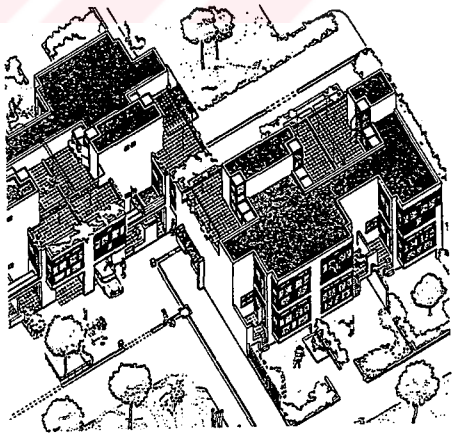


Figure 3.56 A View of Diagoon Houses

Levels of Decisions

Some ideas of Hertzberger during the design process were;

> The starting point for the design of houses is still the conception formed by authorities, investors, sociologists, and architects about what people want.
> ...Because we shall never come to know what each person really wants for himself, no one will ever be in a position to devise for others the houses which each individual would find appropriate to himself.

As a result of these ideas, the houses (eight prototypes) which have been built in Delft were on principle incomplete. The plan was to a certain extent indefinite, so that the occupants themselves would be able to decide how to divide the space and live in it and where they would sleep and eat. If the composition of the family changes, the house could be adjusted and, to some degree, enlarged. What has been designed should be seen as an unfinished framework. The carcass was a half product which everyone could complete according to his own needs.

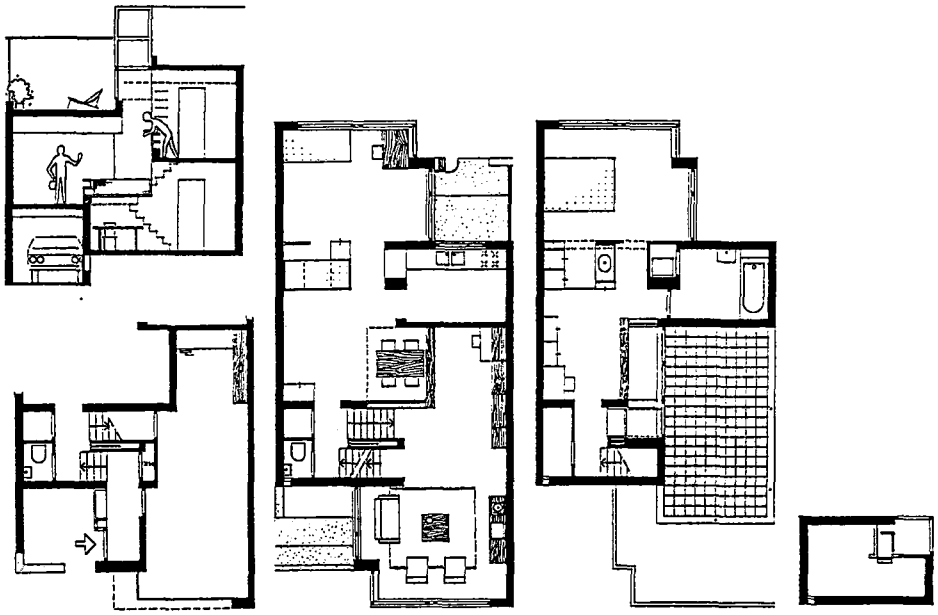


Figure 3.57 Typical Diagoon plans and section.

Tenant Alterations

It was observed that when one inhabitant completes an alteration (e.g., changing the garage into a hobby room), it stimulates neighbors to undertake similar projects.

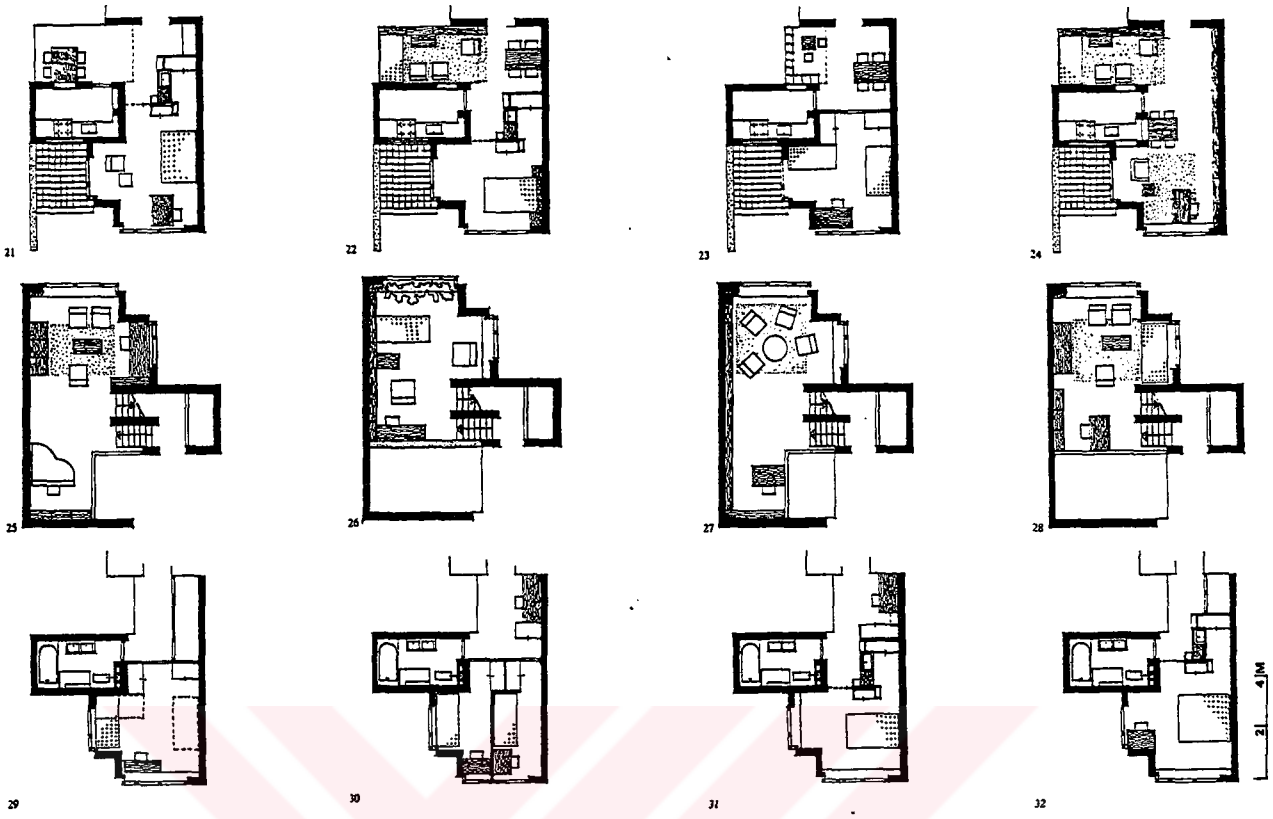


Figure 3.58 Theme and variations; alternate uses of the Diagoon house's different levels.

Diagoon facades were designed as a framework that could be filled in freely by the occupants with either glass or solid panels. So the user alterations were allowed both inside and outside the buildings.

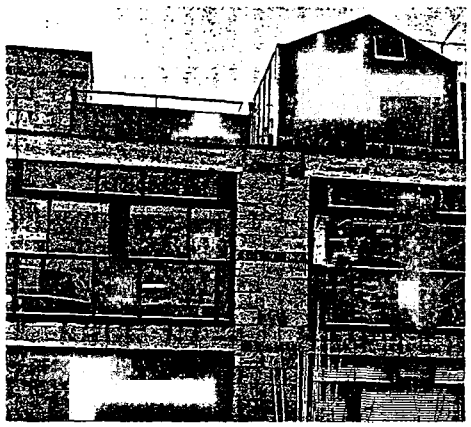


Figure 3.59 The roof greenhouse was added by the owners

User Satisfaction

Some evaluations of the users about the Diagoon houses were as;

> -Since I've lived here, I've become much more easygoing. I've begun to live with more freedom."
>
> -In this house one feels no restrictions. Just the opposite; one is stimulated to change and complete it."
>
> -Up until now, I haven't seen a house which is more attractive."

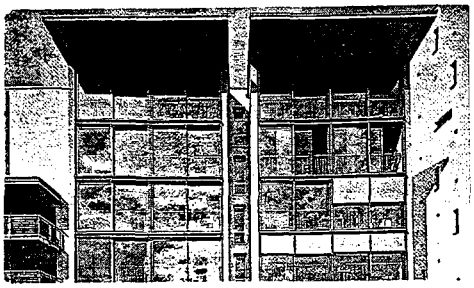
Briefly, residents were positive about the overall design and critical of the details. None of the residents wanted to move.

If they should be forced to move, they told they would all want homes similar to these.

One example from the exhibition 'Wohnen 2000-Experimental Housing' held in Stuttgart in 1993, may inform that patterns like 'adaptability and flexibility' are assumed to continue according to some 'futurist architects' of the 90's.

In the example designed by Michael Alder from Switzerland, open ground-layouts which can be altered by retractable walls allow the occupants a lot of

freedom to satisfy their individual needs. The building counters the problem of noise pollution with a high level of insulation and winter gardens in the form of glass-covered buffer zones.



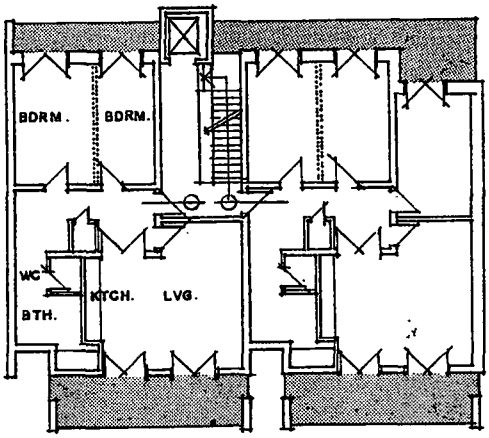


Figure 3.60 Plan and elevation of the 'Haus 12'

An adaptable housing project near Oslo, which was chosen by an architectural competition in 1965 is a large example (95 hectares). When completed the Skjetten site contained 1750 dwellings, 1100 of them were two storey row-houses.

According to the architects of the project, the fundamental reason for building adaptable houses is; there are many reasons for the inhabitants to have differing expectations of the place where they are going to live. No architect can know what these expectations are or what the occupants' performance requirements would be if they were consulted.

Levels of Decision

The project competition was won by Professor Lund who subsequently joined forces with second prize winners Resen, Throne-Holst and Hultberg.

The rows were all 6.40m wide and their lengths varied from 25m to 30m. The shape of a house and its plan could to a great extent be determined by the occupant with reference to his practical needs and budget. It was hoped by the designers that the houses in Skjetten would in time reflect the preferences and lifestyles of the families living there.

Tenant Alterations

The system gives possibilities for a great number of different plans, a total of over two million types from which the plans shown in the figure are selected.

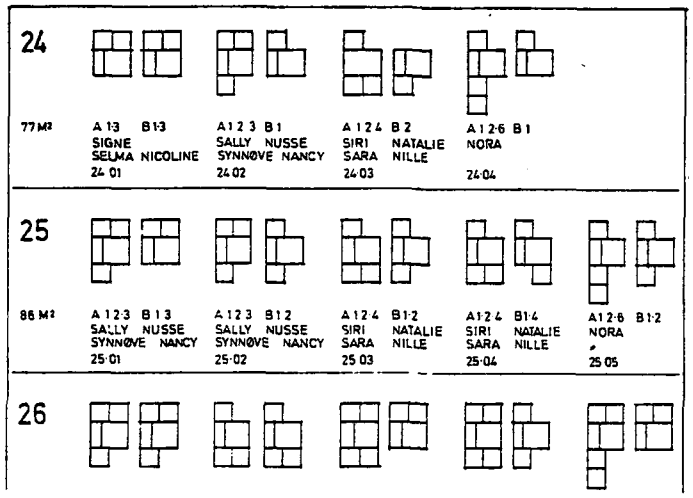


Figure 3.61 Selection of plan types

Thirty such variations were originally chosen and ten of these were finally considered to be the most useful house types.

After several years work on the row-houses, new types within the original building system, were still being found which provided more advantages than those previously selected ones.

User Satisfaction

Related with the user satisfaction indirectly, one of the most interesting aspects of the Skjetten project was the complicated Occupant's Manual produced by the architects. The handbook explained in some detail the fundamental constructional principles of the houses. In addition, all necessary information was given for selecting and ordering new components from the factory, such as windows, walls, balconies. Practical guidance was given on layout of kitchens and bathrooms, fixings to walls, dismantling partitions.

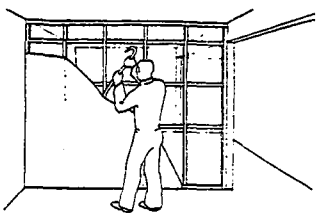


Figure 3.62 Removing a partition

Design advice was given for planning extensions and alterations, with advice on statutory limitations and rights of adjoining owners.

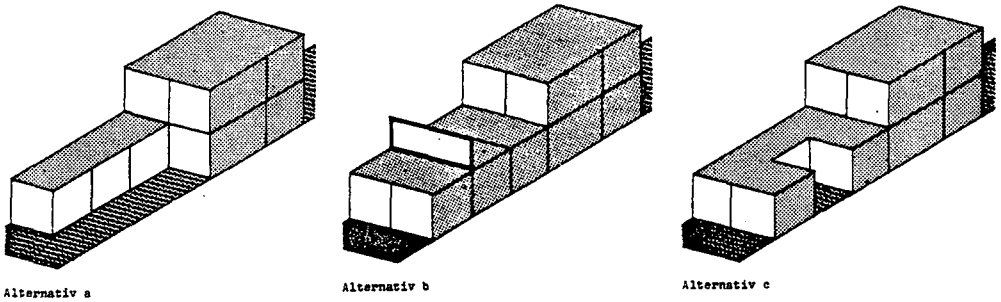


Figure 3.63 Alternative forms of extension

There was a section explaining the overall plan for the community, which was followed by guidance for upgrading external common areas such as parking and landscaping.

The last section of the handbook dealed with private outdoor space. As well as informing the occupant about paths, drainage and orientation, this section contained a guide to gardening at Skjetten (soil analysis, plant lists). For less imaginative occupants, six fully detailed garden layouts were given with quantities and planting information.

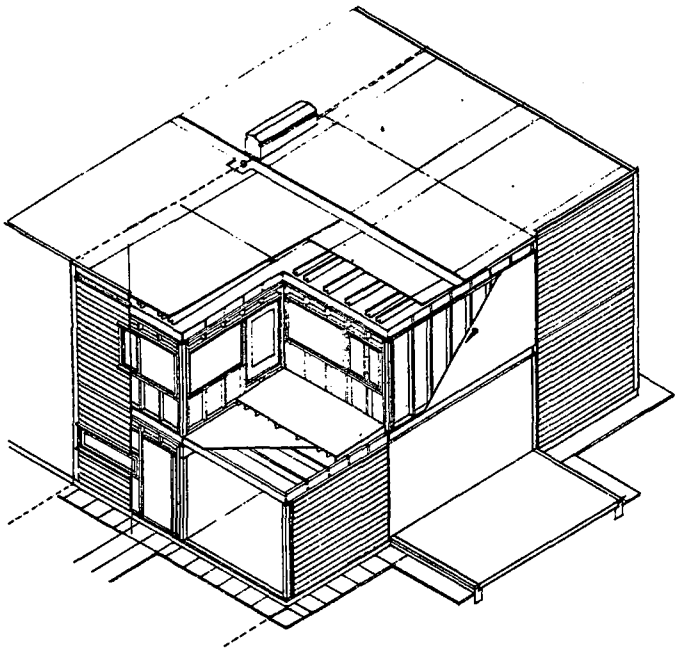


Figure 3.64 Isometric of constructional principles

3.2.5 Design Participation

Design participation is not simply a social or organizational problem; it is also a technical problem involving materials, structural systems and construction techniques.

Cavdar's 'Innovating Settlement in Izmit' has a complicated method of participation in order to allow the users participate during every design stage of the dwellings. This project is studied in the 'flexibility' section. The decision making stages are considered.

Edirne S.S.Cumhuriye Quarter by Cengiz Bektas is another project which allows the users participate the

design process.

The construction began in 1978 in Edirne-Turkey after a four year long research, interview and design period.

Finally, 1000 dwellings were planned as;

820 dwellings.....1 storey,
60 dwellings.....2 storey,
120 dwellings.....3 storey.

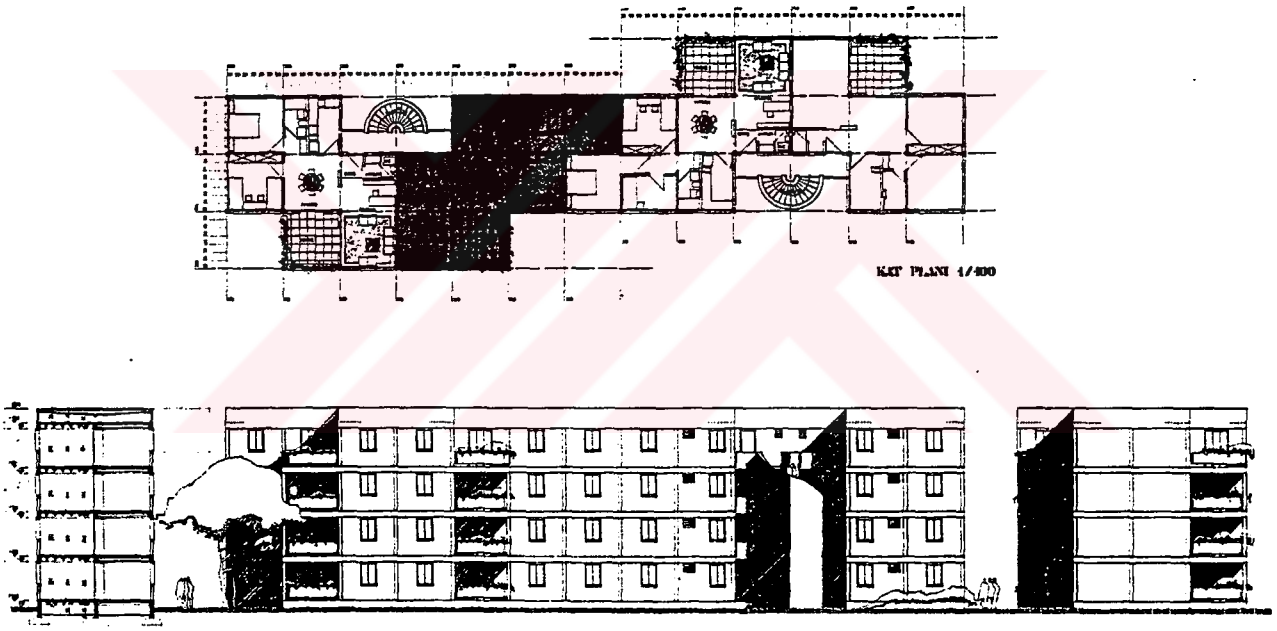


Figure 3.65 Typical plan, section, elevations

Levels of Decision

A team formed of architects, city planners, sociologists, statisticians, civil and mechanical engineers was going to evaluate the results of

interviews held by the families living in the project area.

The quality and quantity of the dwellings, the city planning criteria were going to be decided in the direction of these evaluations.

The research ended in one year. According to the results of the research, 3 types of dwellings (mentioned above) were designed.

Tenant Alterations

In this project the participation of the users was made possible in different dimensions, as:

. Decisive participation,

. Participation in the control of directory,

. Financial participation,

. Physical participation.

In order to continue these participations during the buildings' lifetime, some representatives and groups were formed, as:

Dwelling representative: One for each block that would solve the problem of the block either himself or inform the upper level officers. Representatives living in their own blocks were preferred.

Neighborhood group: These were the administration units which represent a group of 30 dwellings. The president of this group was going to be voted by the 30 dwellers. This president was going to form the Neighborhood group with gathering 6 dwelling representatives. This unit was going to solve the problems of the Neighborhood group or inform the upper level groups or officers.

Street group: This group was formed of 3 Neighborhood groups and included all the dwellings around the street. A group of seven representatives, including one president. This group was going to solve the problems of the street or inform the Quarter group.

Quarter group: The president of this group was going to be voted by the whole dwellers and the presidents of the Street groups. This group had to work on every type of quarter problems.

User Satisfaction

The satisfaction amount of the users can be achieved through the questionarie part of the participation, as;

The directors approved the plan types made under the direction of the researches and interviews. Then 1/20 scale models and 1/100 scale drawings were exhibited in Edirne for the future users. The users wrote their ideas into papers and put them into boxes.

According to these notes;

66% : Approved and congratulated,

12% : Proposed small modifications,

12% : Wanted the dwellings larger.

This was the decisive participation phase of this project, which may give a hint about the user satisfaction.

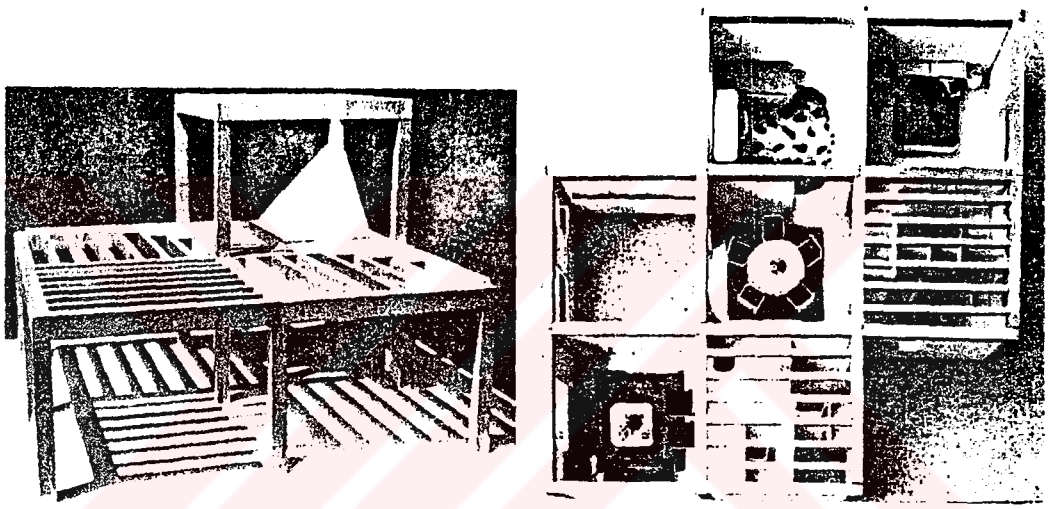


Figure 3.66 1/20 scaled models used in the exhibition.

According to Henry Miles (1992: 25-29), the Housing block in Malmo designed by the architect Ivo Waldhor in 1987 (construction finished in 1991) , is the result of one of the most idealistic and thorough experiments in participatory housing executed in the last two decades. It offered new and radical perspectives on the process of creating social housing.

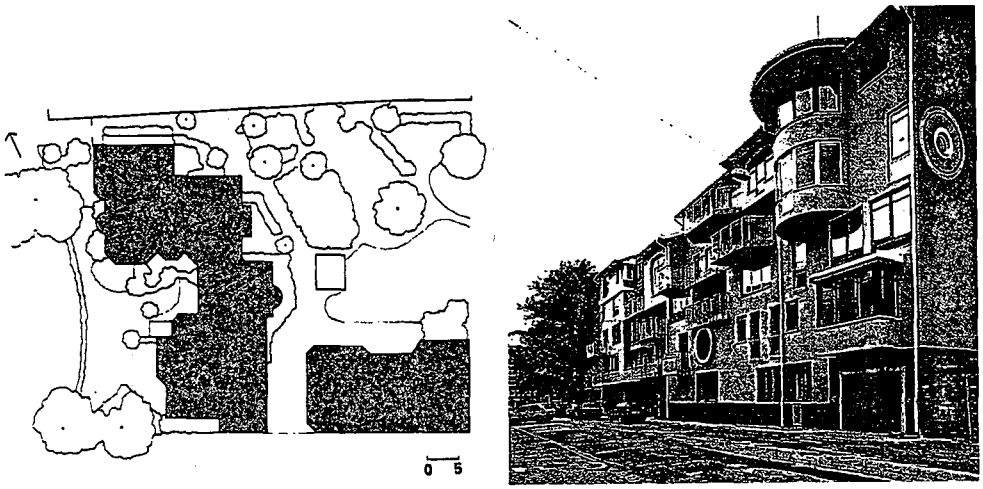


Figure 3.67 Site plan and the street facade to the North.

Levels of Decision

In 1986, Ivo Waldhor was appointed to design the housing project with allowing the users participate during both design and construction phases. 70 potential tenants came to the first information meeting which was held in mid 1987. It was made clear that they would have to give a good deal of time and energy to the process of generating their own dwellings and the building as a whole.

Bo 100, a consortium for carrying out the project, was set up; tenants formed the majority of the committee, and there were representatives from Malmo's housing company, the tenant's association, the southern Swedish architectural institute and the developer.

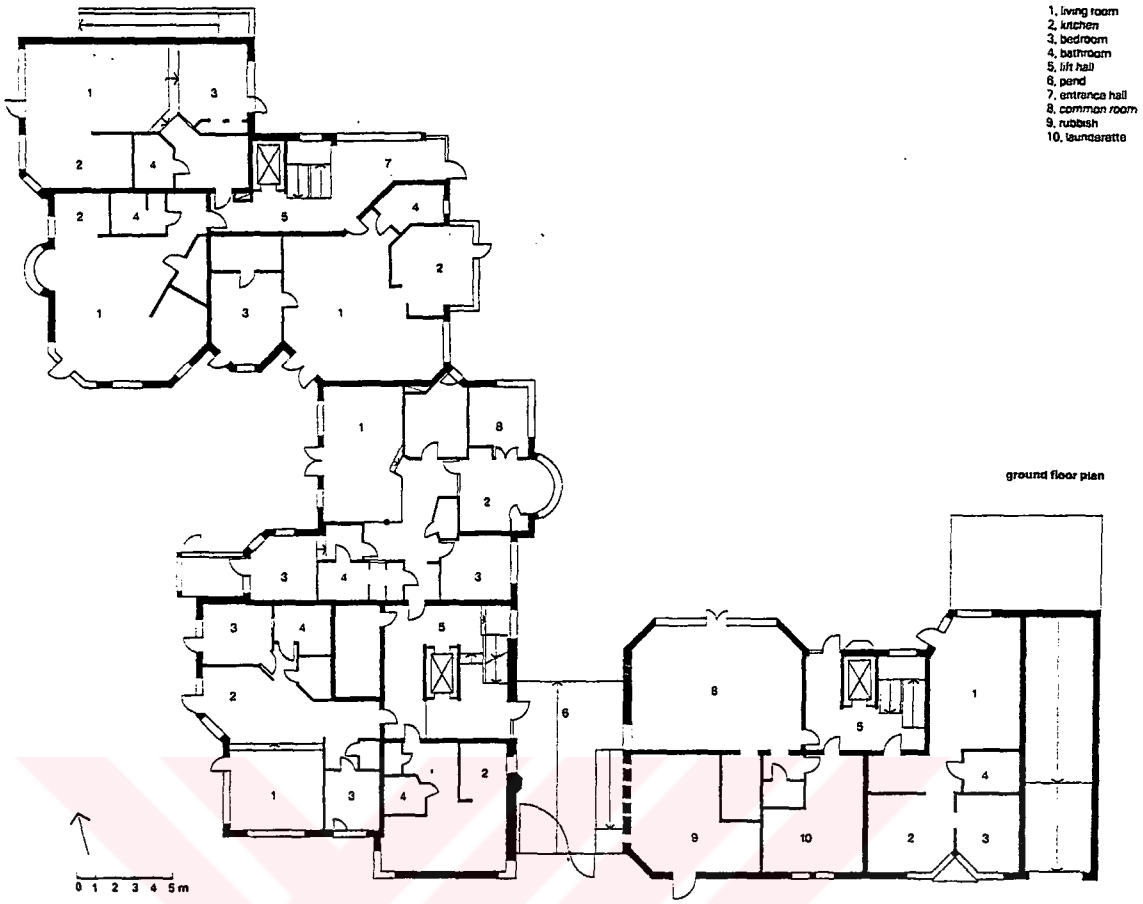


Figure 3.68 Ground Floor Plan

Tenant Alterations

Tenants' wishes and needs were clarified in a series of interviews. The first sketches of individual flats which emerged from these consultations were signed by both the potential tenants and the architects.

At the end of 1987, the 'living-school' was set up to teach participants the basics of building and design with the aim of getting them each to build a 1/20 model of the apartment that they would really

like.

The process of design and construction lasted four years and the first tenants moved in during the early summer of 1991. The resulting five-storey block had a great deal of variety: The flats were all different and vary in size from 42 m2 to 140 m2.

Tenants were able to influence the production of the building at all stages: decisions on individual flats were taken between architect and tenant; proposals for the whole building were put to general meetings. The developer agreed that changes could be made during construction and this was supported by the architect Waldhor as, "Anything not built could be changed".

Finally, weird variations from normal practice have resulted from the process of creating most dissimilar dwellings in the same block. Party walls were often not located above each other. All the kitchens and most of the bathrooms were different and did not relate vertically.

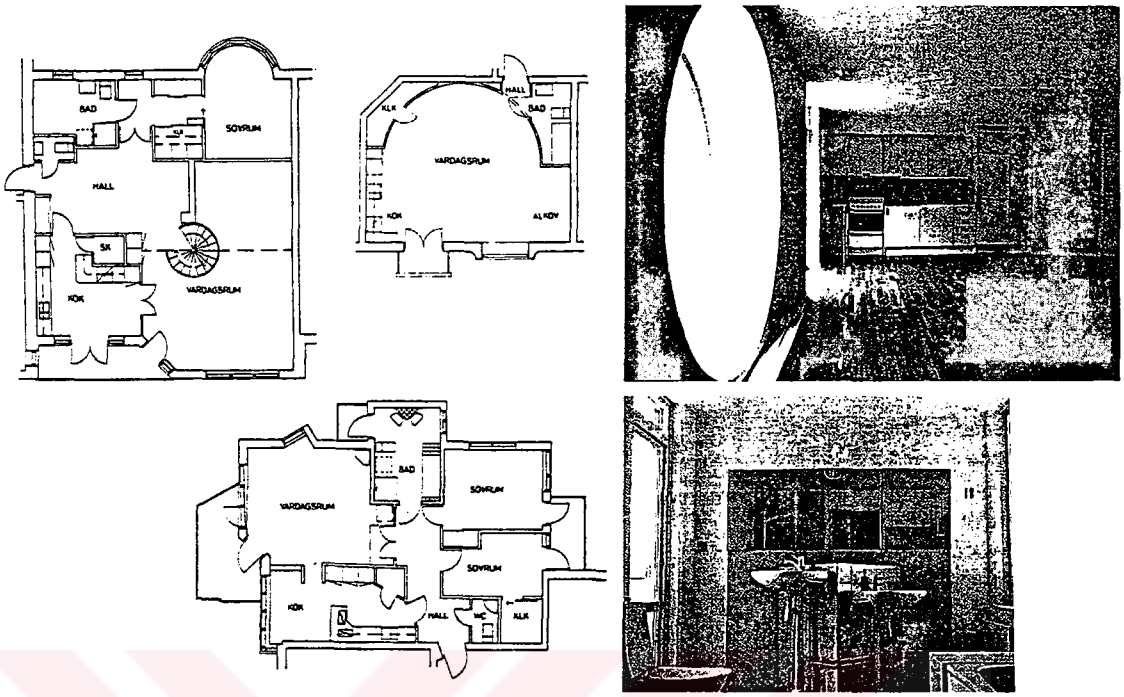


Figure 3.69 Some interior views with plans.

User Satisfaction

According to Olof Hultin, editor of the Swedish magazine Arkitektur, with the same amount of money Malmo could have had another 10 dwellings. A quarter as many again.

Hultin tells that it was surely worth the investment, as; 39 householders had through an exciting process shaped the dwellings of their dreams, and at the same time acquired a strong sense of identification with the area and the group.

Ralph Erskine's Housing at Byker is a much bigger scheme than Bo 100 and it had to be within much more restrictive cost and quality limits.

In 1968, after 50 years of plans to replace the decaying houses, Newcastle's officers asked Erskine to take on the challenge of Byker. Erskine agreed on the condition that he work for the city only long enough to review the situation and prepare a "plan of intent." If the Byker residents approved this plan and agreed to replace the city as his primary client he would proceed. The plan of intent set out the following objectives:

> .To build a complete and integrated environment for living in collaboration with the residents,
>
> .To maintain valued traditions and relationships with surrounding areas,
>
> .To rehouse those in Byker without breaking family ties and other valued associations,
>
> .To give the new Byker character, a clear physical form, and local individuality within groups of houses.

This manifesto contained the two main elements of community based redevelopment: local rehousing and the involvement of existing residents in the formulation of goals.

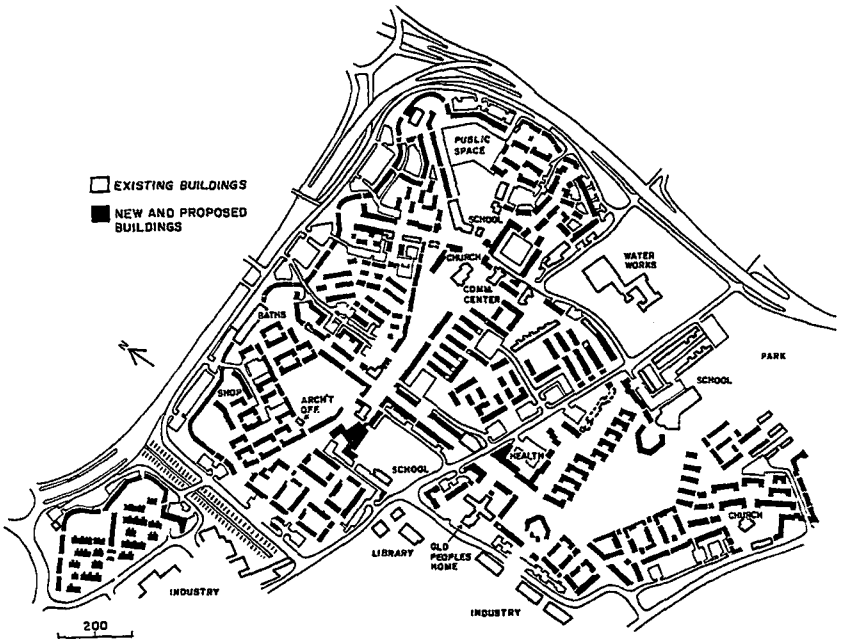


Figure 3.70 Site plan of Byker redevelopment. Most of the new housing is in low rise buildings. Many institutions from the old Byker are preserved.
A perimeter block five floors high acts as a noise barrier, to keep the noise in the external environment of the scheme to acceptable levels.

Levels of Decision:

Erskine, first opened an office in the midst of the redevelopment area, in shop front premises in full view of passers by. Then he proposed a pilot scheme in which the prospective tenants would be directly involved with the architects in the design of their future houses.

According to Malpass (1979: 1013); public participation is , or should be, a way of discovering

differences of opinion and conflicts of interest. The more you know about a proposal and what others think about it the more likely you are to work out how the benefits will be distributed. Malpass also tells that (1979, 1012) the purpose of participation in Byker has been two fold, as; Keeping the people informed about progress with the redevelopment and about improving the officials' level of understanding of local needs and preferences in order to improve the basis of decision-making.

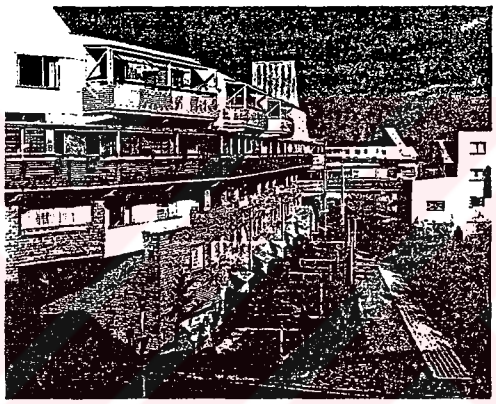
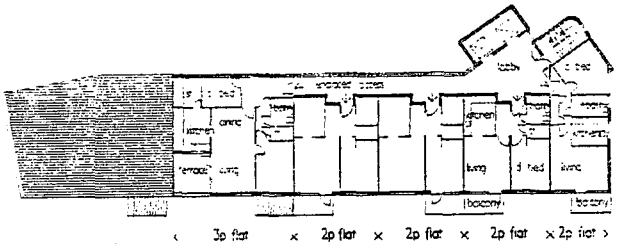


Figure 3.71 The inner face of the Byker wall softened by timber access balconies and planting boxes.

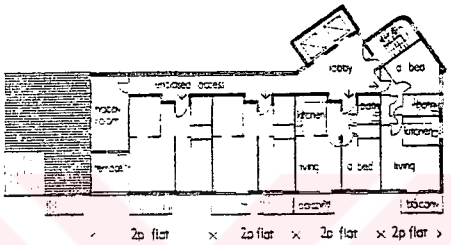
Tenant Alterations

The 'on-site architecture' aimed to take architecture to the clients, who were encouraged to visit the office and to discuss the plans which were being formulated. But what was built was clearly not the result architect and client sitting down together with a blank sheet of paper. The dwellings were obviously in the Erskine style and it was never

intended that tenants would be able to design their own houses. The objective was not to attempt to give each family exactly what they wanted, because that would be impossible within the cost constraints.



Level 5.



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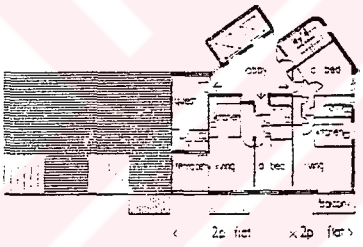

Level 10.

Figure 3.72 Plans of different floors of the Dunn Terrace Development in Byker.

User Satisfaction

The inhabitants say that the rate of vandalism is low in the new Byker, which might be due to the semi-private character of the lanes between the buildings or the fact that many children feel involved in their new environment after doing, for example, tree

planting themselves.

According to the observation made by Vernon Gracie in Byker in 1980 (approximately 10 years later than the project was realized), the architects' office which still survived, offered a contact with the users. It also enabled the architects to give a level of care and attention to the physical environment.

The 'Eleven Housing Settlement' in Ankara, Turkey by Erhan Acar, Yigit Guloksuz and Mehmet Adam is a different application of 'user participation', as these architects were the 'dwellers' at the same time.

The architects take the land of 2560 square meters in Or-An and made the projects between the years 1976 and 1977. In 1981 all the eleven houses were completed.

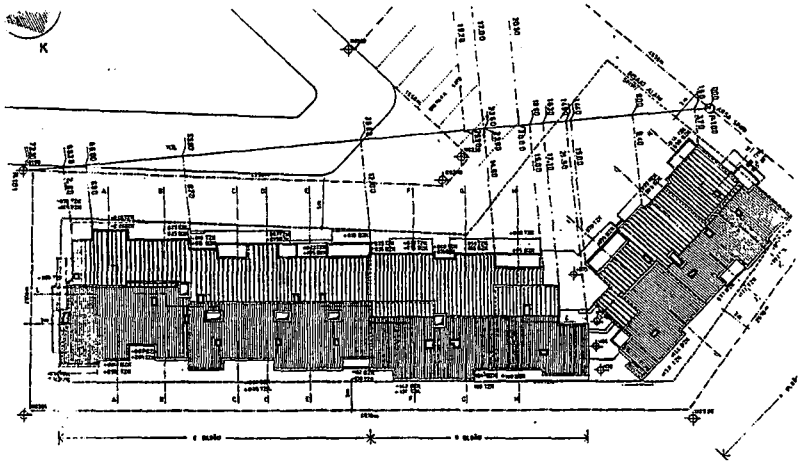

Figure 3.73 Site plan of Eleven Housing

Levels of Decision

The mentioned 3 architects put the modular structural axis in the beginning. Then they formed the plan types. There were two types of plans. The main difference between these plans were the direction of the staircases. The staircases were placed either parallel or vertical to the envelope wall, so it was either supporting or eliminating 'privacy'. The main difference between the two plan types was this. The architects knew the other users for a long time and the other users were also architects or coming from similar professions. Under such a condition the procedure may be called 'collaboration' instead of 'participation'.

Tenant Alterations

Every user had the right to choose one of the mentioned plan types and make his fine tunings. One (No.6) even planned his own house according to his own wishes with obeying the predetermined modular structural axis.

User Satisfaction

According to the interview made with one of the designers (which had a continuous contact with the users) and a few users, they like their dwellings.

CHAPTER IV

CONCLUSION

It is observed that in the present situation, dwellings are usually designed depending on "short term observations" or "assumptions" about their future users. This may be due to the tendency to perceive dwellings as identical to "barracks" (according to Habraken's terminology), where they should be the elements of "individualization" and give information about their users' life styles, tastes and likes.

It should be realized that, a large amount of examples studied in this research belong to the 70's, which, as an era, is following the 'standardization' period. In this 'standardization' period all plan-types (as implying certain layouts shaping life styles) and elevation patterns were affected by the prefabrication of the construction phase. This caused the uniformity of dwellings and the lack of 'individualization' occurred as a problem. During this period, the production phase of dwellings gained so much importance that humanistic values were nearly neglected.

According to the author, these studied responsive production methods are formed as reaction to

these standardization and prefabrication tendencies.

The well-known examples belonging to the 70's should not give the idea that such systems are not applied anymore today. Even they have a wider field of application with the help of the progress in construction and communication techniques. The T.E.S.T. catalog of America (which shows all the prefabricated elements in the country, to form a modular coordination), SAR (Stichting Architecten Research, information about this organization is given on page 59 of this study) of Holland, ACC (L'Association Construction et Composants) of France share the same aim today: Producing more responsive environments.

Though satisfactory environments are obtained, especially in Turkey, through tenant mobility but not by making the environment itself user responsive, in this study user responsive environments was the theme. As a result, the attempts for such environments in Turkey were to be few and unfinished.

The author of this text is pessimistic while making an evaluation on applicability of these systems and methods in Turkey. The position of housing market in Turkey is the reason. The gap between demand and supply in the housing stock made the dwelling a very speculative object. As a result of this, people in

Turkey transformed their evaluation criteria about dwellings; from humanistic, psychological criteria to financial, materialistic ones.

In the chapter making an evaluation of the housing processes in Turkey, it can be seen that constructors and organizers can be classified into two groups in general, according to their aims. These are namely voluntary and profit aimed organizations.

1. The social security organization funds, housing cooperatives, local administrations are voluntary organizations, as they try to produce dwellings for their members with affordable financial conditions. This causes a financial income problem for the organization and generally there is a lack of 'know-how' (as this is not their own profession and as they can hardly hire someone for sophisticated administrative management issues). As a result of these absences, the products of these organizations are mostly low-quality.

2. The builder-sellers and constructive firms are profit - aimed. The speculative atmosphere of the housing market is used by these producers for more profit. In such a market, directed by the constructors who prefer the easiest way to gain more profit by

ignoring humanistic values and personal needs, it is nearly impossible to search and find the type of dwelling that fits the users' personal needs. This is a 'luxury' in such an 'inhuman' market.

These studied responsive systems can occur in Turkey in the future either through dwellers' tendency to determine their own environment or through constructors' progress in their view, as follows;

1. The users may define their needs and try to achieve the most fit dwellings, which is quite far from the existing situation. They often prefer (or are forced) to move to another dwelling whenever any change takes place in the life style, life cycle of the family.

If they had the chance to look for the most fit one with the potential of fulfilling the changing needs in time, it would be better from the point of user's view.

2. A construction firm, used to build with prefabricated construction systems may handle the problem with a more idealistic manner and make a revolution in the design process. This is possible only if it is felt that such a movement will bring a financial advantage against the rivals.

3. A composite alternative of the other two is as follows;

A group of user may form a cooperative like organization in order to achieve such a 'responsive environment'. This may happen under the control of a dedicated designer group taking the help of an experienced construction firm.

This may seem to have little possibility but the wide application of such systems in the First World Countries like France, Holland, Norway and America may give hope.

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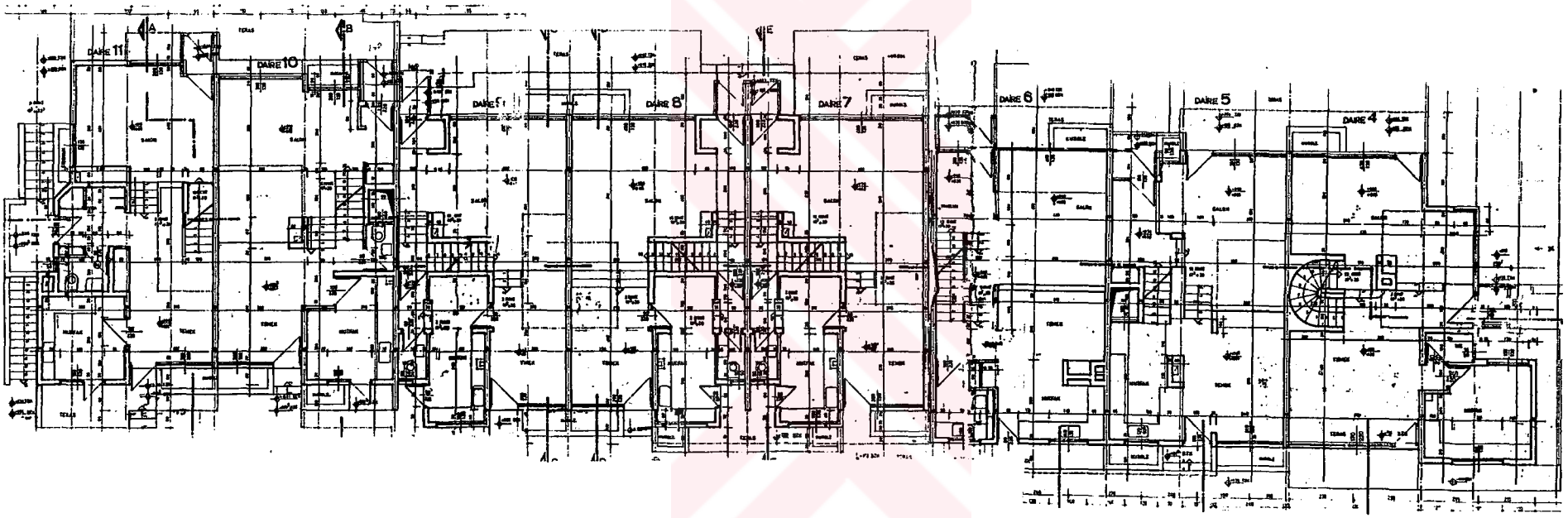
APPENDIX



APPENDIX A. PLANTYPES OF THE ELEVEN HOUSES AT

OR-AN / ANKARA