

**An Analytical Study of Creativity in Architectural Design:
Case Study of National Architectural Awards**

**By
Ebru KANDILCI**

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**İZMİR YÜKSEK TEKNOLOJİ ENSTİTÜSÜ
REKTÖRLÜĞÜ
Kütüphane ve Dokümantasyon Daire Bşk.**

We approve the thesis of **Ebru Kandilci**

Date of Signature

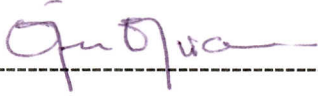


28.06.1999

Prof. Dr. Ahmet Eyüce

Supervisor

Department of Architecture



28.06.1999

Assist. Prof. Dr. Özen Eyüce

Department of Architecture



28.06.1999

Assist. Prof. Dr. Şölen Kipöz

Department of Industrial Design



28.06.1999

Prof. Dr. Ahmet Eyüce

Head of Department

İZMİR YÜKSEK TEKNOLOJİ ENSTİTÜSÜ
REKTÖRLÜĞÜ
Kütüphane ve Dokümantasyon Daire Bşk.

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ABSTRACT

The subject of the thesis is in general based on the concept of creativity and specialised on creativity in the architectural design process. The topic, which is taken into consideration as the investigation of architectural creativity, begins with the definitions of creativity concept related with the design approaches. Throughout the evolution of these definitions, the common denominator of psychology, sociology, behavioral sciences and architectural design concepts are tried to be clarified.

The creativity studied on the basis of concept, individuals and theories later developed as deciphering the classification of effecting channels of architectural design process. The classification consists of three main parts: '*personal channels*' involving childhood, fantasy, imagination, metaphor, intelligence, self confidence, '*social channels*' including education, national culture-history, religious factors, client, and '*environmental channels*' that involve nature, material and climate.

The concrete examples of this study are chosen among the projects of the leading architects in Turkiye. The first parameter for elimination is National Architectural Exhibition and Awards. Projects among National Architectural Exhibition and Awards are selected according to the criteria for architectural creativity related with the concepts such as originality, newness and contemporaneity which are not very far apart from the criteria of the jury. Concept of originality also includes sub-titles such as architectural language, conceptual approach, technology, material and at each sample different concepts primarily appears. To consider the existence of these criteria provides the evaluation of the samples related with the fact of creativity.

ÖZ

Tezin konusu, genelde tasarımdaki yaratıcılık kavramı, özelde de mimari tasarımdaki yaratıcılık kavramını ele alıp, irdelemeye yöneliktir. Mimari yaratmanın sorgulanması şeklinde ele alınan konuya, yaratıcılık kavramının tasarım olgusuna yönelik tanımları ile başlanır. Bu tanımlamalar yapılırken genel olarak psikoloji, sosyoloji, davranış bilimleri ve mimari tasarım kuramlarında konuya yaklaşımların ortak paydasının bulunması yoluna gidilmiştir.

Kavram, birey ve kuramlar bazında irdelenen yaratıcılık, daha sonra bu saptanan kavramların mimari tasarım sürecinde etkin faktörlerin sınıflanarak deşifre edilmesi şeklinde gelişir. Bu faktörlerden çocukluk, fantezi, imgelem (yaratma gücü), metafor, zeka, kendine güven 'kişisel faktörler', eğitim, ulusal kültür- tarih ve işveren 'sosyal faktörler', doğa, malzeme, iklim ise 'çevresel faktörler' içinde yer almıştır.

Çalışmanın somut örneklenmesi, Türkiye'nin önde gelen mimarlarının yapıtları arasından seçilmiş ve bunun içinde ilk seçim parametresi Ulusal Mimarlık Sergisi ve Ödülleri olmuştur. Orijinallik başta olmak üzere özgünlük, yenilik ve çağdaşlık kavramlarıyla ilişkilendirilen mimari yaratıcılık kriterlerine göre Ulusal Mimarlık Sergisi ve Ödülleri arasından projeler çalışmaya alınmıştır. Bu kriterler Ulusal Mimarlık Sergisi ve Ödülleri jürilerinin seçim kriterleriyle paralellik göstermektedir. Orijinallik kavramı, konsept, mimari dil, teknik, malzeme gibi alt başlıklarında kapsamakta ve herbir örnekte farklı kavramlar öne çıkmaktadır. Saptanan bu kriterlerin mevcudiyetlerinin ortaya konması, örneklerin yaratıcılık bağlamında değerlendirilmesini sağlamıştır.

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CHAPTER 1

INTRODUCTION

1.1. The Definition of the Problem

'Creative efficiency in people can be markedly increased if they understand the psychological process by which they operate.'(Gordon W.J.J)

The problem begins with the question of 'How we create designs?' which represents the logic of the research. The evaluation of the answer is the creativity process itself and this process is supported by the channels of architectural creativity. First of all creativity, as the basic word of the question must be examined. Later on, the architects, together with the 'how' question word, must be analysed. 'How' includes the effecting channels and processes. Finally the designs (end products) can be searched and exemplified.

1.2. The Aim of the Study

Designers and architects achieve the required methodology and knowledge during their education and the experience during their professional life. However the analyses for architectural creativity is neglected and mostly lost before the designer is aware of her/his creative power.

Canalising creativity which is the potential power of designer, provides the real success in architecture. This power can be transformed when the design process is understood, known and criticised by the architect. When these creativity channels are deciphered , real genius of the designer comes into light.

1.3. The Method of the Study

The study is based on the creativity fact and first of all *conceptual definitions* has been put forward to determine the terminology of the creativity. The same *explanatory* approach is used for defining creativity according to the limits of this essay. Defining creativity is done in three stages for explaining the fact clearly. First, is about the creativity as a word, the second is the creative individual and the third one includes the theories and concepts of creativity which are mostly related with architectural design process.

The explanations on the concepts of creativity which are underlined in the first chapter are based on some common denominators like psychology, sociology and general design behaviours. A scientific approach to creativity is generally mentioned throughout the whole study.

After underlining the concept of creativity, the second step is to try to explain these concepts by the help of some factors effecting architectural creativity. Channels of architectural creativity are examined by a classification. This classification is made as personal, social and environmental channels. Besides two of the leading techniques for creative thinking are explained which are also the topics of architecture. These are 'Brainstorming' and 'Synectics'.

The final step is the reading of the creativity fact through the concrete examples. Due to the facts of being very hard and in some ways impossible to decipher the process, reading should be done by analysing the creativity considering the end products. These examples are chosen from Turkish Architectural Exhibition and Awards. This exhibition is the most important architectural event in Turkey, which can be accepted as reflecting the contemporary architecture in the country. Examples must not be selected only according to personal criteria so that organisation becomes the first parameter for elimination process. Then the examples for this study are selected among the awarded projects according to the following criteria;

- Originality
 - Originality in the conceptual design approach,

- Originality in the architectural language (morphological properties)
- Originality in material,
- Originality in environmental interaction,
- Originality in the construction technique or system,
- The place of the architects in Turkish architecture.(Each one represents a specific and personalised architectural concept.)
- Their dependence on the concepts of *newness* and *contemporaneity*.

CHAPTER 2

DEFINITIONS OF CREATIVITY

2.1. Definitions of Creativity

Creativity can be defined in many ways by each discipline. These definitions, however, can never define that miracle of human brain exactly.

In Latin language creativity defined as 'creare' and according to ancient Greek language 'krainein' is used to define success. (Bayazit, 1994)

According to the definition in Internet outlook dictionary, creativity has been defined simply as the ability or power to create, productivity with originality and expressiveness; imagination; newness. The nature of creativity consists of *newness* and *originality*. Creative product must be distinguished from the others by that newness. The material or knowledge known before, interpreted in such a way that it includes new elements. Newness of a product is the degree of distortion from the previous products. Also creativity is related with the following specialities; (Amabile, 1983, Bayazit, 1994)

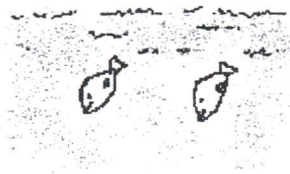
- Originality (Innovation)
- Expressiveness
- Imagination (Fantasy)
- Envisioning (Foreseeing)
- Openness
- Authenticity (Genuineness)
- Inventing (Conceiving mentally)
- Visualising

So a creative product might be distinguished from others by its two important criteria. It must be *new (original)* and also *important-high valued*. But here the criteria of new must be thought in its widest concept. Calling a product 'creative' is kind of a praising word so we can think creativity positively, and valuable. While people deny the value of

a creative product at present time, the real value of it can be understood and accepted in the future.

Definitions of creativity with pictures.
(Torrance,1988)

Creativity is;



Diving deep!



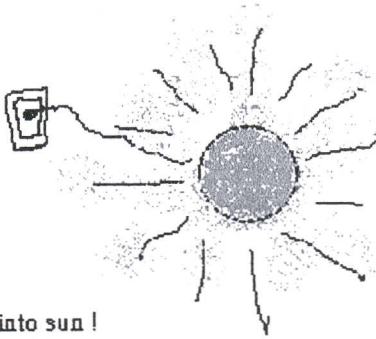
Digging deep!



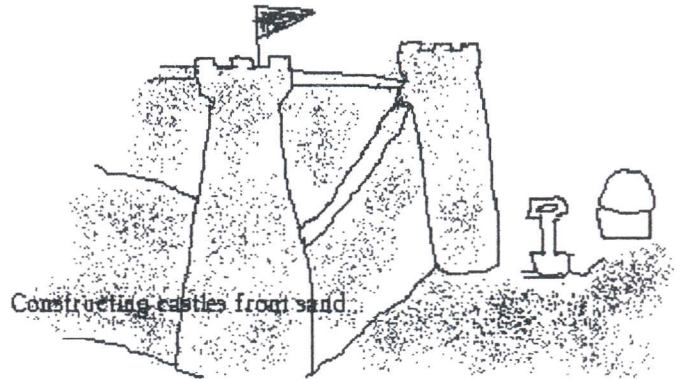
Looking twice



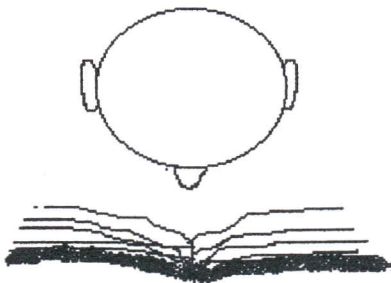
Shaking hand with future!



Plugging into sun!



Constructing castles from sand.



Desire of knowledge!

Figure 2.1.1. Definitions with pictures
(Source: Sungur,1992)

Guilford advised three ways for measuring originality; one is, counting the answers which reflect the intelligence of the individual, the second is, underlining the items which are based on distant analogies. The last one is evaluating the answers seen rarely in public. (Yavuzer, 1989)

When we examine creativity in the arts, apart from sciences, a third criterion can be suggested as *richness of emotion* (Rothenberg, 1976). An art product must be both a work of brain and heart. And as the place of an architectural product involves both of these identities, it is supposed to respond all the criteria.

According to Nevzat Ayıran (Ayıran, 1985), architectural creativity is producing an original design according to the requirements of an individual or public. In architecture, these requirements can be the physiological protection, helping the human actions, and psychological needs. And in the evaluation of architectural creativity, the importance that is given to these requirements can differ.

Creativity in architectural design is related with the ideas as follows; (Ayıran, 1984)

- overcoming the monotony which can be thought as the default of any man-made environment.
- serving original and surprising messages to the perceptions of individuals
- designing for the conscious or semi-conscious inclinations of public.
- reflecting the culture of a certain period truly to the man made environment.
- meeting the needs of humans for the newness and the need of feeling excitement by the man-made environment.

In architecture every design, every building is accepted to be different and new from the others. This is in the nature of architecture. Architectural product is based on factors like order, harmony, economy and convenience, which are taken into consideration since Vitruvius. Sir Henry Wotton (Giedion, 1955), according to the concepts of Vitruvius, underlines the characteristics of a design product as usefulness, endurance and pleasure. Generally creativity in design includes all these concepts.

According to Gunnar Birkets (Birkets, 1994), creativity is a kind of special ability to organise information in a way that enables you to arrive at endless variations on a theme. It is kind of getting information and presenting it in different ways. Same data can be given to many architects and so many different approaches are put forward. Selection of the best can always be argued, however the most creative ones are always distinctive.

On the other hand, psychologists accept the following definition as a base (Evans, Deeham, 1988, p.2);

‘Creativity is a behaviour by which we unify ourselves. An individual who can unify himself and enter into an unknown psychological area, can claim that he is creative.’

Here again a fact of reaching the 'unknown' and 'new' is underlined. In psychology, creativity is thought to be the ability of producing the *new*, both psychologically and materially, which is found at every individual. However, mostly the concept of creativity is utilised as a label for an art product, it is same for reaching a new solution or method.

Creativity can be defined as a natural expression of people. Some tools in the lives of individuals defined as the factors encouraging his/her creativity like: experiential learning, brainstorming, adventure-based activities, story telling, case studies, problem solving, initiatives, humor-fun... Some of these techniques and tools are chosen according to the frame of the study and will be largely examined in the following chapter.

Freud supports the fact that the most motivating factor in creativity is *intuition* (Bayındır, 1994). He considers that the individual who can consciously use his intelligence and instincts will eventually reach success.

Social psychologist Irwing Taylor (Erbay, 1992) examined human creativity in five steps;

- Expressionist creativity; which can be seen in the pictures done by children.
- Productive creativity; can be mostly seen at professions.

- Inventory creativity; mostly seen in scientific areas. These creative people take existing knowledge and create new ideas. Edison or Einsteins of this world.
- Novelty creativity; mostly seen at artists. These are boundary breakers like Leonardo da Vinci
- Creativity of Boundary Pushers; those who take an existing idea and push it a little further.

We, as architects, have a position between art and science, so both inventory and novelty (as defined above) creativity can be seen in the work of architects. An architectural artefact with its original form, type, and concept can show the peculiarities of an art product with the utilisation of material or technology, or of a scientific creativity.

Many studies and researches are based on the analysis of the creativity as a fact with its relations with other factors. These studies indicate the efforts of understanding creativity more fluently. The scientists and psychologists try to relate the simple attitudes or physiology with sexuality, age, and education...

According to the students of Marmara Üniversitesi Eğitim Yüksek Okulu (Sungur, 1992), the definition of creativity is related with the adjectives listed in the below;

- knowing yourself
- doing what you want, it can be named as independence
- not obeying the rules
- being curious and joyful
- flying by a plane that has no wings
- to close up the distance
- finding solutions which have many ways
- breaking the chains

If creativity is to be examined as a process it can not be deciphered from the analysis of the end product. Creative process does not necessarily result with a creative product. Even if it does, it does not always have the evidence of its creative process. Hence the education of creativity is based on the method of such processes.

	Ability	Process	Product
Culture	Creative public and culture	History	Creative product
Group	Team	Process of finding solutions to problems	
Individual	Creative individual	Finding solution individually	Subjective creativity

Dimensions of Creativity. (Torrance 1988)

Table 2.1.1. Dimensions of Creativity (Source: Sungur, 1992)

The process of creativity is basically the same in a culture or for an individual however the degree of the dimensions (which Torrance mentioned) of creativity differs. It can be seen that creative product of a culture or a creative public is passing through a historical process. Sometimes the cultures have to spend many ages for achieving creative products. If the creative process is taken as a work of a group it is obvious that a number of ideas will be produced by the team members. (Table 2.1.1)

2.2. Creative Individual

While examining creativity we should also mention about the creative individual. According to Rank's typology the person who is born with creative abilities, will develop a creative personality, while in the meantime sets up his mind under the influence of his parents, school and environment. (Rothenberg, 1976). It is certain that the talents or intelligence of people are genetic however they are all affected from the surrounding they live in. Undeniably creativity is something that a person is born with. If a person has creative abilities, then they can be improved upon. On the other hand, creativity is a skill that can be learned. If the combination of the two is possible then it is the best one.

At the Journal of Creative Behaviour in 1980, E. Paul Torrance and Laura K. Hall declared the characteristics of creative people as;

1. having their energy field accessible,
2. having the ability to tap and release unconscious and preconscious thought,
3. are able to withstand being thought of as abnormal or eccentric, this is again a part of being different from the others.
4. are more sensitive,
5. having a richer fantasy life and greater involvement in daydreaming,
6. are enthusiastic and impulsive,
7. showing signs of synaesthesia (tasting colour, seeing sound, hearing smells, etc.), we know that creativity is sometimes seeing the unseen.
8. showing different brain wave patterns than the less creative, especially during creative activity,
9. when confronted with novelty of design, music, or ideas, they get excited and involved (less creative people get suspicious and hostile),
10. when given a new solution to a problem, they overlook for details and problems (less creative students analyse the defects rather than explore potential.)

The following sentence quoted from A. Tay represents the 10th characteristic in the best way, 'The individual with limited creativity find wrong solutions while the superior creative find wrong answers'.

Many researches indicate the common manners of creative people. Some of them are as follows; (Torrance, 1988)

- a) Not participate
- b) Few close friends
- c) Independent
- d) Brave
- e) Independent from parents
- f) Having an ability of independent judgement especially under pressure
- g) Having classical value system

Torrance, as mentioned before, agrees on the existence of creativity within every individual somehow. He tries to define the amount of creative ability of individuals. His diagrams show that some individuals are aware of their creativity and if they have a chance, they can produce by the help of their creative abilities. Here a conclusion is reached that quality or level of education does not necessarily provide creative production. The potential of a person can be blocked by himself or by his environment. These kinds of people mostly have routine lives. (Figure 2.1.2)

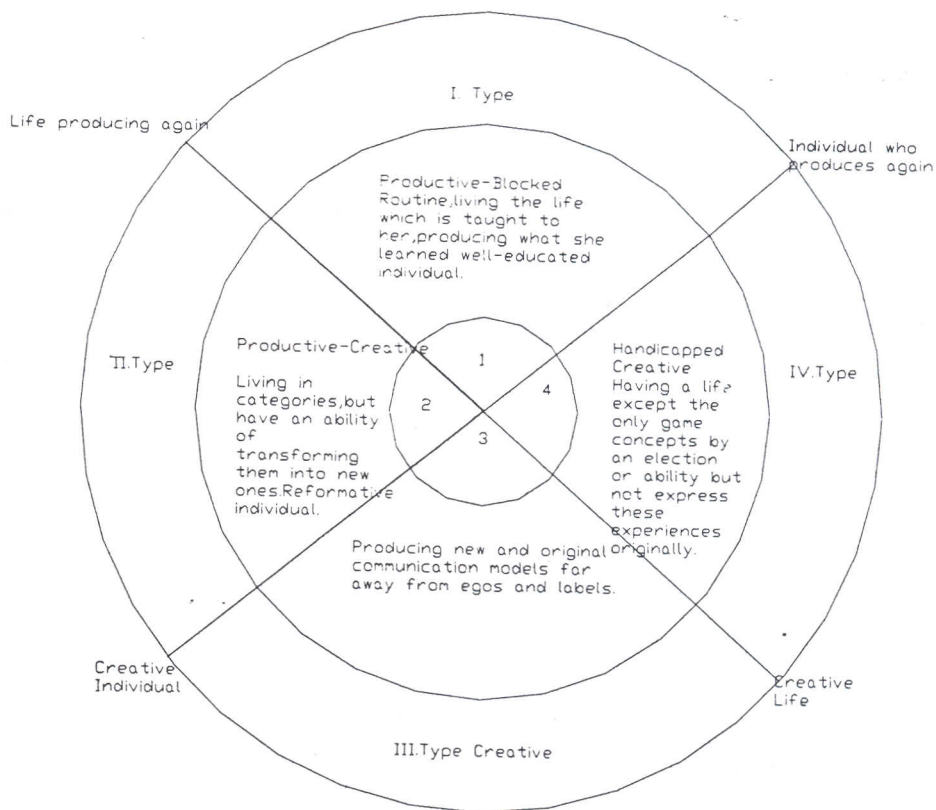


Figure 2.1.2. Types of Creativity (Source: Sungur, 1992)

In order to develop a creative personality, absolute freedom is essential. With freedom, an individual first carries a responsibility towards himself. As a result he creates a product which satisfies himself.

As mentioned above creative people mostly prefer to be alone and they do not participate with the community. However creative architects apart from other people do not have sufficient chance to be alone. They must be members of the society. They listen, catch the clues and serve for the members of society. An artist can live apart from the community for a long period of time for his art product, however an architect must be always in contact with the client or user.

Mac Kinnon (1962, Lawson, 1980) says that;

‘It is in architects, of all our samples, that we can expect to find what is most generally characteristic of creative persons...in architecture, creative products are both an expression of the architect, and thus a very personal product, and at the same time an impersonal meeting of the demands of an external problem.’

Mac Kinnon found his creative architects unsociable, intelligent, self-centred, outspoken and even aggressive. Many of the similar studies show that creative designers and artists are unusually perceptive and observant with an ability of high concentration but also easily shift attention from one thing to another. Many of the design techniques are based on shifting the attention of the designer and changing the context within which he perceives the problem. It is kind of seeing the problem from different viewpoints in a short period of time.

And in business life these manners are underlined; (Sungur, 1992)

- a) Preferring thoughts and objects to people
- b) Great interest in mental works
- c) Few importance to the guarantee of working conditions
- d) Open minded
- e) Honest
- f) Enduring
- g) Tolerance to uncertain things

h) Playing with elements

All these properties are inherent in a creative individual but they appear according to the conditions in which the individual live. Some of those properties can be blocked because of various reasons like environment, family, and economy. It is very important to be able to choose the best profession according to our creative specialities.

As it is known creative person is different from the average. She/he looks for change and for the best in a sense of leadership. Creative person questions, disturbs and is disturbed. Most of the time creativity and madness are suggested to be together, so generally creative individuals prefer to be alone. It is obvious that some of the greatest talents of mankind are certainly not psychologically healthy people, for example Wagner, Van Gogh or Byron...

According to a test of Istanbul University (Sungur, 1992), the specialities of creativity of three different professions were examined in 1991. The results of this test underline the specialities of creative architects as;

- constructive
- ambitious, so they do not give up finding the best solutions by risking acceptance
- careful, thinking all the details
- dynamic, they are always ready for the original, but they have limits because they are humans and sometimes they can get bored more easily from the others.

Yavuzer has detailed the creative people as: * 'Successful, curious, having a need to prove himself, rejecting pressures, patient, independent, constructive, criticising, unsatisfied, unhappy, knowing, sensational, excited, having an aesthetic view, not interested with economic values, regarding himself as being creative, impressive, not criticising himself.' (Yavuzer, 1989,p.9)

Formulation of these common specialities and attitudes of creative people can not be done systematically, because they do not gather and live in-groups or they do not seem to like each other. However observations and researches on creative people and on their

creative products help us to constitute theories about the fact of creativity and understanding the hint points of creative processes.

Another fact about a creative individual is underlined by Don Miguel de Unamuno. (Antoniades, 1992). Spanish philosopher Unamuno studied about the paradoxes and he has a unique significance for creativity and creative people. Don Quixotism is the theory developed by Unamuno after the study of Cervantes' major hero (Figure 2.1.3). He underlines that one may not have peace while attempting to explore ideas and concepts outside the usual and acceptable. One should have courage in order to create like a hero. By risking all the accepted realities, the creative search for the new and unfounded.



'Don-Quixotism' by Miguel De-Unamuno: Possibility for A Creativity Channel

Figure 2.1.3. (Source: Antoniades 1992)

The creative thinker, whether artist, writer, architect or scientist tries to create something new. The visual artist tries to express an idea or an emotional feeling in a way that will have an impact on viewers, the condition is not different for the designers. Creative solutions are solutions that other people have not thought before. After gathering the information and have had some repose, we wait for the creativity to begin. Creativity begins in our conscious mind with information, shapes, images, forms but the original solution we reach, is formed at the subconscious level. We add the inputs like our intelligence, experience, education, and info through the work we are on. We go through the existing examples of buildings that we are working on. And the process starts with the help of a catalyst maybe like music, a figure, or an emotional experience. It can happen anytime anywhere...The end products like buildings can be creative in

totally or in the parts or the detail. Also there can be creativity conceptually as well as with regard to the all components of architecture. It is certainly an extra ordinary work to create a building both excellent and creative in all respects however it is possible. (Birkets, 1994)

2.2. Theories and Concepts of Creativity

Understanding of creativity has been changed during the years past, especially after some thresholds in professions. For example in the 1950's, creativity was thought as only a gift of God, in the 1960's it was seen as if it was a skill of mental flexibility that could be thought with time. In the 1970's it was desired to be a kind of motivation. In the 1990's it was seen that the climate was very effective in creativity. In the middle decade of this century, the study of creativity became the business of social scientists, psychologists, psychoanalysts, anthropologists, art critics, business people, behaviourists, educators and doctors. As a result of World War II, people used to try to rebuild the world and the goal was to increase productivity. Creativity was shown as the way for productivity and efficiency. So the aim of the contemporary educational systems is based on bringing up creative individuals. (Boden, 1994)

After World War II, two kinds of literature on creativity had been developed. The first was generally the product of the experts and research scientists of the 1950's. It was focused on the issues of cognitive and perceptual processes both visually and mentally through the technocratic-quantitative efficiency. (Antoniades, 1992)

The second research was rather uncertain and unscientific based on human, sensational and spiritual. This theoretical examination on creativity almost forgotten and in recent years referred by the general and architectural educators, in particular. Architects ignored the conferences and symposia on creativity, which were organised in the mid-1950's by poets, writers, painters, sculptors, art historians, scientists, social scientists and psychologists. So the work on creativity offered minimal input on the subject. And according to some other resources especially about psychology, the literature of creativity develops in three different ways. (Sungur, 1992). The first one defines creative personality or individual. It includes the studies of Guilford about knowing in

1967, the studies of Mac Kinnon about personality in 1962 and the studies of Dunnette (1976), Gough (1976) and Torrance (1972) about understanding. The second way questions the facts to develop creativity or disadvantages of creative act.

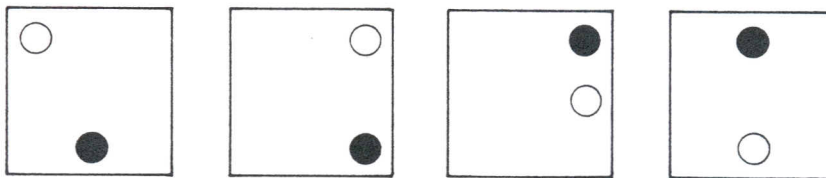
The third way is about the education and developing creativity. Do the individuals can be educated for the purpose of using their personal creativity? By this way can they be more creative? These are the arguments of these studies. Osborn (1956) and Prince (1970) are the leading personalities of that movement. The acceptances of this essay include some from all of these three ways of creativity literature.

Most theories about imagination and creativity are either mostly artistic; they tend to focus on one aspect or tend to be concerned at one level. But to be an imaginative and creative architect, we have to be creative in many levels which some of these are purely artistic and intellectual and the others are scientific and professional. The nature of architecture is based on servicing humanity so it can not be considered as one-sided or as a pure art. As Alvar Aalto said (Porphrios, 1992), 'Architecture is a synthetic phenomenon covering practically all fields of human activity.' Architecture is a multi-dimensional, comprehensive discipline, an art and a profession. And the architects are accepted both as artists and professionals. The problem of an art begins when the artist or designer can not imagine and as a result can not create...For the best architectural design we 'the architects' must do the best with our creative power and for the beginning we must learn to use that power. During our studies both in architectural studios and in design offices we must feel free for creation. However the architects can never feel free like an artist or a poet. Under the difficult effects of educational system acceptances, the administrative rules or the pressure of consumers it is not really an easy job. Architects are responsible of many groups of people like owners, inhabitants, community groups, critics, and schools of architecture while they are in the profession of architecture.

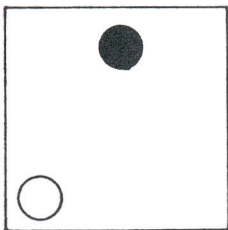
Several attempts have been made for developing the tests for measuring creativity among people. The study of Guilford's in 1967 was constructed and carefully analysed after applying many tests (Morgan, 1986), (Figure 2.2.1.). As a result of this work the concepts of 'convergent' and 'divergent' thinking are emerged. Creative thinking is

defined as divergent and analytical thinking as convergent. (Rawlinson, 1981). Divergent people have bright and open intuitions and a flexible structure. The individuals, who own these properties, always try to find new things. On the other hand, the convergent individuals seem to be boring, narrow minded logical and inflexible personalities. Creativity is kind of a balance between convergent and divergent thinking abilities appropriate to a situation. The creative scientist needs some identities of the artist's divergent thought to see new possibilities while the artist needs to be able to apply the view of the scientist to develop his ideas. The balance of these two sets of mental skills is needed to produce creative work.

Draw the next square in the series



Conventional I.Q. tests have one correct answer and this requires 'convergent' reasoning
 What could this drawing represent?



The 'creativity tests' have many acceptable answers and thus require 'divergent' reasoning

Figure 2.2.1. Creativity Test (Source: Lawson 1985)

Besides for measuring creativity, success ordering, the results of analyses, intelligence, character and the results of creativity tests can be used. According to these experts

studying on measuring creativity, if creativity is scientifically accepted it could be the topic of objective observations and counting. The best known creativity test is the test of Torrance (1974), Torrance Test of Creative Thinking (Sungur, 1992).

In our century while we are rapidly consuming the values, increasing creativity is a popular topic all around the world. Reaching personal fulfilment, becoming better leaders, managers and increasing personal effectiveness are the goals of increasing creativity. Creative techniques are indicated as the tools for reaching these goals. Some of these techniques especially suitable for architecture and designers will be mentioned sufficiently in the following chapter. Using the human mind in the best way is the work of this century. Many books are being published about developing creativity and creativity techniques especially servicing to the business world. Edward de Bono is one of these writers who can be accepted as an expert on creative thinking. He declares a theory on creative thinking known as ‘Six Thinking Hats’ based on ‘examining everytime instead of accepting.’ (De Bono, 1993). There are many other techniques and theories like association methods (brainstorming), creative confrontation methods (analogies, chance, synectics), analytic-systematic methods (function analysis)...*Synectics* of Gordon and *Brainstorming* method of Osborn are the most suitable ones which are examined according to architectural design methods.

Most of the methods for developing creativity are based on groups. Because the product of a group is found more successful than the result of individual’s creative efforts. And in group creativity, the most organised and therefore most creative method is *Synectics*. (Denel, 1981). It has a good deal of success in almost every area except in architecture. The leading reason is the insensitivity of architectural educators. In architectural education, basic design and design methods can be shown as the base of education of creativity.

Gestalt concept is among the concepts of creativity and an important topic of basic design. This concept composes the base of perception and orders visual perception as a whole mind against the piece mind of classical physiology and puts the structure against piece based manners. Gestalt concepts logically compose the base of visual happenings.

When people perceive and understand these visual concepts, that gives a chance to interpretation.

Although many studies are done and written on architectural creativity, the chance to learn from these studies is impossible because of the gap that existed between the architectural profession and architectural education. There are generalised perceptions such as the architects who practice out and the teachers who have never built anything. Because of such attitudes, some of the best research and findings of architectural educators remained unnoticed especially during the early 1950s.

By realising the good examples, we have to make a synthesis of our own for understanding creativity. The great creators never write or tell how they create, as it is not possible to do. But through the examination of their works and by investigating their works one can find a way to his own creativity process. No miracle is needed to bring us Corbu, Aalto or Gunnar Asplund. For example Alvar Aalto is shown as one of the best case studies for understanding intangible channels to architectural creativity. Demetri Porphyrios (Porphyrios, 1980) examined Aalto through his design attitudes, and this research helps us to understand his creative story.

Some of the major minds of our century who had great contributions in art and science, struggled with metaphysical questions and developed their creative positions through these researches. For example Buckminster Fuller did it in numerous fields such as mathematics. The architects such as Aldo Rossi, Daniel Libeskind, John Hejduk, Peter Eisenman, Frank Gehry and Zaha Hadid have employed the paradoxes around the varies degrees metaphysical involvements. (Figure 2.2.2-2.2.5). For example Gehry focuses mostly on materials and geometry while Hadid has been interested in geometry and the oblique. Gehry's architecture is the best application of the concept of paradox. He studies with something that was always there but the others never take time to see this. He peels off the skin of the house to see what is inside and he plays with it as if it were a child's toy. He actually deconstructs it. (Antoniades, 1992)

CHAPTER 3

CREATIVE DESIGN PROCESS

3.1. Architectural Design Process

A very great deal has been said and written about the phenomenon of creativity but it still remains one of the most unclear, perhaps even confusing, concepts in the literature of the psychology of thinking. These concepts are basically about design process, creative personality and the other concepts see creativity as a skill and are based on developing or practicing it.

Generally design is accepted as a creative occupation and good designers are creative people, and certainly we often describe their work as creative. So in that study creativity is examined with process, person and products.

The creative process and design process shares in common and most of the similar talents may be required for both of them. The difference is usually related with the source of the problem. Sometimes it is only a difference of degree but underlines the nature of the process of art and design.

The artist deals with issues and solves problems, which seem important to him. An artist has more freedom about changing the problem and the artistic solutions. It is usually critics or historians who retrospectively interpret or identify the issue that appears in the artist's mind. In design the problem usually originates not in the designer's mind but with a client or user...

An architect begins designing approximately, proposing an enclosure for a certain volume of space, and dividing the space into three-dimension. While architect performs she/he does this in a kind of *synthesis*. She/he thinks of project costs, their environmental implications and all the other factors, which determine the whole of architecture. In history four basic ways of achieving that *synthesis* had been developed; pragmatic, iconic, analogue/analogy, and canonic. (Broadbent, 1988)

Pragmatic one is in the manipulation of real things. It is the real thing itself without an analogy or metaphor. However iconic design; clearly is a type of analogy. It is a kind of reproducing form, getting the reasons from parallel cases and built up on the model of others. Canonic design too has analogical aspects. It is either repetitive which also supposes exact analogy or the canonic grid like drawings and other design analogues for the building. (Broadbent, 1988)

Analogy; is partly a likeness position and based on the similarity between two objects. Similarity composes the bases but difference is not desired. Analogy is similar to metaphor but metaphor contains the specialities of analogy and has stronger application reasons. Metaphor is representing something with all a different thing. For example; structure, construction details, services, finishes, these are all developed by analogy from one building to another. Drawings, models, specifications, bills of quantities; these are all analogues for the building.

Many examples of analogies can be seen especially about building forms. It is known that John Utzon's Sidney Opera House is not a very successful design of analogy. The analogy of form is not evaluated sufficiently for building, performance, cost and so on (Figure 3.1.1). There are obvious analogy examples in the work of Wright; like the administration building for Johnson and Son (1936). It was designed as a series of concrete mushrooms with the analogy of water lilies. They touch each other to form the roof and the space between them was filled with glass to give an under water effect. The First Unitarian Church at Madison, Wisconsin(1950) has a triangular form which Wright derived by direct analogy of his own hands clasped together in prayer.

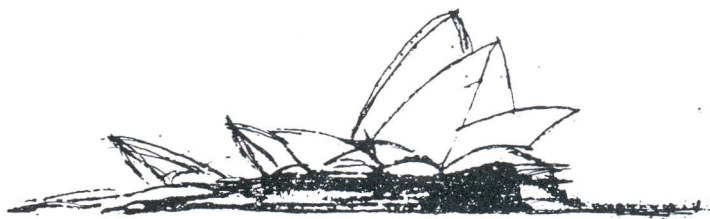


Figure 3.1.1. John Utzon's first sketch for the Sydney Opera House (1956)

Direct analogy with the sails of yachts heeling over in the harbour

(Source: Broadbent, 1988)

Most architects and artists are reluctant to admit the sources of their analogies. They think that such admissions would decrease the others respect for their creativity. Making similar to any material around us may seem to be an easy job. Ordinary people also store analogies, not perhaps as rich as Le Corbusier's or Wright's, but valuable because of the fact that they are personal.

Understanding and analysing creative architects' design processes will be very helpful for our creativity. Sometimes the explanations of architects help us to get these data. However it is very difficult to explain the creation process by words. The creators like architects can not do that when it is wanted to do. When it is asked, Alvar Aalto replied, 'They asked, among other things, how one creates art. I replied, 'I do not know'.' The famous Sibelius said similar idea about that topic. 'If you publish three words of explaining music, at least two are wrong.' Aalto suggested that this might be true for architecture, too (Antoniades, 1993).

Wright, Aalto, and Le Corbusier have numerous exhibitions, buildings, books, and lectures addressing their creation and creativity, but the language of these explanations could only be understood by creators.

The creativity of architects had to be analysed from their own writings and seen through the study of publications on their projects. Le Corbusier had written about his creative process and about his creative inventions and the research of Daniele Pauly (Pauly, 1983) has argued that these inventions were not accidental, sudden and spontaneous, but the result of a long period of effort.

An architect comes to the design task with a repertoire of paradigms and tries to find spaces that suit to the conditions which of some come from architecture's history, some from our own practices like building organisation schemas, construction details. Sometimes paradigms are invented by one architect but afterwards become available to all. For example Le Corbusier's many formal inventions...

The architect knows that his design will never pass directly from the conception to construction. Many other factors must be taken into consideration like the cost of the

realisation of the concept, the client's personal tastes, the desires of the surrounding people and authorities. While the architect begins to propose design solutions to the client, other voices are involved in the discussion, her relatives, lawyer, decorator...But all of the above mentioned groups must not forget that an architect has the right of wanting to be the sole chef of the design.

The participants of design process can be summarised as follows; (Lawson, 1980, Arge, 1996)

- Designer
- Client- Employer- Owner (a person or a firm) There can be also some sponsors or supporters like a firm, a club or government. This is seen mostly in big projects like public projects, school, hospital, and airport...
- User- Visitors- Customers
- Experts- Construction Engineer- Mechanical Engineer- Electrical Engineer
- Contractor
- Environment-The ones related with that environment and building
- Legislator-Municipality-Politician-Government (rules, regulations, standards, obligations...)

Architectural creation is never simply a method of problem-solving which the given conditions are analysed technically. Architectural creation involves; contemplating the origins and essence of a project's functional requirements and, the subsequent determination of its essential issues. In contemporary society, architecture is determined by economic factors and for the most part ruled by standardisation and mediocrity. (Antoniades, 1993)

Aalto sums up his own decision- making process as follows: (Kirk, 1988)

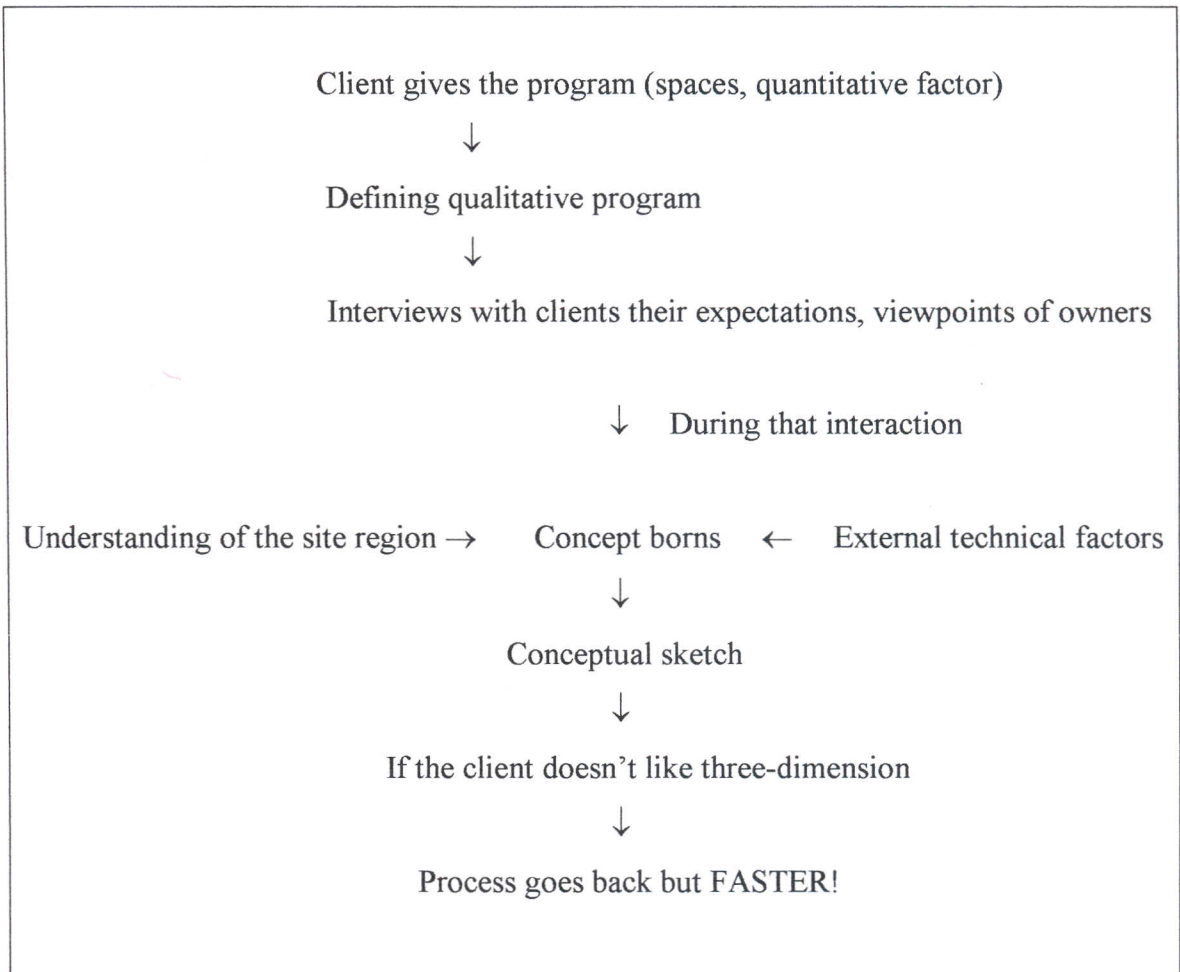
'When I personally have to solve some architectural problem, I am constantly- almost without exception, indeed faced with an obstacle difficult to surmount a kind of 'three in the morning feeling'. The reason seems to be the complicated, heavy burden represented by the fact that architectural planning operates with innumerable elements which often conflict. Social, human, economic, and technical demands combined with psychological questions affecting both the individual and the group, together with the movements of human masses and individuals, and

internal frictions-all these form a complex tangle which cannot be unravelled in a rational or mechanical way. The immense number of different demands and component problems constitute a barrier from behind which it is difficult for the architectural basic idea to emerge. I then proceed as follows-though not intentionally, I forget the entire mass of problems for a while, after the atmosphere of the job, and the innumerable different requirements have sunk into my subconscious. I then move on to a method of working, which is very much like abstract art. I just draw by instinct, not architectural synthesis, but what are sometimes childlike compositions, and in this way, on this basis, the main idea gradually takes shape, a kind of universal substance, which helps me bring the innumerable contradictory component problems into harmony.' (Ruusu vuori 1978, 22-25)

From this short description of design process, several important points can be taken as a general model of decision making. First, it can be said that a design problem includes many point of views, requirements and individuals. Secondly, designer goes in a period of absorbing the problems and data, then he reaches to a creative stage where he produces large number of ideas and solutions. Finally synthesis occurs for addressing the original problem statement. Aalto made distinction between creativity and synthesis. Aalto and Wright shared the same philosophy of creativity. The results of this philosophy are wide variety of design alternatives and variations of architectural form. Human dimension was the centre of their architecture and both used industrial processes for producing economical solutions.

Gunnar Birkerts, who is the first Bruno Alonzo Goff Professor of Creative Architecture at the University of Oklahoma, tells about his own creative process, his methodology and philosophy in his book (Birkerts, 1994). Like his Scandinavian colleague Alvar Aalto, the sources of their architectural language are not very different like the special geographies of their residence. He deciphered the organic synthesis, which composes the methodology and philosophy of his creative process. He calls this organic synthesis as the creative force. The sketches and schematics help us to understand both the sources and development of his creative ideas. (Figure 3.1.2)

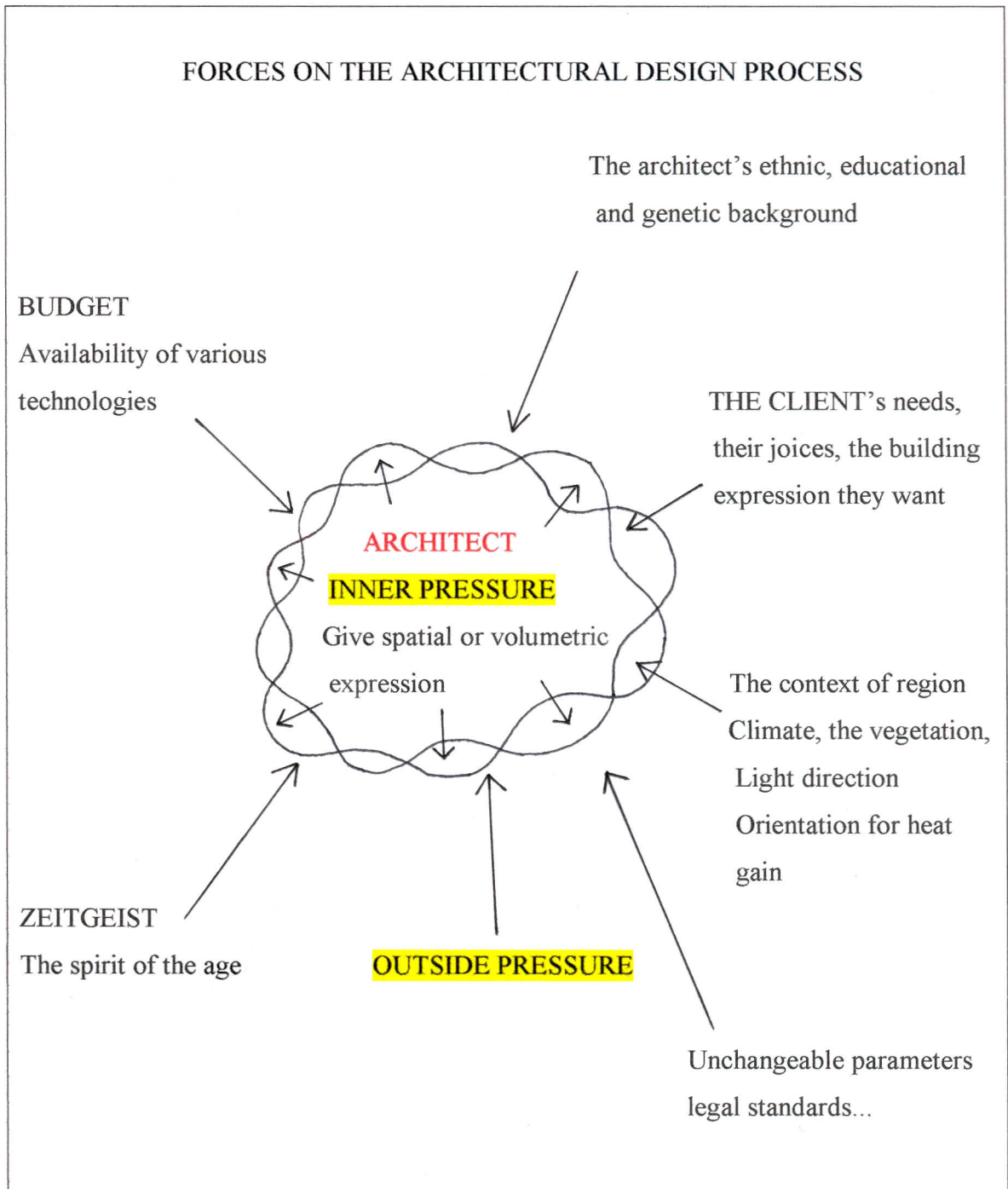
Another example of creative design process of Bill Hubbard is interpreted and graphed as in the below, for understanding in a better way. (Hubbard, 1995)



Town planning, urban design, architecture, industrial, graphic and interior design all involve both scientific and imaginative, emotional approaches during their design processes. There is the business of the creation of objects, places which have to be both used and looked at. Architecture is one of the most centrally placed design attitudes between the mathematical and the imaginative (Figure 3.1.2)

Moreover the creative act is a very personal event. When talking about creative act, many moral inputs come to the topic like emotions, feelings, intuitive powers, ability to perceive and visualise, imagination...

There are many forces acting on architectural design, they can be summarised in a schemata shown below; (Hubbard, 1995, Birkets, 1994)



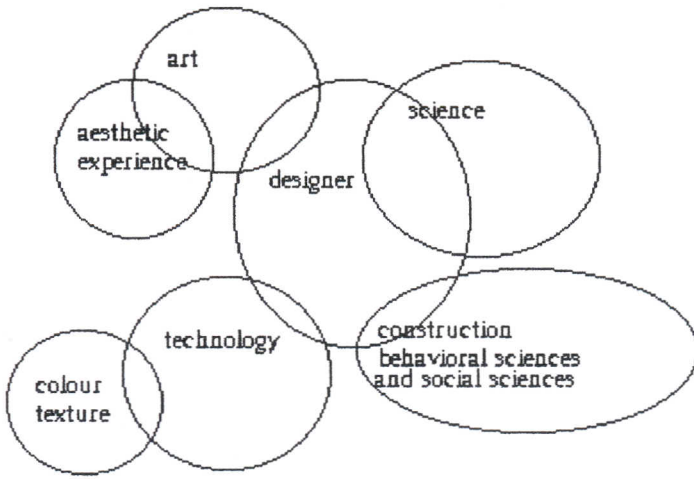
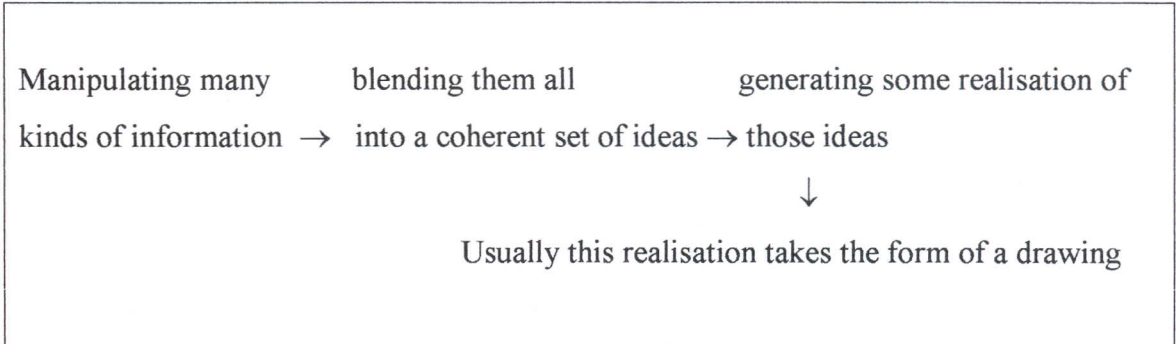


Figure 3.1.2 (Source: Lawson, 1980)

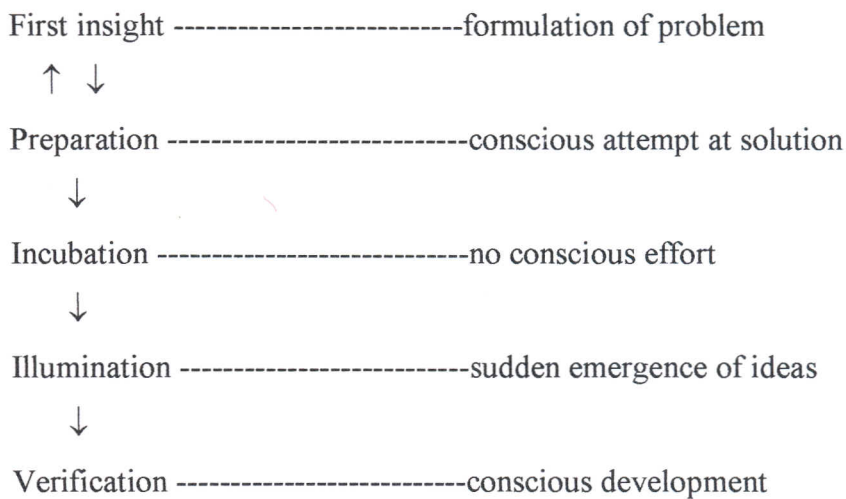
That is a kind of mental process, basically it can be summarised as follows; (Lawson, 1980)



The designers have to acquire their own design processes. Building a flexible and productive design process is neither a short nor an easy task. It requires self-criticism, practice and careful observations. However these kinds of studies on design processes may do a little to ease that difficult task.

Recently design process was very different. The distinguish between designing and making has the effect of isolating the designer as the centre of attention. Acting as an individual master was encouraged by the society. Even in the schools of architecture students would be asked to design as individuals.

The earliest attempts for describing creative process were made not by psychologists but by philosophers like Helmholtz and Poincare. (Lawson, 1980). These early descriptions emphasise several changes in style of thinking and divide the process into phases. Poincare(1924) tells about a period of initial investigations of the problem which is followed by a period of apparent rest. He claims that the solution then appears in a sudden and unexpected manner needing further conscious elaboration, development and verification. As a result of such descriptions many psychologists have attempted to classify the stages of creative thinking. Most of them seem to agree on a five stage process that consists of; ‘first insight’, ‘preparation’, ‘incubation’, ‘illumination’, and ‘verification’. (Morgan, 1986, Lawson, 1980) (Figure 3.1.3)



-The five-stage model of the creative process-
Figure 3.1.3 (Source: Lawson, 1980)

The period of ‘first insight’ involves the recognition of an existent problem and the decision of solving that problem. The next phase, ‘preparation’ involves conscious effort to develop an idea for solving the problem. There may be much coming and going between these first two phases as the problem is reformulated or even completely redefined. Yet it is emphasised that preparation involves hard work and followed by a period of ‘incubation’, which needs no apparent effort. And this period is often lasted by a sudden emergence of an idea ‘illumination’. The thinker reorganises and reexamines all his previous thoughts and comes with fresh attitudes and approaches.

Also all writers agree on a final period of conscious verification in which the outline idea is tested and developed.

It can be seen that the creative process is not only a process of conscious mind and intelligence. In creative process, the creator is under the effect of his/her feelings from the beginning till to the end of the process. In creative design process, the items related with feelings seem to have more importance than the ones related with intelligence. Likewise, irrational items have more importance than the rationals.

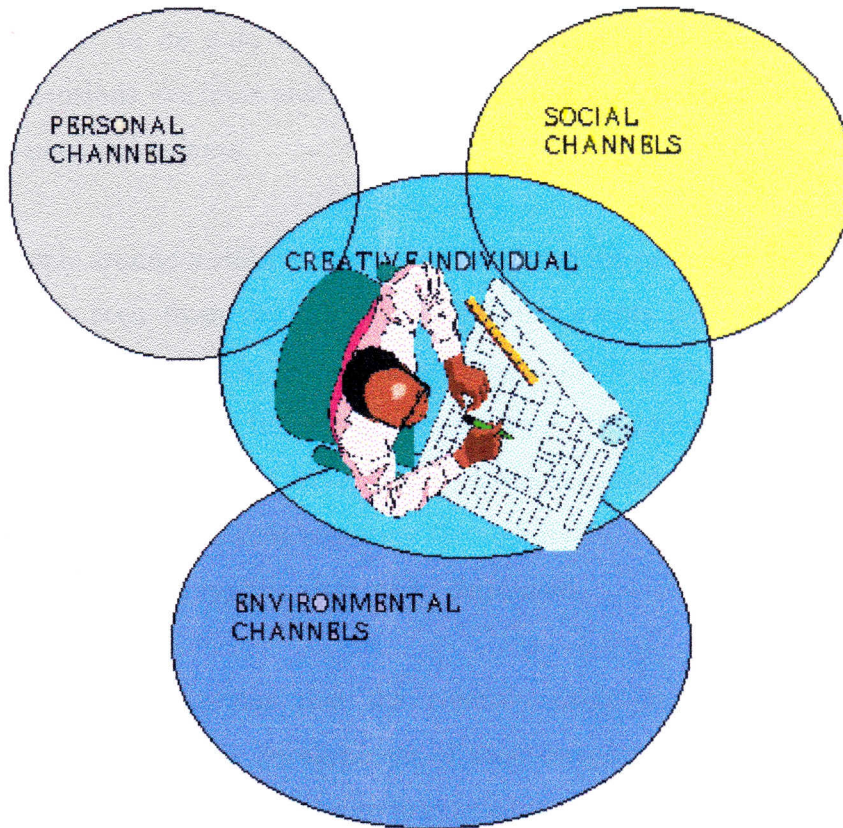
The stages of creative process have been defined in many ways. Each discipline tries to define the stages and their explanations according to their professions. According to Ayiran, architectural process has four basic stages; (Ayiran, 1995)

1. Preparation: This stage is about the conscious struggle of the individual. In the first stage of the design, the students or the designer (architect) takes the sufficient data from the literature. Also she/he examines the project area and environment. All these preparations are like an analysing study.
2. Incubation: Preparation stage is followed by a stage which is not generally a product of conscious struggle. The information taken at the previous stage begins to ripen in the mind of the designer. First thoughts about the project begin to be defined.
3. Illumination: That stage is where the inspiration and the basic idea is born instantly. Reaching this stage depends on the conscious and insistent study of mind on the topic.
4. Verification: The last stage is about a conscious development. The thought that was found at the illumination stage is evaluated. The struggle of developing the best thought begins at the studios.

Designing is a hesitant and recycling process so these stages do not always follow the same order. Creative process has both joyful and boring ways. In some parts of the process individual feels himself insufficient and unsafe. This negative atmosphere of the individual can affect the natural course of the design process.

3.2. Channels of Architectural Creativity

There has been made a classification of the channels of creativity which aims to clarify their definition around a centralised creative individual.



There is one more classification of the channels of architectural creativity developed by Antony Antoniades (1992) which includes first the tangible channels comprising the topics of 'historicism, mimesis and literal interpretation, geometry, materials, nature, association with other arts and artists' and secondly intangible channels comprising the topics of 'paradoxes, metaphor, transformations, primordial and untouched, poetry, exotic and multicultural'. (Antoniades, 1992). Antoniades had preferred to group the channels as a result of Modern and Postmodern movements of architecture.

The channels mentioned in this research are chosen according to the general design process of a creative individual. The attitudes of the individual with the facts affecting his creativity are grouped according to their sources.

3.2.1. Personal Channels

3.2.1.1. Childhood

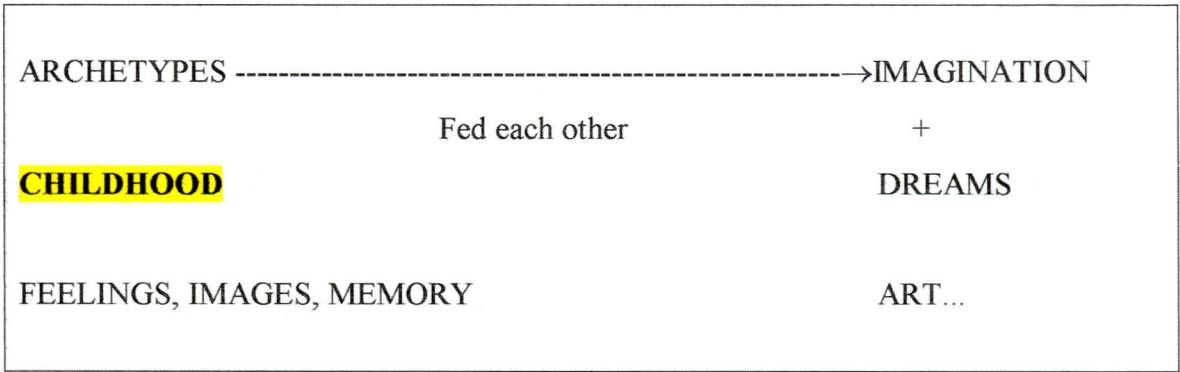
The background and especially the childhood constitute the base of creativity of an individual. The seeds of a creative personality are sprinkled when you were a child. So in order to be able to see the real creative approach of an art product by its all dimensions, we must analyse a person from adulthood to childhood, from consciousness to unconsciousness.

People around a child especially its family as the nearest, affect their fantasy world. The places seen from their little window, the events lived and placed in their mind or perhaps just sounds, smells such things which seem to be little, unimportant in the future can be very influential. For example the country in which he lived affected the design approaches of Alvar Aalto. Aalto sketched and painted nature of Scandinavia, and he had very strong exposure through living, fishing, and hunting in the countryside of his native Jyvaskyla since early childhood.

The fancy paintings that the children make at their early ages have important contribution to the development of their imagination. The forms, which are generated by imagination, gain meaning in symbols, colours, and drawings.

Innocence is a characteristic of childhood. Children may come up with a fresh approach, because they do not know the usual ones, usual solutions and known concepts. Childhood is like a different style of approach, power of seeing, and is the main cognitive and perceptive understanding.

The artists and children are the ones who best see the realities of the life. Every creation is a kind of returning back to childhood. Artists like children try to find the new and original and compose adventures for achievement, everytime (Timuçin, 1993). The ingredients of the imagination world of a child are graphed as shown;



Most of the parents interfere the fantasy world of their children. According to these parents, fantasy is an unhealthy situation that must be controlled. However, playing with images, fantastic stories, unpredictable pictures are the normal products of child imagination. To understand the phenomena of the world, children always ask questions, which are mostly seemed to be interesting. This curiosity, questioning, research and experimental wishes must not be blocked. Otherwise, the children will have difficulty in learning, and may have behavioural and physiological problems.

Creative children can be foreign to their friends, they try to learn by themselves, have different values and are in a struggle of showing special character. Some of these children deviate from sexual norms. Family and teachers must be very careful about the education of these kinds of children.

3.2.1.2. Imagination- Fantasy

The imaginative power of an individual has a close relation with creativity. Rank describes the creative person as the individual who creates his own reality (Arieti, 1976). Imagination and fantasy are two important concepts of process that must be understood. And these two prerequisites for architectural creativity can be cultivated and enhanced by the application, the training and the discipline of the architect. The architect will become excellent in the real or in the theoretical arena when these two aspects are developed.

Fantasy is the ability of a person to generate images that can not become reality. Fantasy exists only in the mind. Dreams and visions are ingredients of fantasy. We can

fantasise asleep or awake, while working or relaxing, consciously or unconsciously.
(Timuçin, 1993)

Dreams + Visions -----> FANTASY

Imagination on the other hand, is an ability of the mind to see what already exists there. Imagination is related to real, however fantasy to unreal. Some people suggest that imagination and creativity can not be thought and one must be born with these qualities. On the other hand some others think that these kinds of things can be taken further by methods, techniques and can be developed by the help of professionals.

The experienced architects are the ones who have developed imagination ability. They can imagine the finished construction, facades, sections and details three-dimensionally. Also, imagination ability of the students can be improved by studying with models and asking problematic questions about construction. The students must force their imagination for the most satisfying answers and later on they learn to ask such questions on their own.

Imagination belongs to the sphere of thought and creativity refers to the sphere of doing. In order to create, we have to imagine and think. The final point of this thinking process is reaching the creative product.

3.2.1.3. Metaphor

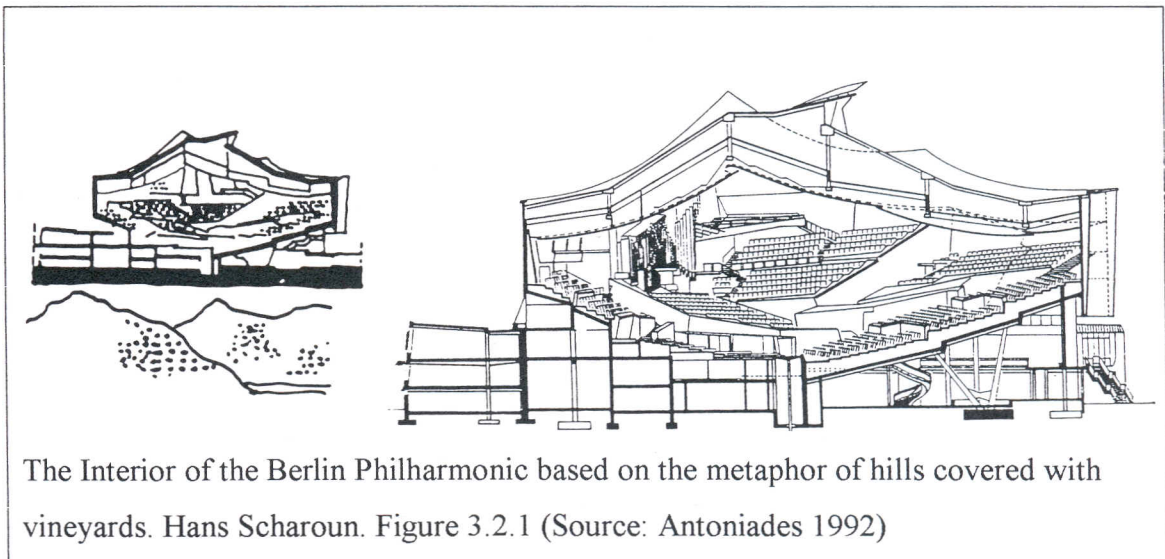
The use of metaphor as a channel to architectural creativity has been popular among architects throughout this century. But the beginning of the use of metaphor in this century goes back to the early German Expressionist architects and had Nietzschean origins. Friedrich Nietzsche, Joseph Maria Olbrich and Otto Wagner created architecture using the metaphor of the mountains and hills. Generally the metaphors are mostly not known by the users or the critics, they are the secrets of the creators (Antoniades, 1992).

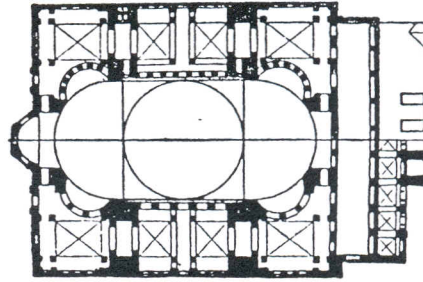
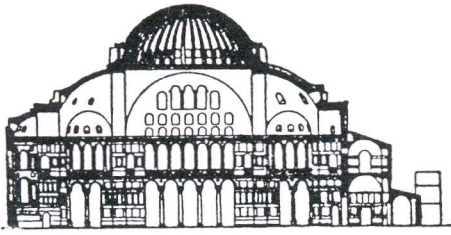
According to Gunnar Birkerts, developing sense of creativity is related to metaphor, education and inherited specialities from our families. In our unconscious mind every data can be the source of a metaphor one-day.

Three categories of metaphor are identified; intangible, tangible, and combined. (Broadbent, 1988). The departure points of the creation by intangible metaphors is mostly from a concept, an idea, a human condition or a particular quality, while the tangibles from visual or material character like a house as a castle, the roof of a temple as the sky. The departure point of combined metaphors is based on the ingredients of conceptual and the visual (Figure 3.2.1).

Alvar Aalto, the foremost Finnish architect of the century, known as using his buildings out of intangible metaphors. His buildings had been developed as metaphoric acts based on the concepts of individuality, naturalness, and community. And the leading of those metaphors is *humanity* that can be accepted as the greatest of all metaphors. Besides the nature of his country and his childhood are the sources of his metaphors like the visionary images of mountains and hills and wood as a material (Antoniades, 1992).

The Berlin Philharmonic building designed by Hans Scharoun (1956-63) also has a metaphoric vision of hills covered with vineyards. The indoor spaces within the building again remind us of these visionary landscapes. People are the grapes, while the platforms are the slopes of hills, and the ceiling is a tent. This landscape is like a 'skyscape' (Figure 3.2.1).





Hagia Sophia: Interior Space on the Metaphor of 'Universe'

Figure 3.2.2 (Source: Antoniadis 1992)

3.2.1.4. Intelligence

The relation between intelligence and creative individual has always been the question of creativity. Intelligence was mostly thought as one of the specialities of creative individual. However it is underlined that intelligence and creativity does not have a direct combination. More intelligence does not guarantee more creativity. However the last researches underline that for creativity minimum general intelligence level must be $IQ=125$. (Diessner, 1984)

There have been many kinds of tests for measuring intelligence and creativity. The creativity tests are not used frequently and they are more controversial. The conventional I.Q. tests are composed of questions to which there is one correct answer to each question while the creativity tests require many answers to each question. An example showing the difference between these two kinds of tests is given before, in this research. (Figure 2.2.1)

Very few people are able to perform creatively in more than one or two fields. Creativity is not just skill or talent but is also related to context, the situation within which the person perceives the problem and performs the process. Application of the knowledge from one field, into another field and to pass from a productive state, is a combination of intelligence and creativity. Also experience and familiarity is important in the creativity of our response to a given problem.

Barron explains the relation between intelligence and creativity with the correlation that he established in 1963. (Arieti, 1976). According to this correlation, individuals, which have an IQ over 120, may exhibit very high levels of creativity. This reveals that every individual with medium level of intelligence is creative.

3.2.1.5. Self-Confidence

It can be said that self-confidence can add an extra fifty- percent of creativity when the individual feels. For gaining that confidence when we start in architecture, we must know working within our limits, otherwise unsuccessfulness will cause lack of confidence. That is why simple problems develop the ability of the beginner designers better than complicated design problems. After resolving a simple problem, we gain self-confidence and then go on to the next harder problem.

When the designer is busy with a creative work, a sense of failure is the worst feeling he can have. It must be never forgotten that, we can not succeed even the easiest things if we do not believe our own abilities.

The experience and knowledge of the architect provides him an increase on his self-confidence. When the architect knows the material and technique he will act more creatively by the help of the self-confidence gained from that knowledge.

The clients give an important rate of the self-confidence to architects. When the client trusts his designer, the architect will be more independent and sure of himself. But this condition is mostly valid for experienced architects.

3.2.2. Social Channels

3.2.2.1. Education

Although the education of individuals is very important for developing or activating their creativity, general comment to educational system is the lack of creativity. Education is generally accused of being conservative and rigid. Also it is far away from

educating creative and original minded individuals. However the purpose of education must be discovering and developing the inherited skills and gifts in the individuals.

In Turkish educational system school principles are mostly not creative but they are in a habit of following the rigid concepts. If creative principles are needed for educating creative individuals, organisational authorities must be increased. Creative students must be encouraged, not blocked by rules or orders. (Sungur, 1992). It should not be forgotten that everyone is creative. Only there are some individuals who are blocked or some who need to be educated.

When the education of architects are examined, it can be seen that very wide range of factors are included in the matter. It does not just begin with the problems of architectural education. The memorising base of the secondary education and the absence of creative methods, delay the discovery of the students' creative potential. The educators must help the individuals to find the best chose for showing their creative abilities. As mentioned before creativity does not include all the professions or activities, some can be more creative in art or some about science. The conscious educators must help the students to find the right direction. First of all the individual has better to love his profession, which can be succeeded by the right choice. This encourages the creativity of person in his profession.

Another issue about the education of an architect is the approaches on the architectural education. Architecture is a wide multidimensional discipline which is closely related with creativity. It is a profession, an art and a style of thinking and living. In this respect, the architect is in the position of performing all of his artistic, scientific and human aspects. So education of such a personality is not an easy job. In a period of four or five years it is impossible to give the whole info but to give the right base for the future life of an architect for acting creatively must be done systematically and consciously. Basic design education gives individuals an important part of that base. Basic design helps the students to develop new skills and to gain new approaches, views, in a valid and correct way. It is now proven by many disciplines that creativity is basically a skill that can be thought and its education must become an essential part of architectural education in general.

The theoretical basis of basic design will consist of using the method of two-value classical logic to show the direction of the mind in one hand, the visual organisational principles of Gestalt Psychology on the other hand. The students will start learning to analyse and synthesise a visual world which will be the basis for architectural design in following years. (Denel, 1981)

Laxton (1969), in a discussion about design education in schools says that children can not expected to be creative without a reservoir of experience and knowledge. He uses the analogy of a hydro-electric plant to explain his three-stage model of the skills thought in design courses. According to his model, design student by the first skill which is the ability to initiate or express he draws his ideas about the problem. Later on, he is able to evaluate and discriminate between these ideas. Interpretation is the third and the last skill in his model, which allows the ideas to be translated into appropriate forms and contexts. It can be said that his creativity in design is promoted by initially concentrating on filling the reservoir with a supply of ideas. (Figure 3.2.3)

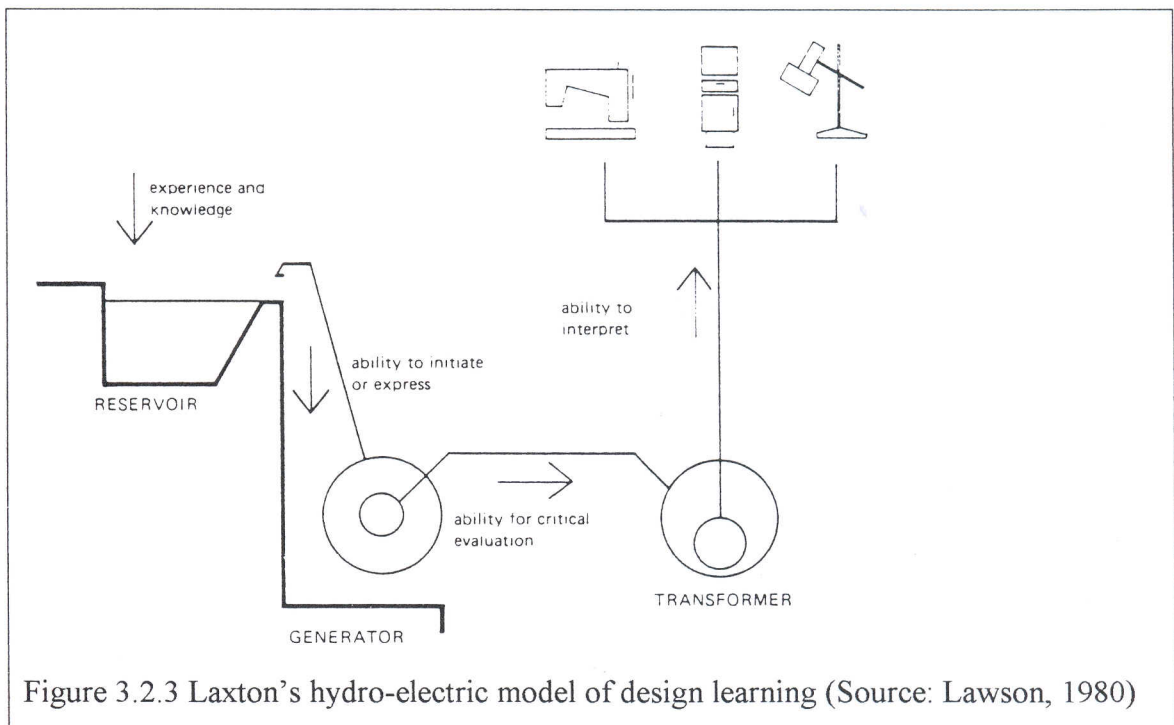
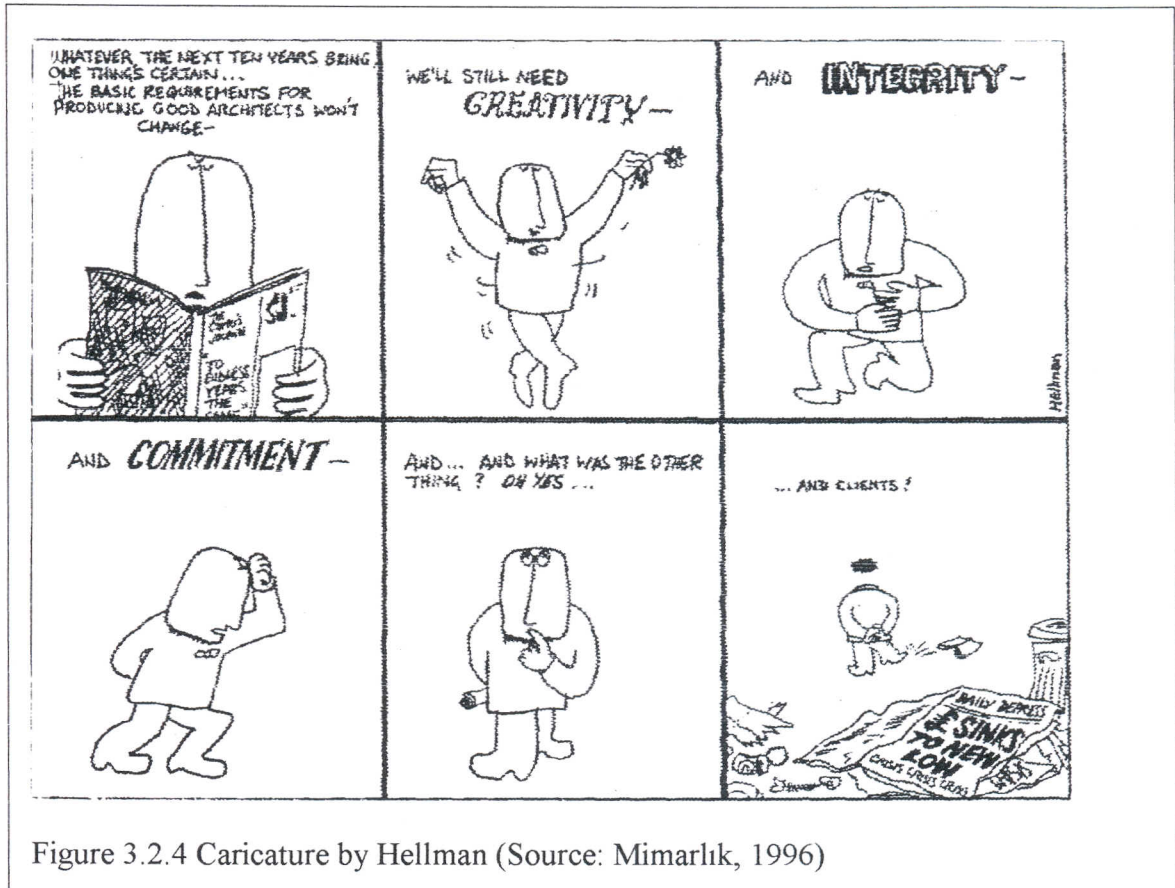


Figure 3.2.3 Laxton's hydro-electric model of design learning (Source: Lawson, 1980)

Architectural students working on a housing project should first study established-present house types and site layout arrangements. It is being discussed that if it is right or not. Some will say that concentrating on previous solutions will inhibit student's ideas. And others will point out the obvious mistakes that students will make in the

absence of such studies. But there is another important fact that one's own mistakes provide more meaningful and unforgettable lessons than studying present model answers.

3.2.2.2. Client



Client is an effective factor reaching the creative and qualified architecture. When we examine the successful projects we see that the clients have the mentality of getting high-qualified architecture. On the other hand, unsuccessful projects are mostly based on the wishes of client on low cost.

Architect and sociologist Dana Cuff (Arge, 1996), defines the best client as the one who is forcible and has aesthetical thoughts but open-minded about the professional approaches of architect. They are respectful about the profession of architect and know their limits of rights. The clients, who have no professional approach, are rigid and ignorant about their wishes and likes, and that limits the architects.

The architect and client come together on a set of sketch plans for the client's new design. In the programming part of their meeting, the client had spoken of her lifelong wish for his own place to live. He tells all the details about his habits. The client mostly has in his mind a conception of how people generally live and he knows her choices. Also he wants to be certain that he, at some future time, can get amount of money he has put into it. That fact causes a wish of a 'characteristic', 'one of a kind design'. Perhaps he feels more safe when he sees the already known, the expected.

The architects say that 'We have to educate the client.' This idea is sometimes the strategy when the wish of the client is something other than architecture. Also there is another fact that the architect must educate the client's taste.

Some kinds of client are caricaturised by Hellman ;

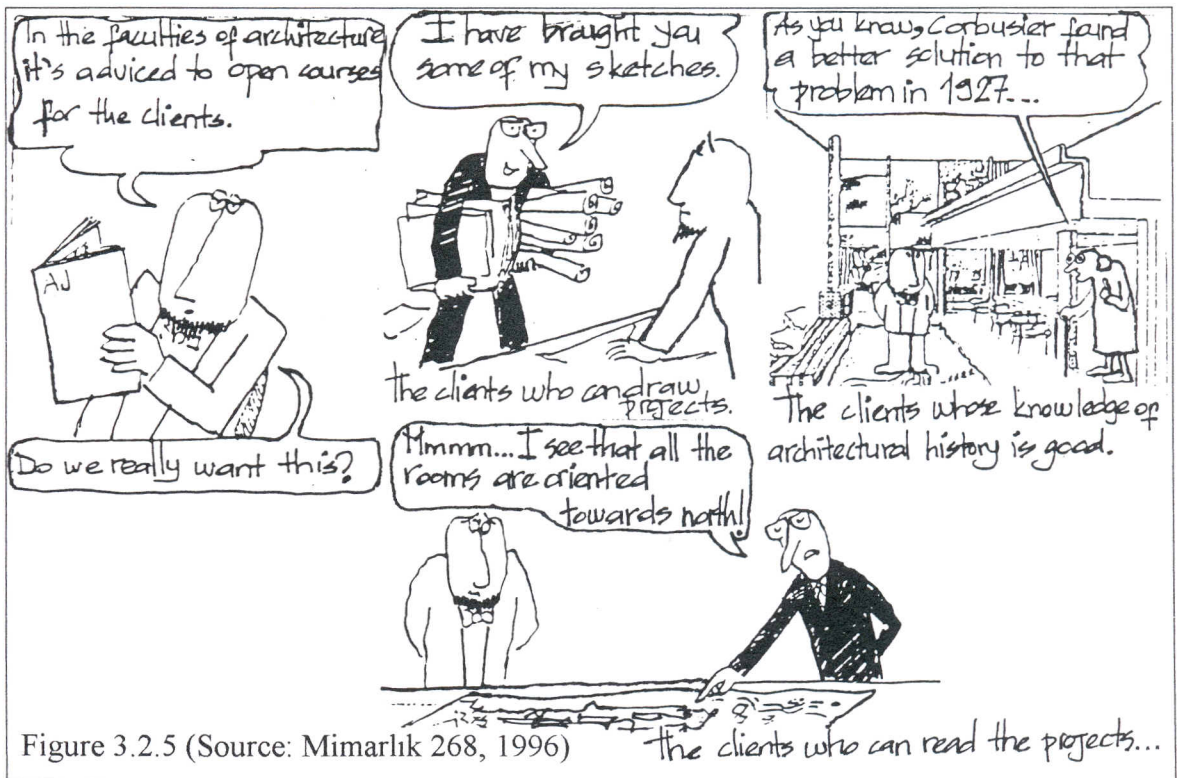


Figure 3.2.5 (Source: Mimarlık 268, 1996)

The client expects more than a house with rooms of appropriate sizes or fixed function schemata. He expects the architect to consider also about form, space and style. The architect also expects to have some freedom in the definition of the design problem. The designer, unlike the artist, is almost commissioned with the task brought to him. But

also the designer is assumed by his client to be artistic and has role at least partly interpretive.

In this era, the place of client and user is changing at the design process. In recent years the client who was at the same time the user, was in direct contact with architect. Today, clients who are not themselves the users, commission the extensive majority of design. Public architecture such as hospitals, schools or housing is usually designed by publicly employed architects who have relatively little contact with the users of buildings. The traditional image of the personal relationship of the client user and architect is grossly misleading. This increasing remote control of designers for whom they design has created the need for user-requirement studies. Social and human scientists, agronomists, architectural psychologists and urban sociologists have to tell the designers what the users actually need. The studies about the co-operation of social science and design have not been practically useful as it was hoped to be. Social science remains descriptive while design needs to be prescriptive. So the psychologists and sociologists have gone on researching and the designers designing. They can not have a chance to contact and re-educate each other. Recent attempts have been made to involve users more in the design process. (Lawson, 1980)

The personal relationship between architect and client has been a key factor in producing good architecture. Sometimes architects learn from their clients, especially when they design for special activities, the architect had better to know all. Architects sometimes live together with clients in order to learn their needs. Friendly client will eventually accept the architect's suggestions including the original artistic ideas. For intuitive architecture, one needs intuitive clients. Even Frank Lloyd Wright had taken benefits from his client's inventive suggestions, their intuitive and progressive desires.

The most remote generator of design is definitely the legislator. Although not involved in the actual design, legislators create constraints that designers have to deal with. Such legislation and control is based on standards, guidelines and recommendations including the factors such as safety, utility or appearance (Figure 3.2.6).

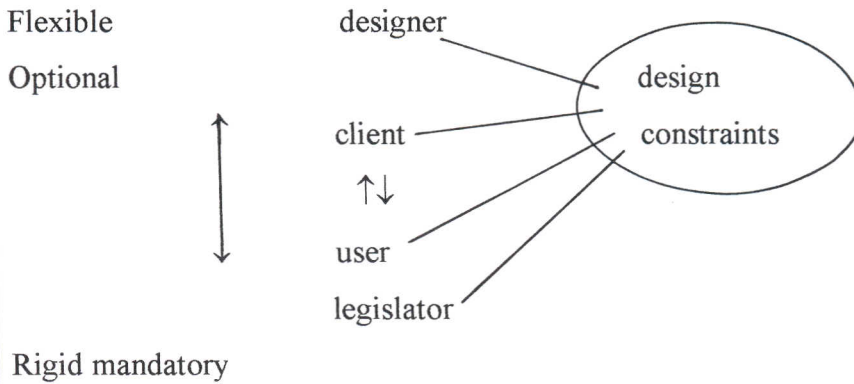


Figure 3.2.6 the generators of design constraints (Source: Lawson, 1980)

External constraints like the site boundary, the sun, the street, are not under the control of designer. An architect must firstly consider everything in the limits of those unchangeable factors.

Internal constraints generally allow more freedom and choice and they are mostly under the designer's control. For example achieving the relationship of the kitchen and dining room according to the client's need is far away from the wish of a sunny living room.

GENERATOR

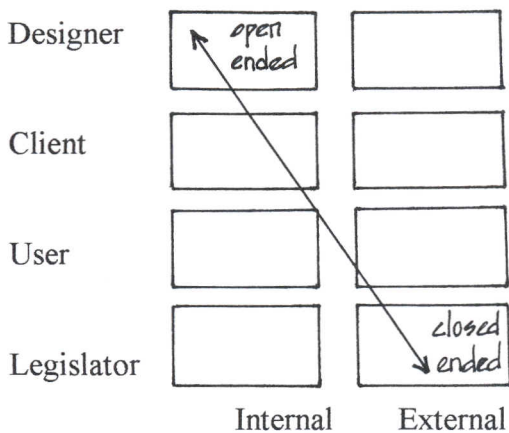
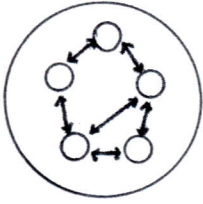
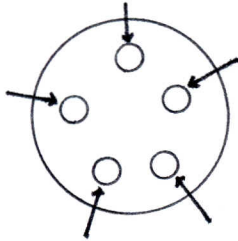


Figure 3.2.7 DOMAIN (Source: Lawson, 1980)

Each generator of design can create internal or external constraints. Each box in the diagram poses its own special kind of problem. (Bryan Lawson, 1980) (Figure 3.2.7)



Internal constraints are imposed by the relationships desired between parts of the object system being designed.



External constraints are imposed when a relationship is desired with something which exists outside the object or system being designed.

Architects begin to define the relationships of these constraints in the first steps of the process by drawing bubble diagrams on graphically charts. The balance of importance of these two constraint groups is not always same. Perhaps also providing that balance is not an easy job especially for the students of architecture.

3.2.2.3. National Culture-History

National culture includes the traditions, customs, and the history of a nature. National culture and the historical precedents give the right clues of the general design concepts to the designer for new, original and sometimes authentic solutions with the contemporary identity. So the usefulness of the lessons on architectural history can not be denied. The aim must be always learning, not just the formal approaches, but mainly the concepts and reasons of these formations. The architect with the knowledge on his mind interprets his own designs originally.

The architectural forms belonging to a culture naturally affects the designs of the preceding architects. If it is only formal details or visual historical cliches that influence the designer, then the result may be unreal, just eclectic and may not fit into the contextual base of design. For example the architecture of Merih Karaaslan is argumentative as he uses the various historical or regional references and organises these diverse references in an eclecticist way although the basis of his design procedure and plan organisations are modernist.

According to Antoniadès, today's creative designers should concern the use of history as;

- Reference to local historical prototypes
- Reference to global prototypes
- Reference to remote as well as closer historic times
- Critical judgement in the selection and the kind of precedent

Historical precedents, precedents from similar projects done by other architects, images of environment or buildings may be the inputs of the mind of each creator. According to some groups, it is possible that, forced input of precedents, historical or other, may handicap creativity.

The explanation of Nevzat Sayın partly gives the solution of that argument. He says that the mechanism of creative forgetfulness is 'knowing but not doing' (Cansever, 1998).

3.2.2.3.1. Religious Factors

The creative architect must be tactful, careful, and alert to religious feelings that are often not openly expressed. Giving the spirit of these feelings to the users is a very important part of religious architecture. It can be reached by the ratios of spaces, light effects, and materials. Ronchamp of Le Corbusier, High Sophia, TBMM Mosque of Çinici. These examples are distinctive by their original and creative solutions. (Figure 3.2.8)

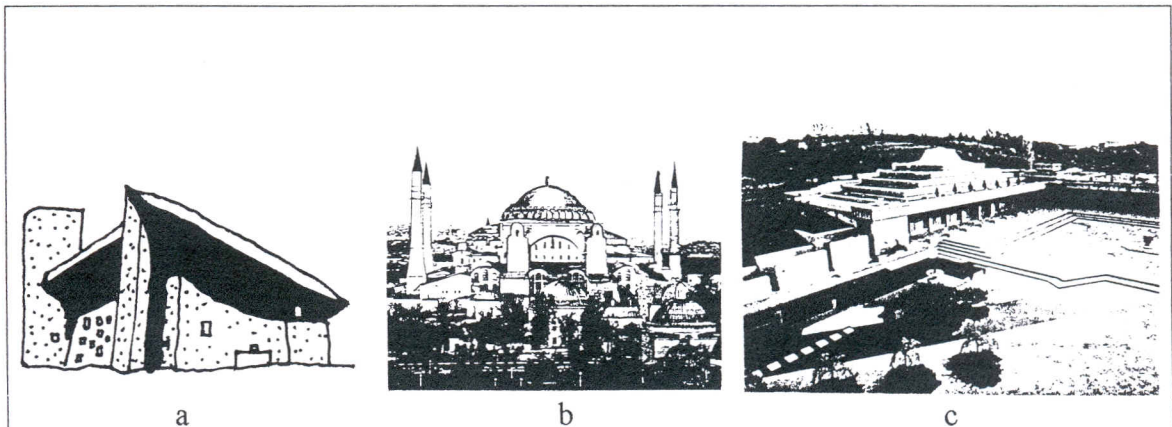


Figure 3.2.8 a. Ronchamp (On the left), b. High Sophia (At the middle)(Source: Mainstone,1988) c. TBMM Mosque (On the right) (Source: Ege Mimarlık 3, 1996)

The client can be just an individual or a community with a wish of religious architecture. The goal is to provide the needs of that religion and express the spiritual feelings.

Today religious buildings have more various forms than they used to have in the past. A good architect must be open-minded and he must experience new architecture (new forms, new material) with the same-old unchanging principles.

3.2.3. Environmental Channels

3.2.3.1. Nature- Material-Climate

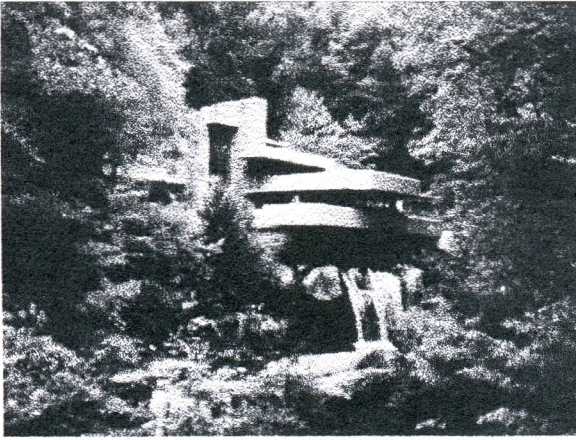
Nature affects every formation and can be found in every inquiry of creativity. Humans always imitate nature and they learn the realities from the nature itself. People have learned from trees to build or the waves of the sea have been the sources of the motifs of mouldings and decorative details like in Japanese gardens.

Nature is the centre of metaphors and it is the greatest of them all. The best forms and details can be succeeded by watching the nature carefully. However it is not possible to compete with the perfect forms of nature. We can just try to imitate or analyse the reasons and foundations of them.

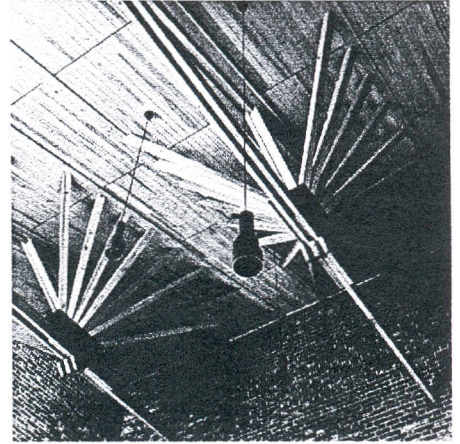
Both psychologically and psychically nature affects people. Many intangible situations of nature like the changes of the hour, the passage of the time as seen through the colours of the elements, the mountains and the sky, or the filtering of light through the clouds influence the feelings of human, deeply. Also the tangible elements of nature like mountains, sky, sea, valley, animals, organisms affect the life conditions of people.

Frank Lloyd Wright is the greatest of architects who see the nature as the source of organic architecture. In his speeches he frequently used word 'nature' and he wrote two books, 'The Natural House' and 'In the Nature of Materials', involving the concepts of natural construction, symbiosis and natural harmony. His houses were in direct relation with nature, they were like a piece of their environment. His house for the Kaufmann

family in Bear Pun, Pennsylvania, also known as Fallingwater, is interwoven with rocks, vegetation, and the water, and set an irregular dynamic integration with nature (Figure 3.2.9). Wright achieved this integration with the strategy of opposition, dynamic cantilevers, straight lines and also with the use of glass in direct conjunction with natural materials such as stone. He achieved that in several other ways; in Taliesin East, in close juxtaposition with freestanding trees, bushes and free-flowing elements of the estate. In Taliesin West in Arizona, the harmony came through the adaptation with desert, as the lines of the buildings followed the lines of the desert. Also the materials like desert stone, wood, and canvas, reflect the specialities of region. (Broadbent, 1988, Antoniades, 1992)



a. Falling Water-Frank Lloyd Wright



b. Wooden truss details of Aalto

Figure 3.2.9 a. (Source: Ege Mimarlık 2, 1998), b. (Source: <http://www.sjk.fi/aalto.htm>)

Some cultures exhibit a rather religious and so more important attitudes toward nature like Japanese and The Scandinavian. The Japanese tradition embraces a different sensibility about nature than the ones in the West. Human life is not intended to oppose nature and endeavour to control it, but rather to draw nature into their lives peacefully. In Japan, all forms are traditionally carried out within the context of the human interrelationship with nature.

The nature of Scandinavia, its climate and seasonal adversities played a significant role in the success of relationships with nature. All three major members Eliel Saarinen,

Gunnar Asplund, and Alvar Aalto, had personal relationships and personal attitudes toward nature with all creative considerations.

For Eliel Saarinen, who had no canonical design background, nature provided a major source of learning. He learned everything he knows about materials from nature. Without an academic abstraction, he used a direct imitation of nature. Hvittrösk, Eliel Saarinen's studio/ communal residence is the best example of the possibility of direct learning from nature with terrain, materials and climate.

Nature and architecture are inseparable, architecture takes all resources from nature. For example; the indigo-coloured interior with the yellow light fixtures in Scandinavia Theatre. Asplund said that while he was building this theatre, he thought of autumn evenings and yellow leaves. Here the creativity of architect takes inspiration directly from his emotions reacting to nature. Both the works of Aalto and Gunnar Asplund proves the creativity through the path of nature.

Alvar Aalto distinguishes himself as the major architect from Europe whose creativity is largely depend on his love and interest on nature. His architecture has integration with nature in many ways, including topographical through positioning, the use of materials, and the strategy of natural climate. He had deep knowledge of nature so he used the source of nature in the best way with the joints from natural adversities, the use of right materials, the use of local materials that fit the regional climate (Giedion, 1997), (Figure 3.2.9). His sketches of natural imagination transformed into natural looking buildings in the best way. Several of his buildings look like caves, undulating lakes, waving sand dunes, and spiralling winds. These are not the imitation of nature, but the laws of nature. Also their forms complete the image and silhouette of landscape configuration.

Vernacular or regional architecture has direct relation with nature. During the years past, natural experiences shape the regional architecture. Especially at the products of civil architecture, the effects of natural characteristics can be seen clearly. For example: The use of wooden materials in Karadeniz region or stone in the Eastern parts like Mardin, the window dimensions and shapes according to the climate, the construction methods, the forms of roofs (Figure 3.2.10). The wooden houses of Karadeniz and the

project of Merih Karaaslan's Peri Tower are the fitting examples showing nature-architecture relation (Yapı 184,1997) (Figure 3.2.11). Peri Tower; Peri Tower can be shown as one of the best examples of contemporary interpretation of Cappadocia region. It is a result of a long survey on traditional building techniques and natural formations of the context. The unique relationship or contrast of natural and man made environments has affected the design approaches. This tourism complex has been designed in the preservation area of the region. As Merih Karaaslan had spent his childhood at this land, now he was rediscovering the region through the eyes of an architect. His design approach returned to the authentic traditions of Anatolian (mainly Cappadocian) architecture from modernist training. The interpretation of Cappadocia is completely architectonic with the use of inclined walls, iconic and cubic forms, interspatial relations, the use of light colour as in the caves and texture. The interior spaces have been designed and decorated to form a cave like atmosphere, by its natural and artificial lightning and by devoiding of ornament.

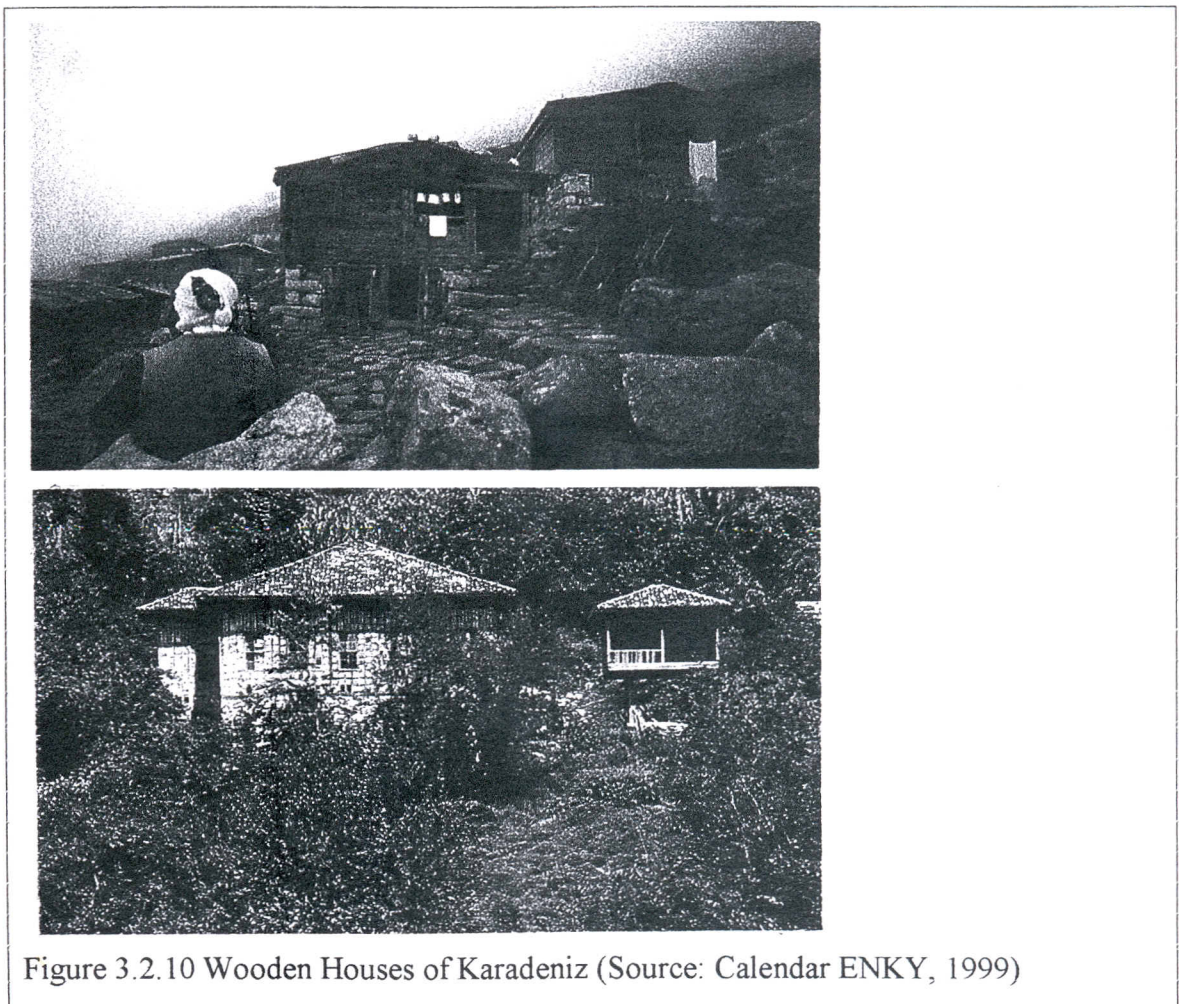


Figure 3.2.10 Wooden Houses of Karadeniz (Source: Calendar ENKY, 1999)

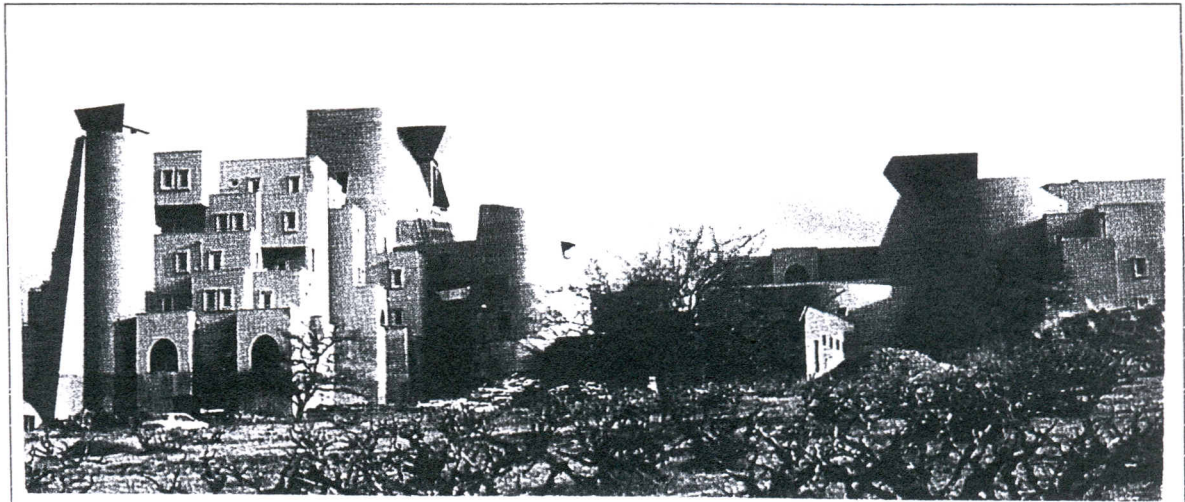


Figure 3.2.11 The Peritower Hotel (Source: Yapı 184, 1997)

3.3. The Obstacles of Creativity

The individuals themselves compose some attitudes which cause rigid thinking because of education and the conditions of daily life. Psycholog Frank Hix calls this position 'functional fixation'. According to a group of psycholog, basic obstacles of creativity are retrospective attitudes, and continuous self-criticism (Sungur, 1992).

Sungur has grouped the obstacles of creativity in three as personal, organisational, and social. In this essay, the basic factors that can be accepted as the reasons of obstacles of creativity will be underlined.

High Discipline

Finding solution to a problem is basically a psychological matter. A new idea is the success of the relation between the conscious and unconscious mind. The negative role of high discipline is very important in the freethinking and developing new relations between the facts. Under pressure, mind can not work efficiently. Especially the unconscious mind closes the doors for the new flying ideas. Mind is canalised only for thinking in the shown way so creative solutions can not occur.

No Tolerance

Intolerance may cause strong obstacles of mental abilities and may harden solving problems. The person around us can be intolerant. They usually see the world from unchangeable frames. For them, new and unpredictable solutions are very hard to accept. If the client has tolerance both mentally (accepting new, mentally) and materially (being flexible about the spaces or concept), this will encourage the architect. Also it can be ourselves who have no tolerance. Some of the creative solutions are found accidentally or by mistake. So we must always have a tolerance of making mistakes or loosing.

Security

A person or a firm, who is used to solve problems in the same usual way, treats in a sense of security. So they do not want to make changes easily. They can not accept changes rapidly, that is because of an insecurity feeling.

Loosing the job or not making money at the markets may block the creativity of an architect (designer).

Perceptual Obstacles

Some perceptual organs can not do their work like deafness, colour blindness (achromatopsy). These may cause a lack of adequacy psychologically and that blocks the creativity.

Personal Obstacles

Generally the personal factors which blocks the creativity can be briefed as follows; (Lambert, 1987, Koberg, 1976, Sungur, 1992, Bayazit, 1994)

- Lack of self-confidence
- Being afraid of making mistakes
- Being afraid of comments

- Wish of the perfect, the excellent
- Being afraid of obstacles
- Difficulty in working with patience
- Difficulty about concentrating on a specific topic
- Defensive mechanisms as a result of feelings of personal identity

3.4. The Techniques and Tools for Developing Creativity

There are certain techniques that have been devised for enhancing creativity like analogies, removing the mental obstacles, control lists, AIDA, synectics and brainstorming. The approach of Broadbent is the leading one about the architecture and human sciences. According to Broadbent (Broadbent, 1988) these techniques can be grouped in three;

- a- Checklists
- b- Interaction techniques
- c- Techniques based on Psychoanalysis

a- Checklists

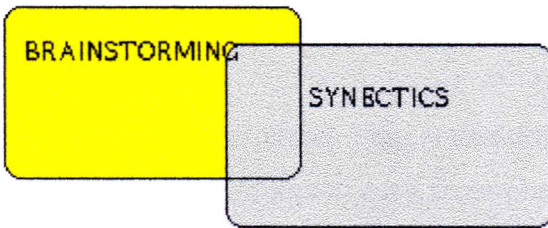
Checklists can be accepted as the simplest of all devices for stimulating creative ideas. A list of words, or visual images can cause someone to produce new ideas.

Check-list is a very personal thing and based on the designer's knowledge of what sort of ideas will stimulate him, and also related to the problems in which he specialises. An engineer's checklist may or may not be suitable for an architect and vice versa. The danger of checklists is that they tend to become too obscure. Sometimes improving the design can be a problem. There are many checklists arranged by Osborn(1963), Gregory(1963), or Matousek(1963). Osborn's list includes the vice versa technique consisting thinking the negatives, positives or upside down positions of the design problems...Certain parts of that approach could be applied to architecture in many ways. (Broadbent, 1988)

b- Interaction Methods

Interaction methods have different approaches. Guerra (1969) describes one in which line diagrams of various structural types are plotted vertically and horizontally in an interaction chart. Each square of the chart then contains a line diagram which combines two (or more) structural types. Norris described 'The Morphological Approach to Engineering Design' at the 1962 conference which is based on the work of Fritz Zwicky at California Tech (1948). It depends on the production of a table chart in which, first of all, one lists the various parameters of the problem. Norris defines parameters as 'what the subject must 'be' or 'have' such as its form, size, material, orientation, quantity, speed and so on. Opposite each parameter he then plots a series of parameter steps ways of achieving what the subject must 'be' or 'have'. One assembles a solution then by taking a single parameter from each line. (Broadbent, 1988)

c- Psycho-Analytical Methods



These are the most effective creative techniques. They promote the generation of analogies and the importance of analogies (or even metaphors) in creative architectural design has already been noted in the above parts of essay.

3.4.1. Brainstorming

In Webster's International Dictionary, it is defined as: 'To practise a conference technique by which a group attempts to find a solution for a specific problem by amassing all the ideas spontaneously contributed by its members.'

The technique itself has been used in some form or another, for at least 400 years, by certain Hindu teachers, under the name of 'Prai-Barshana', literally 'question outside yourself'. (Roozenberg, 1995)

In practice, brainstorming is simply a technique for generating checklists. When anyone puts forward an idea, it raises both associated ideas in his own mind and also associative powers of all the others. There is the important factor of reinforcement.

Ideally 5-6 participants composes the brainstorming group in the guidance of a group leader. Group leader explains the problem in the most simple and fluent way. And instantly the participants begin to say the first ideas in their mind in a certain period told before the session. The ideas that seem strange at that time can be changed to a successful solution by another group member. The ideas of participants must not be evaluated, commented or ridiculed at that time. All evaluation has done after the session. Frequently the participants invited to produce more ideas. Sketches and drawings can also be made during sessions. All the ideas listed and written by a member during the brainstorming session. All members read those papers and they come together for the evaluation of the ideas and producing new ones. (Roozenburg, 1995)

Osborn makes no claim that brainstorming is the answer to all ideas generation problems. He would like to see a three-phase sequence. (Broadbent, 1988, Jones, 1992)

- 1- Individual (ideation)
- 2- Group brainstorming
- 3- Individual (ideation)

In architectural education producing many ideas in short time will give very fantastic conclusions, especially about design, preparing application programs, looking at problems in different ways.

This method can be efficient especially in the groups of architectural studios or architects studying in the same project.

3.4.2. Synectics

'A man becomes creative, whether he is an artist or scientist, when he finds a new unity in the variety of nature. He does so by finding a likeness between things which were not thought alike before.' Jacob Bronowski

The term 'Synectics' comes from the Greek word 'synectikos' which means "bringing forth together" or "bringing different things into unified connection." Creativity involves the coordination of things into new structures and every creative thought or action draws on synectic thinking (Roukes, 1988).

According to E. Paul Torrance (1988), creative behaviour occurs in the process of becoming aware of problems, deficiencies, gaps in knowledge, missing elements, disharmonies, bringing together in new relationships available information; identifying the missing elements; searching for solutions, making guesses, or formulating hypotheses.

Buckminster Fuller summed up the essence of Synectics when he said all things regardless of their dissimilarity can somehow be linked together, either in a physical, psychological or symbolic way.

Synectic thinking is the process of discovering the links that unite seemingly disconnected elements. It is a way of mentally taking things apart and putting them together to furnish new insight for all types of problems.

William Gordon set forth three fundamental precepts of synectic theory:

1. Creative output increases when people become aware of the psychological processes that control their behaviour
2. the emotional component of creative behaviour is more important than the intellectual component; the irrational is more important than the intellectual component
3. the emotional and irrational components must be understood and used as "precision: tools in order to increase creative output.

Synectics encourages the ability to live with complexity and apparent contradiction and stimulates creative thinking. Synectics mobilises both sides of the brain, the right brain (the dreamer), and the left brain (the reasoner). Also it provides a free-thinking state of consciousness.

Albert Rothenberg (1976) says that, the creative process is a matter of continually separating and bringing together, bringing together and separating, in many dimensions - affective, conceptual, perceptual, volitional and physical.

Synectics like brainstorming is too conceived as a group activity but synectics focuses with some precision on an area in which associations probably will be generated by a system of analogies and metaphors. (Jones, 1992)

Synectics was developed by W. J. Gordon and declared with the book 'Synectics' in 1961. Generally synectics means; combining the factors which have no relation between each other.

Like morphological analysis, synectics is a complete design process in itself. It includes briefing, analysis, development and appraisal, synthesis (Making the familiar strange). It is because of looking the problem with new perspective and this is succeeded by a system of analogy generation. Synectics is based on making familiar, unfamiliar. Four types of analogies defined; (Broadbent, 1988)

- 1- Personal Analogy
- 2- Direct Analogy
- 3- Symbolic Analogy
- 4- Fantasy Analogy

Personal Analogy; designers and architects try to see the design with the specialities similar to themselves like, if I were a joist how do I feel? , what are the stretches on me?...In a sample which Gordon had given, in a design of a box of serrated, the person thinks himself as a shaft and thinks of the connections of serrations and feels the forces on the shaft on himself. Feels pain, becomes tired, and has forced...(Broadbent, 1988)

Direct Analogy; in direct analogy a comparison is made between two objects or two concepts. For example; veranda of a house and a navel of a fat man can be related. A new relation between veranda and navel has been thought which can be the source of many new creative associations. The fish format structure of Gehry in the Olympic Village in Barcelona is also an example for direct analogy. And symbolic analogy is consists analogies made according to the concepts or motions. Fantasy analogies are based on the products of unconscious mind and imagination, dreams, like science-fiction films and the architectural products effected by those films..The earth is a fantasy or dream world according to the films of Fedorico Fellini. (Bayazit, 1994)

The advice of Gordon for applying Synectics is as follows: (Denel, 1981)

- 1- The problem as it is given
- 2- Making the unfamiliar, familiar
- 3- The problem as it is understood
- 4- Operational mechanism
- 5- Making familiar, unfamiliar
- 6- Psychological condition
- 7- The wholeness of the problem and condition
- 8- View
- 9- Solution or aim

Members from different professions, two or three academician experts, and members from the owner of design compose the synectics group. The participants are selected from different characters, at different ages and different personal approaches. Many applications are given to the group that they can spontaneously make analogies with their own mental abilities.

Firstly the problem is given to group, and the group members expected to make analogies for providing the spontaneous thinking. The analyses of problems are made and they try to find unfound and unknown solutions. The analogies are produced for changing the approach of a problem and the rules are forgotten at that time. Problem is redefined and the obstacles and forces for solutions are underlined. The questions for reminding analogies are asked for reaching the solution. A new approach is aimed while

these phases are made. The products of group are presented to the real organisation group for evaluation and completing. This method is applied to the design of a roof, which maintenance can be done easily. Method can not be very helpful for the physiological planning however it can be used for forming the basic ideas of conceptions of same project in an abstract level. (Denel, 1981)

Especially this method gives the best examples in environmental design landscape architecture, reconstruction and refunctioning of old buildings and industrial design. Generally architects like defining themselves with words which are supported by drawings. While creativity techniques give direction to the designers, at the same time they increase the efficiency of this defining with words. This is one of the best examples of the solidarity between disciplines.

Translating feelings into actions is a kind of creativity. Synectics and other similar methods help individuals to intuit in the right way.

Making the unique, a known thing can be seen as paradox. Even something which is thought as well known will be strange for us when divided into pieces or thought a lot on it. The pieces may sound strange because of their nature. For example: a design of parch which does not need maintenance can be asked. During the process, parch will be defined from the beginning. There will be an analysing process and the rights that the group members accepted will be grouped. Later on the analogies will work the operation mechanism like metallic or plastic environment, stone garden without human, like moon surface. They all make the known strange.

Synectics is a more elaborate technique than brainstorming with its nine major phases. First stages of Synectics concentrate on the investigation and reformulation of the problem. Solution is left to other following stages. Synectics is a complex technique and participants of that technique need considerable training. Perhaps because of that reason Synectics has not become widely popular.

In 1975, seminar of Synectics was applied by Bilgi Denel at METU (Denel, 1981). But this seminar was not permitted in the Faculty of Architecture and was given at Administrative of Faculty.

Both brainstorming and synectics are based on the idea of using group acting in concert so as to avoid any individual mechanisation of thought. In both cases there are tight rules. The participants are controlled by the group chairman and building on the ideas of others without encouraged judgemental attitudes is advised. Also participants are allowed to generate as many different ideas as possible no matter how absurd they may seem. Researches has shown that brainstorming can generate more ideas which are judged to be better but the technique has also been criticised for being superficial results through a lack of provision for analysis of problem.

In architectural design education, producing many ideas in a short period of time, preparing the application program, looking the problems in different views will be efficiently succeeded by the help of brainstorming. The ones who both teach and learn this method can easily make changes or developments about the application of this method.

In general the teachers give the problem and want the students to find a solution. The students or designers can produce more than one solution and choose the best one by the help of these techniques.

By the help of brainstorming, it is possible to gain self-confidence, and the power of interference of participants will increase. Also the participants may learn to be respectful to the ideas of the others. Creativity education provides a framework of working with others as a team. Some of the values which are lost during the education will be gained again and will turn into a longlasting manner.

It is not possible to solve all the problems by the education of creativity techniques. However it will be a very important step for the right way.

Transforming the intuition into an action is almost creativity itself. It is like an exposure of accumulation of experiences coming from the unconscious mind. The creativity methods like Synectics and Brainstorming help individuals to intuit in the right way. For making the right intuitions these methods automates the needed psychological mechanisms.

CHAPTER 4

ANALYSING ARCHITECTURAL CREATIVITY THROUGH THE ARCHITECTURAL EXAMPLES IN TURKIYE (CASE STUDY)

4.1. Search for Creativity on Architectural Products

While evaluating the products, making explanations about the psychological identity of the designer is not particularly the business of architectural discipline. Generally even the architect himself can not identify or can not explain how he creates. Moreover, most of the designers do not want to decipher their creative process. This is like a secret formula or a miracle which will end up when it is explained. As we know there is not any research or publication which is directly based on the explanation of creative design process by the designer, himself. In fact there exist some, they do not reflect the truth. Wright had written some books about this topic and it is said that it has no actual relation with the realities. (Broadbent, 1988)

While deciding on the approach of the case study of such kind of an essay, there have been two important alternatives. It can be based on 'the product' or 'the designer'.

PROCESS

ARCHITECT-----> PRODUCT

The former is preferred due to the following reasons;

- According to the previous researches on this topic, examining creativity on the end products is shown as the only way of analysing creativity concretely (Denel, 1981).
- It is hard to expect a person to decipher his physiological process while creating something. The architect who can do this, must be partially a philosopher and an analyst at the same time.

- Most of the designers don't like to decipher or to formulate their creative design process.

When there exist some clues, the source of some of the designs will be easier to decipher. For example, Karaaslan explains the effects of the images and memories of his childhood while he was designing The Peritower Hotel. This is a clear example for the personal channel of architectural creativity mentioned in the previous chapter.

Another example can be shown as the role of education which had influenced Konuralp's architectural formation. From his interviews we can understand that the main source of his universal and modernist approach is the education he had taken in London.

4.2. The Analysis of Creativity on the Examples from Turkish Architectural Exhibition and Awards

4.2.1. Selection Criteria

For reading the creativity on an end product, some specialities must be distinctive. All the examples mentioned below have originalities from different point of views. These specialities which are mostly related with originality are underlined as the criteria for the selection of the examples from the Turkish Architectural Exhibition and Awards.

1. Originality
 - 1.1. Originality in the conceptual design approach,
 - 1.2. Originality in the architectural language (morphological properties)
 - 1.3. Originality in environmental interaction,
 - 1.4. Originality in the construction technique or system,
 - 1.5. Originality in material
2. The situation of the architects in Turkish architecture.(Each one represents a specific and personalised architectural concept.)
3. Their dependence on the concepts of *newness* and *contemporaneity*.

These criteria are basically not different from the criteria of juries and one or more of them is reported for each project.

4.2.2. The Criteria of Creativity Applied on the Selected Examples

The explanations of the chosen examples are mostly based on the personal statements of the architects for reaching the most proper conclusions. The specific qualities of the buildings which also represent their originalities are underlined while the general explanations are made for introducing the projects (Table 4.2.2.1.). Most of the design approaches mentioned below also represent the general design attitudes of the architects.

Milli Reasürans T. A. Ş. Headquarters (The Building Award-1994)

Architects: Sevinç Hadi, Şandor Hadi

Project Date: 1985-1988

Construction Date: 1988-1992

Owner: Milli Reasürans T. A. Ş.

The Headquarters Units, Business and Trade Center of 'Milli Reasürans T. A. Ş.' is a complex, including headquarters of Milli Reasürans T. A. Ş., a bank, a market, an art gallery, business and commerce centers, in Teşvikiye, İstanbul (Catalog, 1994).

The General Management has contained the senior management and working areas, and the related facilities involving the insurance institution, open and close locales, the guest house, the conference hall, bookroom, and art gallery. The Business and Commerce Center has contained an İş Bankası branch, two office buildings and shopping units (Catalog, 1994).

The leading design approaches consist of the following criteria; (Kortan, 1997, Eldem, 1994), (Figure 4.2.1)

- Creating an atmosphere of spaciousness at the boulevard where there is a heavy traffic of vehicles and pedestrians.

- The building has been pulled back to form a contrast with the solid mass of Mongeri's historical Maçka Palas. Accordingly, the era differences between the old and the new have been expressed by contrasts such as solidness-emptiness and solidness-transparency. A continuity has been provided in horizontal lines of the environment by preserving the level and height of the Maçka Palas. The top and bottom lines of the complex is in harmony with the lines of the Maçka Palas (Eldem,1994).
- By the likeness of a huge crown gate, 'aiwan' provides an interpretation of a great space with a safety and surrounded feeling.
- Making use of the natural light in the most efficient way by the space and formal organizations.
- The simplicity concept has been concreted by the contemporary lines in the whole of the building.

The Natioanl Reassurance Building Complex is on a boulevard, Teşvikiye Street, which is considered to be the only street in İstanbul with such a long row of significant buildings. Some of the buildings are among the first buildings of the Republic years. The project area is placed at the narrowest part of the Teşvikiye Street and the architectural design of the complex has been started with an idea of creating a spatial expansion (Figure 4.2.2). The emptied mass has been covered by a bridge parallel to the street in loyalty to the urban line. This area composes an urban 'aiwan' (Catalog, 1994), (Figure 4.2.3).

The continuous row of buildings are interrupted at certain intervals by attractive gardens which can be accepted as absorbing vacuums (Eldem, 1994). At these interruption points it is possible to find very impressive building façades like 'Maçka Palas'. The 'Maçka Palas' is a significant example to this continuity. The architects, Sevinç and Şandor Hadi have tried to create an interesting and a new type of vacuum at their project area.

Instead of putting a massive block, they prefer to empty the block. This solution brings daylight to the inner parts of the building. It helps to create a new world with a view of different angles, depth, perspectives and directions. If the building has been located as a massive block on the street, only the bank placed at the ground floor would have addressed

pedestrians (Figure 4.2.3). Now the aiwan of the pulled-back building has become a reference point that is very interesting for the citizens, and a symbolic force in the close environment. No attempt has been made to draw in every passer-by, by either creating a square or even by enlarging the pavement. The passer-by has just been offered the reflection of the line drawn in the sky. The single column bearing the static load constructively has been thought as a sign of the symbolic power (Eldem,1994), (Figure 4.2.2).

The General Management department is placed on the bridge, upper part of the aiwan, and the other management and working places are positioned at the lower parts. The working areas of the office floors have been placed back for visual distance.

The courtyard surfaces among the aiwan have been lighted by the natural light from the sky. Openings from floor to ceiling have been applied in the spaces where light has been needed, such as offices. The circulation section has been the buffer area against the noisy street. The flexible open office area, meeting and director rooms have been placed behind it.

The shopping and recreation units starts at Teşvikiye Street and have reached Emlak Street by aiwans at different levels and heights, and have been repeated at one floor level. The service and vehicle entrances have been placed on Emlak Street at the lower level. Four separate heating, air-conditioning and climatization centers, the parking place for 190 cars and shuttle buses have been placed at the 2nd, 3rd and 4th basement floors. The conference hall and its foyer, bookstore, art gallery and cultural and artistic activities have been placed on the 1st basement, close to the main entrance. (Kortan,1997)

The beige granite plates on the large wall surfaces, the noticable frames, the fume coloured glass on the joinery, the installation doors with metallic brightness have been the vehicles for the refined, simple, serious expression basing on high technology. This expression has been tried to be coloured by the trees, flower pots and greens hanging from the terrace (Şentürer, Tasarım, 49). Generally the load bearing panels have been covered by stone on

the façade. Aluminium panels have been used on the bridge to decrease the load (Figure 4.2.4).

From the general design phase to the implementation of each detail, special care was given to realise *contemporary architecture* with a basic expression of simplicity-purity and tranquility-serenity (Catalog, 1994), (Figure 4.2.5). The architects never prefer formal prescriptions, instead of the rights about life (Eldem, 1994). The design approaches of the building is sensitive about the relations between human, life and environment. The building is not only a structure but moreover an urban space for the city. By emptying the mass in the borders of the building, city gains special space. Also with the proportions, heights and materials, it is in harmony with its environment. Approaching to the building from the street and the sufficient usage of natural light are perfect.

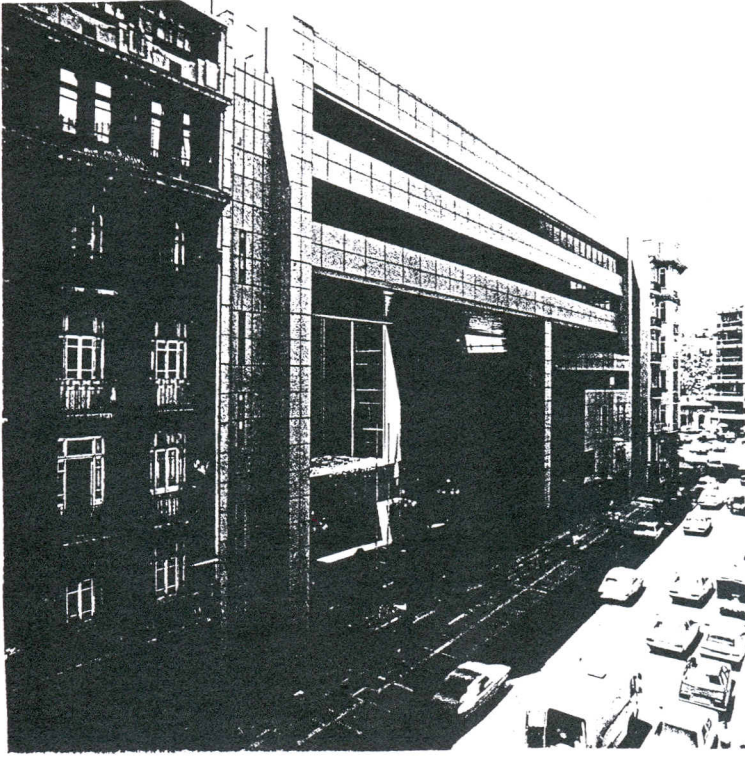
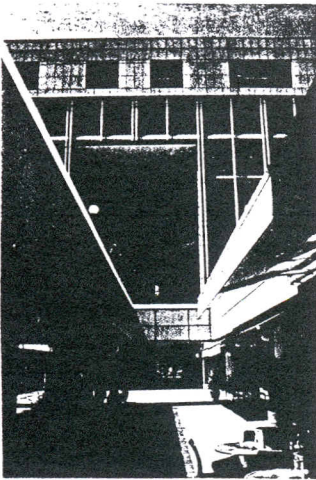
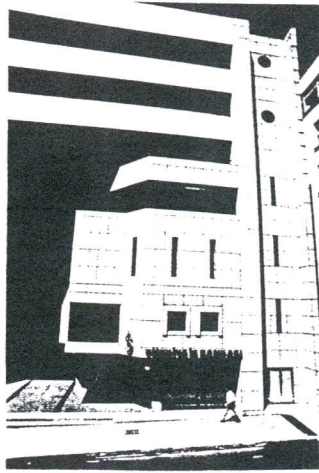


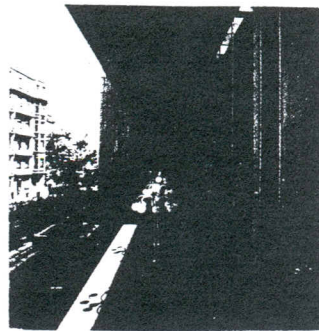
Figure 4.2.2. Milli Reasürans T.A.Ş. Headquarters,
View from Teşvikiye Street (Source: Yapı 157, 1994)



a



b



c

Figure 4.2.3. Milli Reasürans T.A.Ş. Headquarters,
a. Passage (On the left), b. İş Bank (At the middle), c. Aiwan (On the right),
(Source: Kortan, 1997)

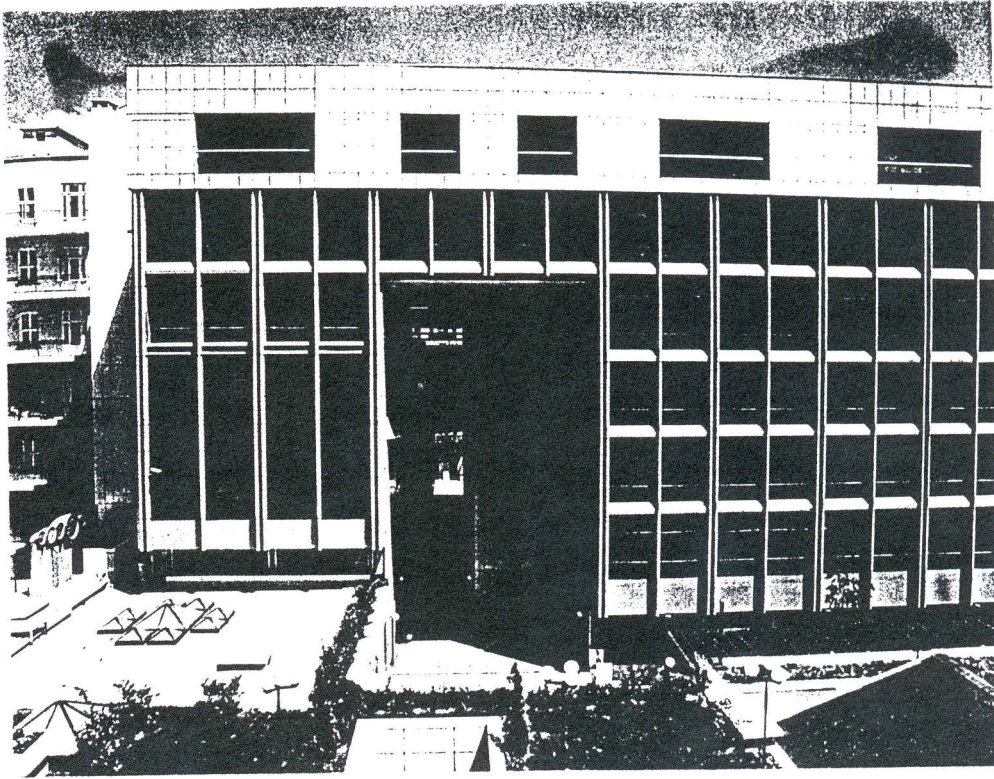


Figure 4.2.4. Milli Reasürans T.A.Ş. Headquarters,
View from the back side (Source: Yapı 157, 1994)

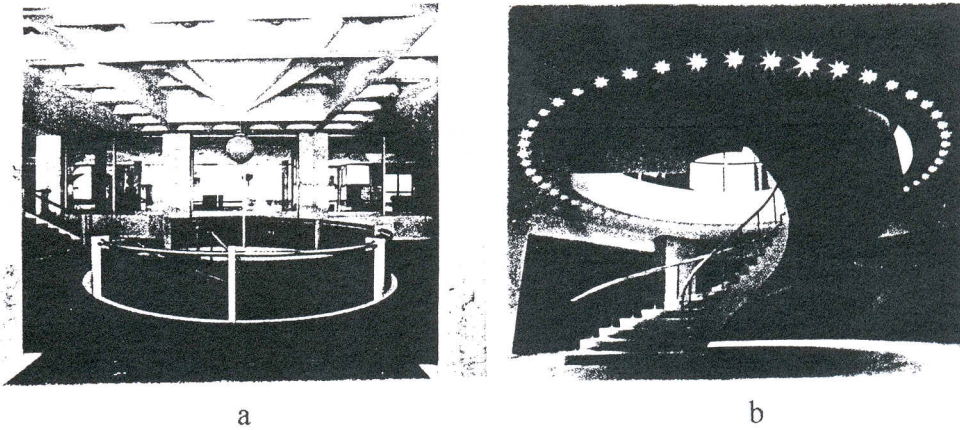


Figure 4.2.5. Milli Reasürans T.A.Ş. Headquarters,
a-b. Views from stairs (Source: Kortan, 1997)

Sabah Printing Center(The Building Award-1994)

Architect: Mehmet Konuralp

Project Date: 1987-1988

Construction Date: 1988-1990

Owner: Sabah Yayıncılık A. Ş.

The universal and modernist approaches of Konuralp's architecture is mostly effected by the education he took. After graduating from English High School he studied first in Munich, then in London at the Architectural Association School. What he had learned there had formed the basis of his perception of architecture. Also as he said, the international environment of the school had left an impression on him which had influenced his architectural formation. In his dialog with Yücel he said that his tours to different parts of Turkey and abroad also played a role in his formation (Yücel, 1991).

According to the program including the requirements of Sabah, a major daily news, a rectangular building with four stories and a basement was designed. Under the guidance of the site limitations and prevailing bylaws, a symmetrical plan 108 meter long and 36 meter wide was developed. The East and West flanks which are 9 meters deep, contain various offices, while the 18 meter wide central spine houses the press hall, computer center, open office spaces, meeting rooms, atriums, and roof lights. The major departments of the building are press hall, reel store, mail room, prepress and paging departments, CAD-CAM offices, editorials for various magazines and newspapers, administration, finance and accounts, commercial and advertisement departments, reception and public relations, recreation and social facilities, supporting services, stores maintenance workshops, mechanical, power and air conditioning plants (Catalog, 1994), (Figure 4.2.6).

The plan module has been selected as 600×600 mm as the result of the optimization of various standards and considerations. The load-bearing waffle slabs were therefore divided to spans of 9 m in both directions (Figure 4.2.7). In the printing area a span of a double axis was found satisfactory as it permitted the installation of two printing machines side by side. The paper storage and packaging departments were located in the side aisles on either side

of the printing area. Three shafts, each measuring 9m×9m were built both on the east and west sides of the building, housing all technical functions and vertical circulation. The toilets, refreshment machines and waste bins were also located in these six shafts which were connected to the exterior of the building (Konuralp, 1994, Kortan, 1997).

The waffle slabs used as load-bearing floors allowed for the installation of lightning fixtures and fire detectors in the voids and left no need for suspended ceilings. In order to make maximum use of daylight, the free space between the shafts has been utilized as atriums. Both the atriums on the southern and northern façades and the one in the centre have transparent roofs (Konuralp, 1994), (Figure 4.2.8).

A special space frame was used at intervals of 4×1,80 m in order to support the transparent curtain wall measuring 18m×18m on the northern and southern maximum dimensions of the glazing to be fitted. Space frame elements made up of 1,50×1,50 m modules were used to cover a span of 18m all along the length of the building measuring 108m. This type of roof construction minimized the weight per square metre to a bare 17 kg. and also made it possible to omit the central columns at the top floor (Konuralp, 1994).

The office areas were generally designed as open plans, supported with atriums. The printing machines and yet the printing was positioned in a common, central space where everybody could see. Introducing the printing presses to visual appreciation is an original approach in the printing and other industrial productions. Also the searching in the building technology and construction technique is original (Figure 4.2.9).

Technological perfection, success in the design of the space and structural organisation, experimental but realistic and pure end-product... These concepts represent the main design approaches of Konuralp's building.

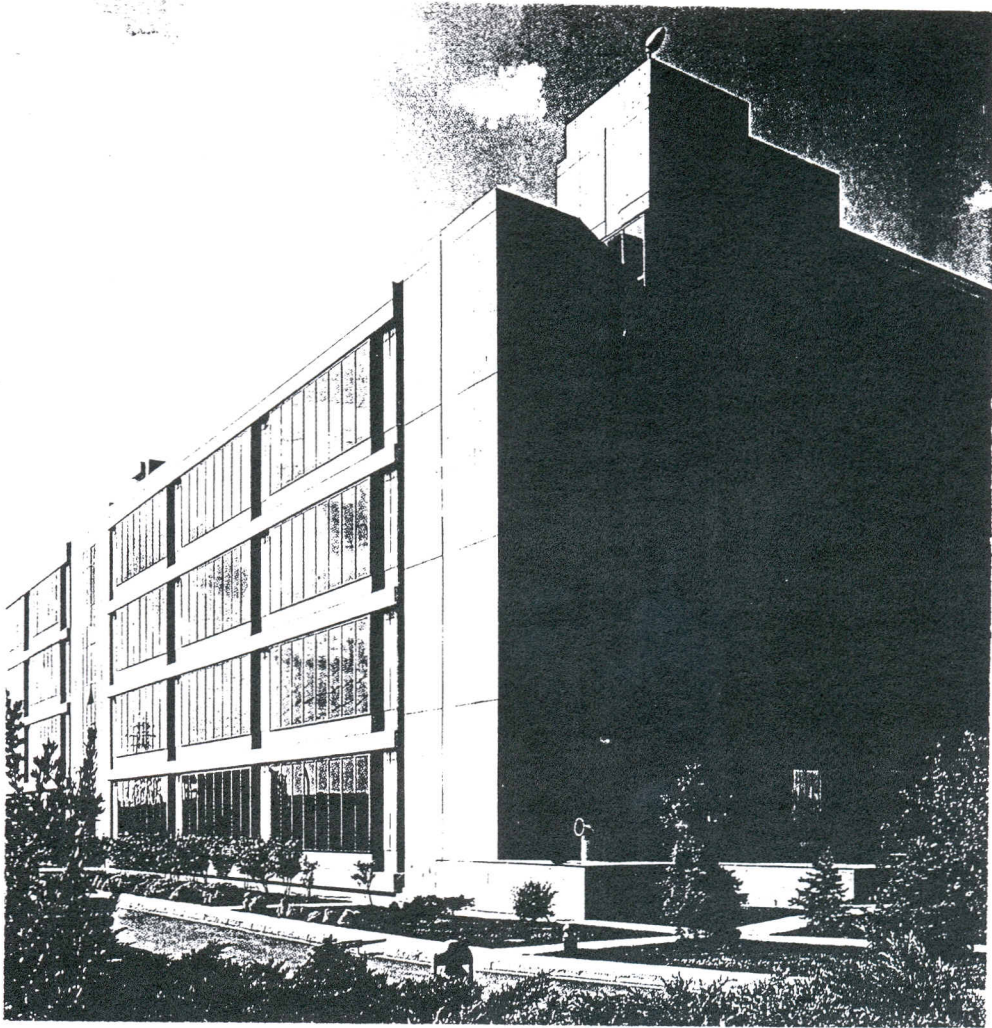


Figure 4.2.6. Sabah Printing Center, External view (Source: Kortan, 1997)

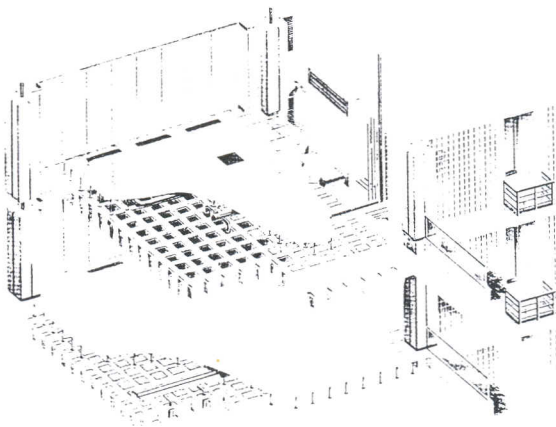
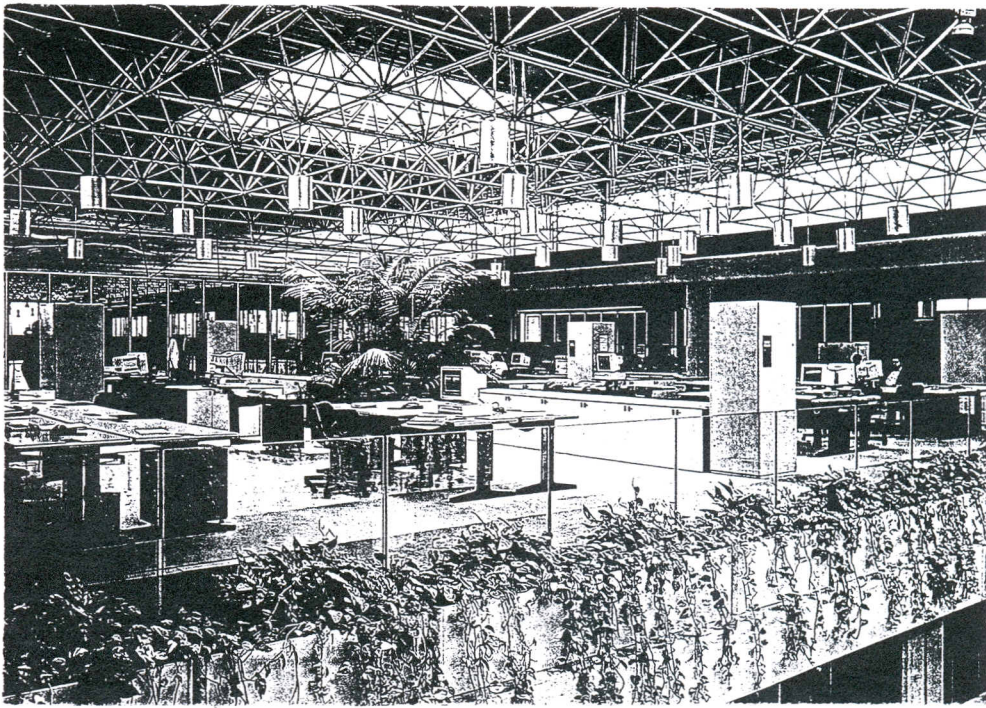
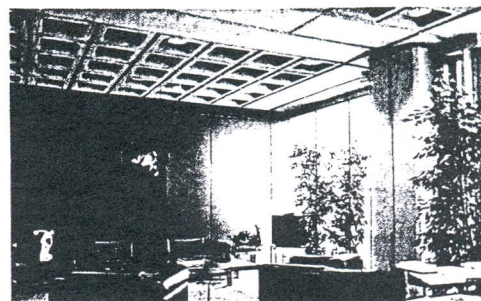
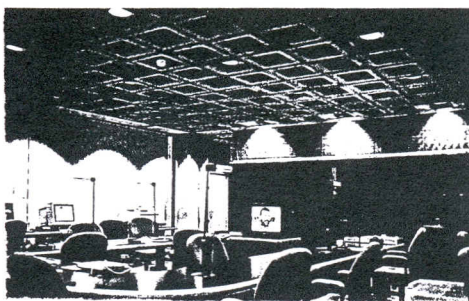
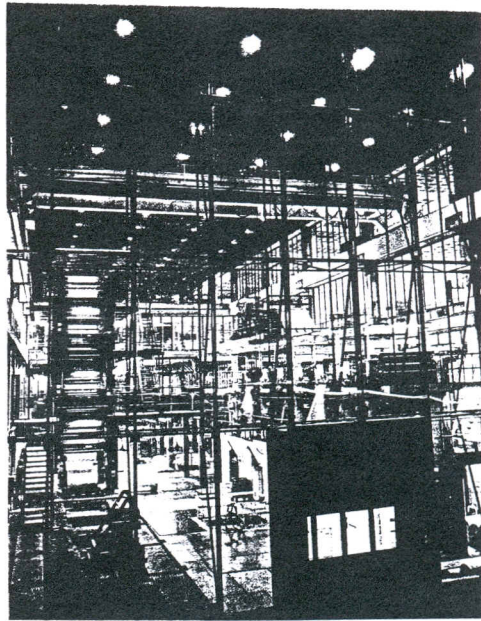
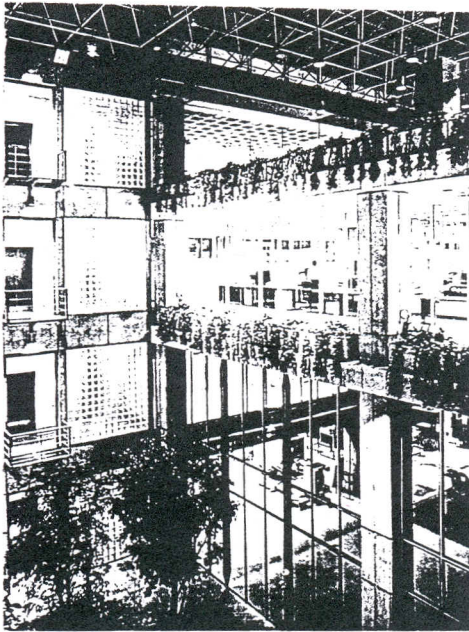


Figure 4.2.7. Sabah Printing Center, Perspective from the section of the construction system (Source: Kortan, 1997)

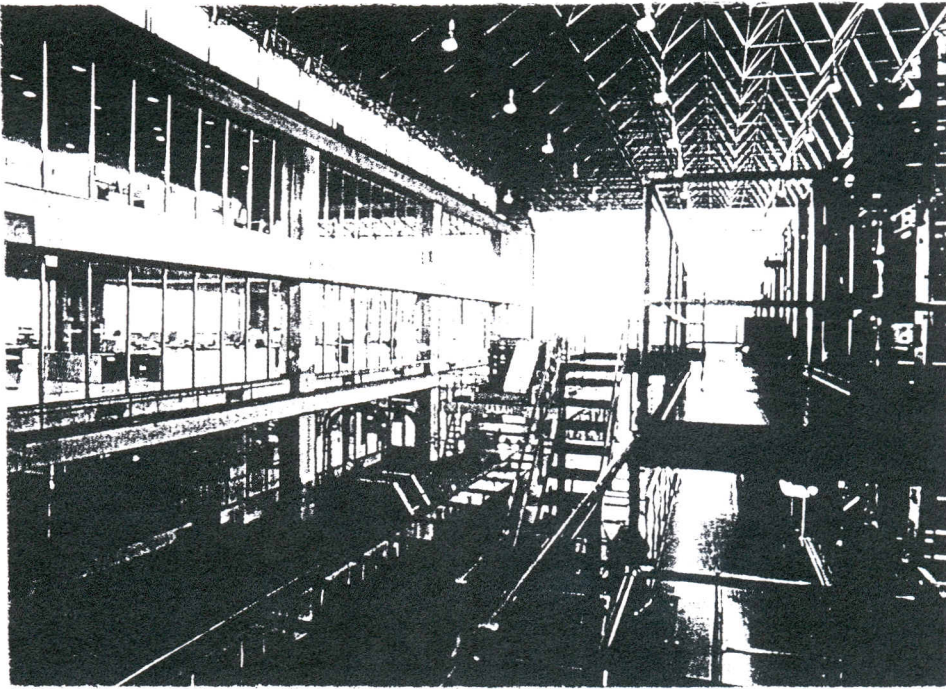


a

Figure 4.2.8.a-b.Sabah Printing Center, Interior Views (Source: Kortan, 1997)

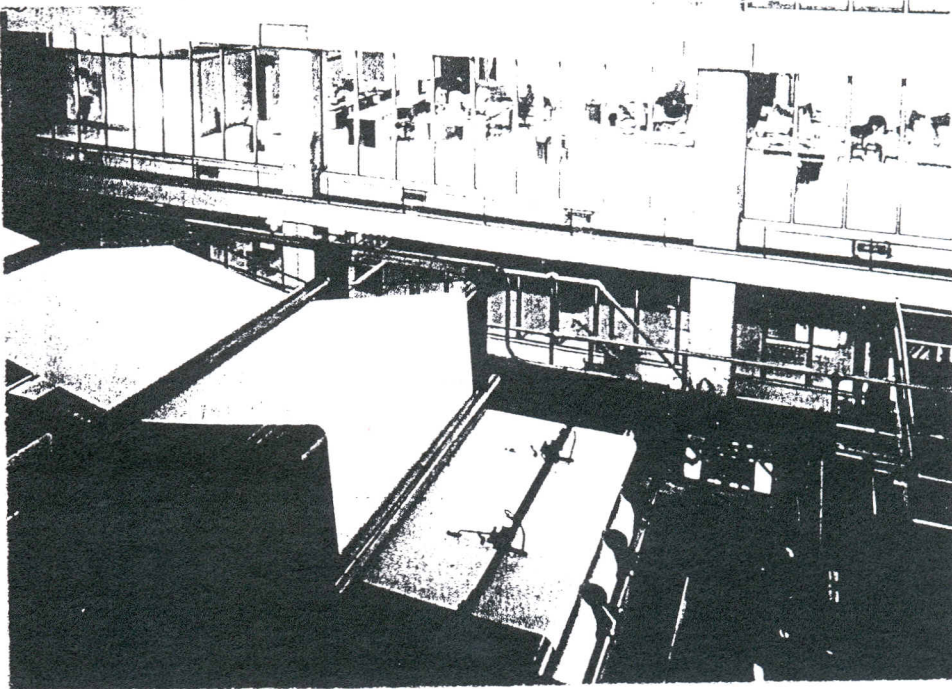


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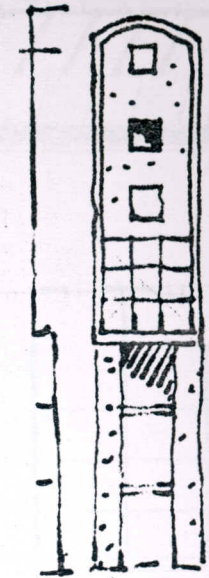
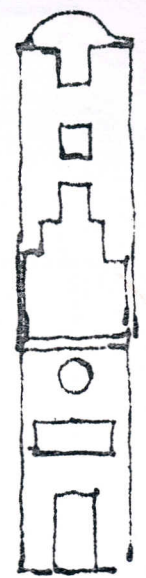
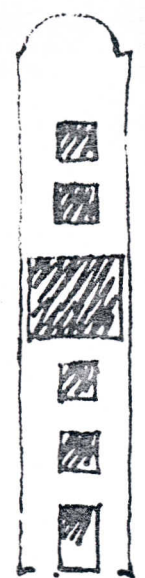
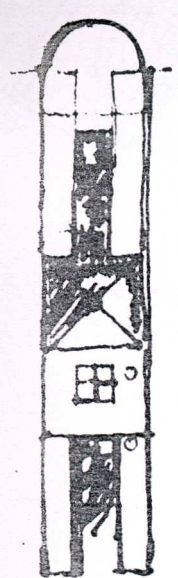


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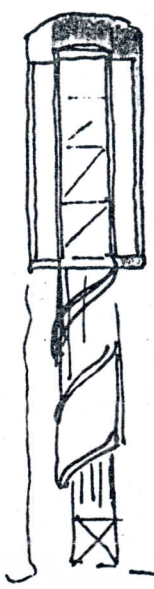
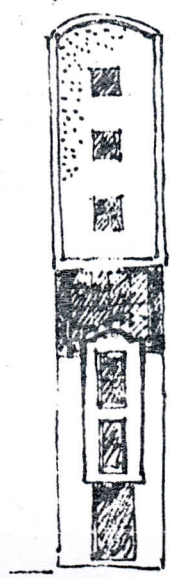
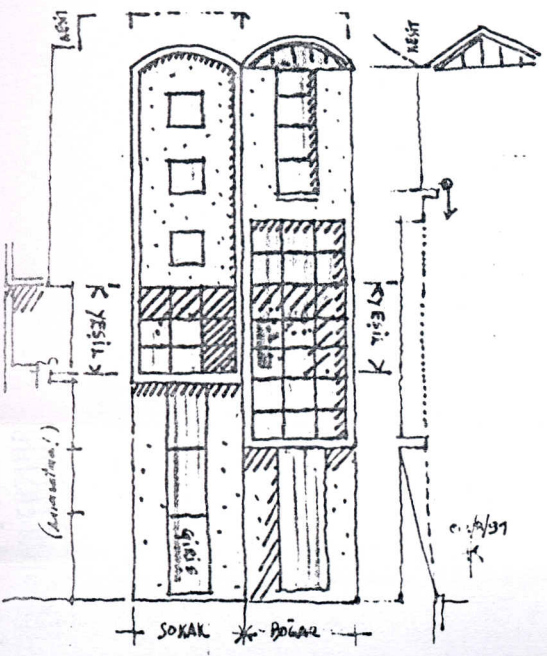
Figure 4.2.9.a-b.Sabah Printing Center, Two of the views show the printing area, which is positioned in a common, central space (Source: Yapı 151, 1994)



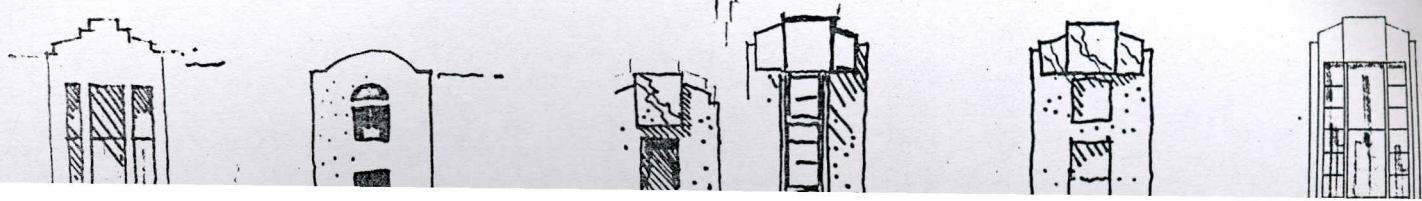
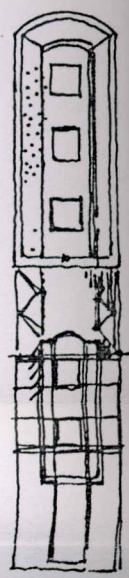
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CADDE



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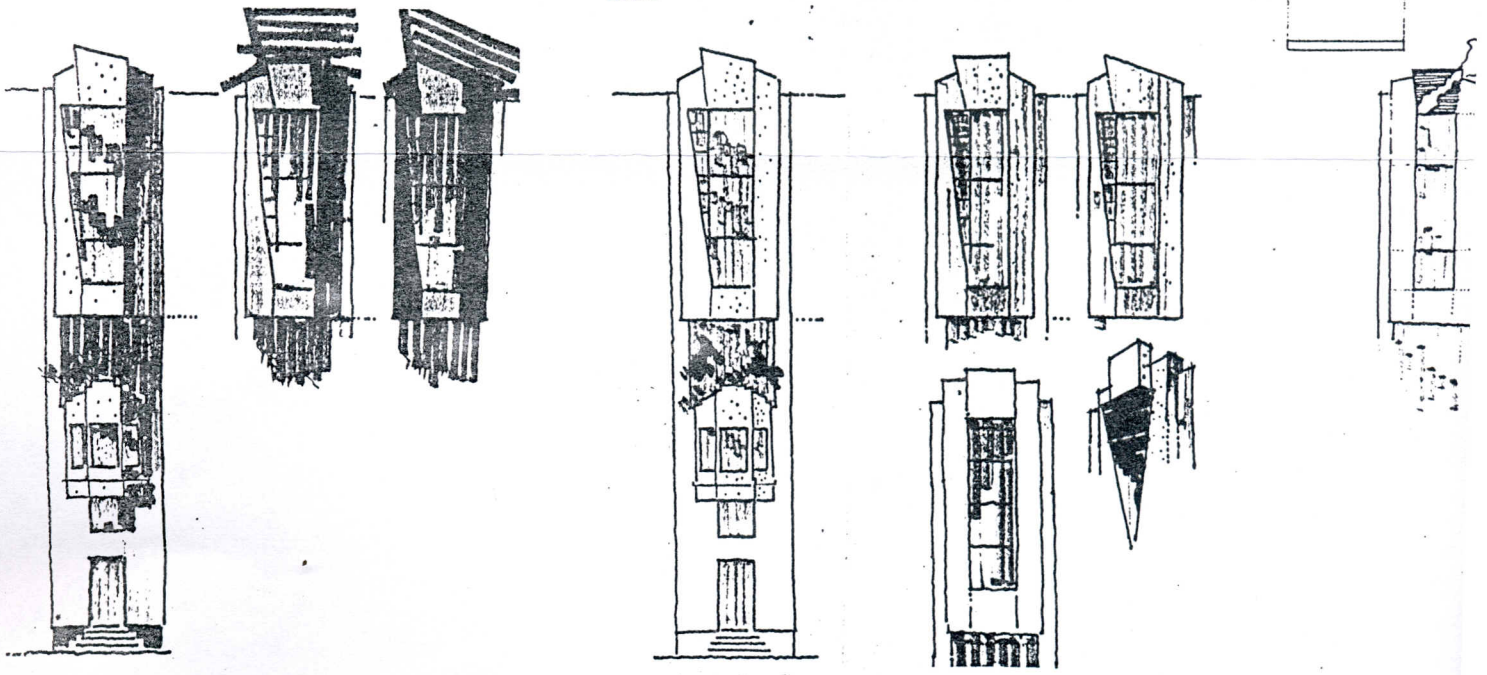
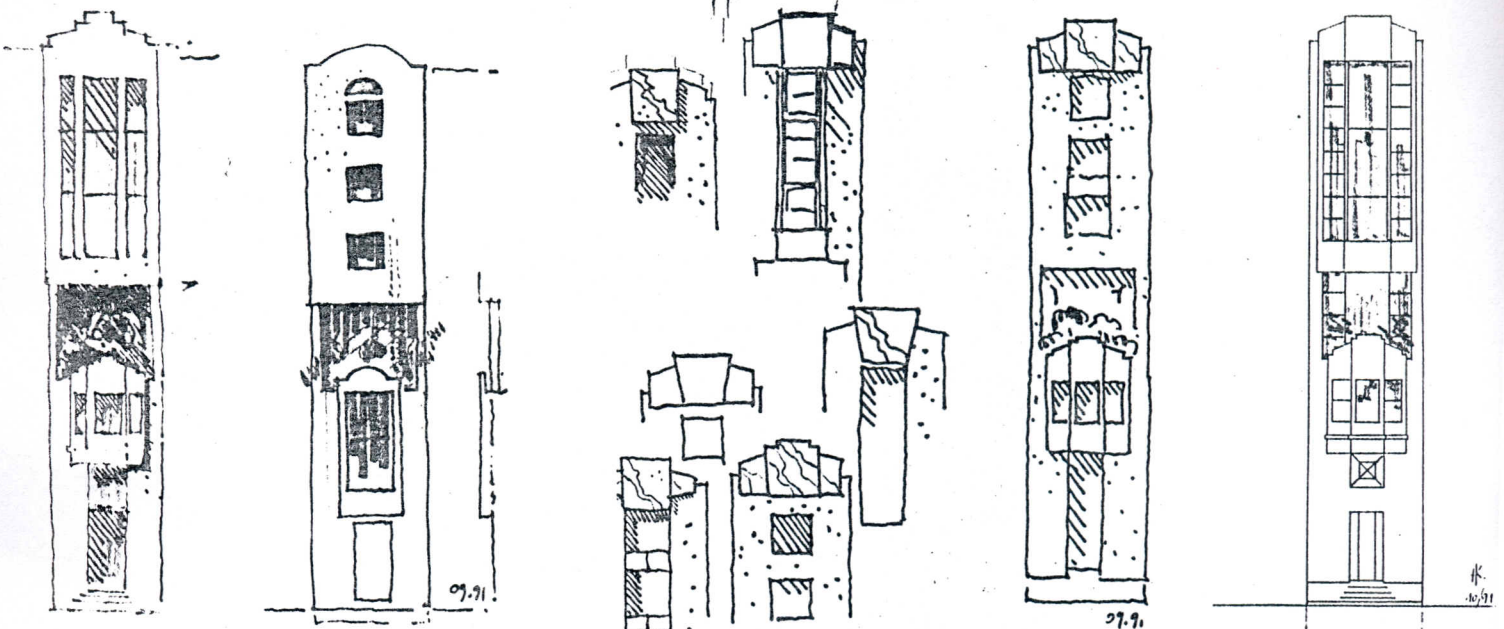
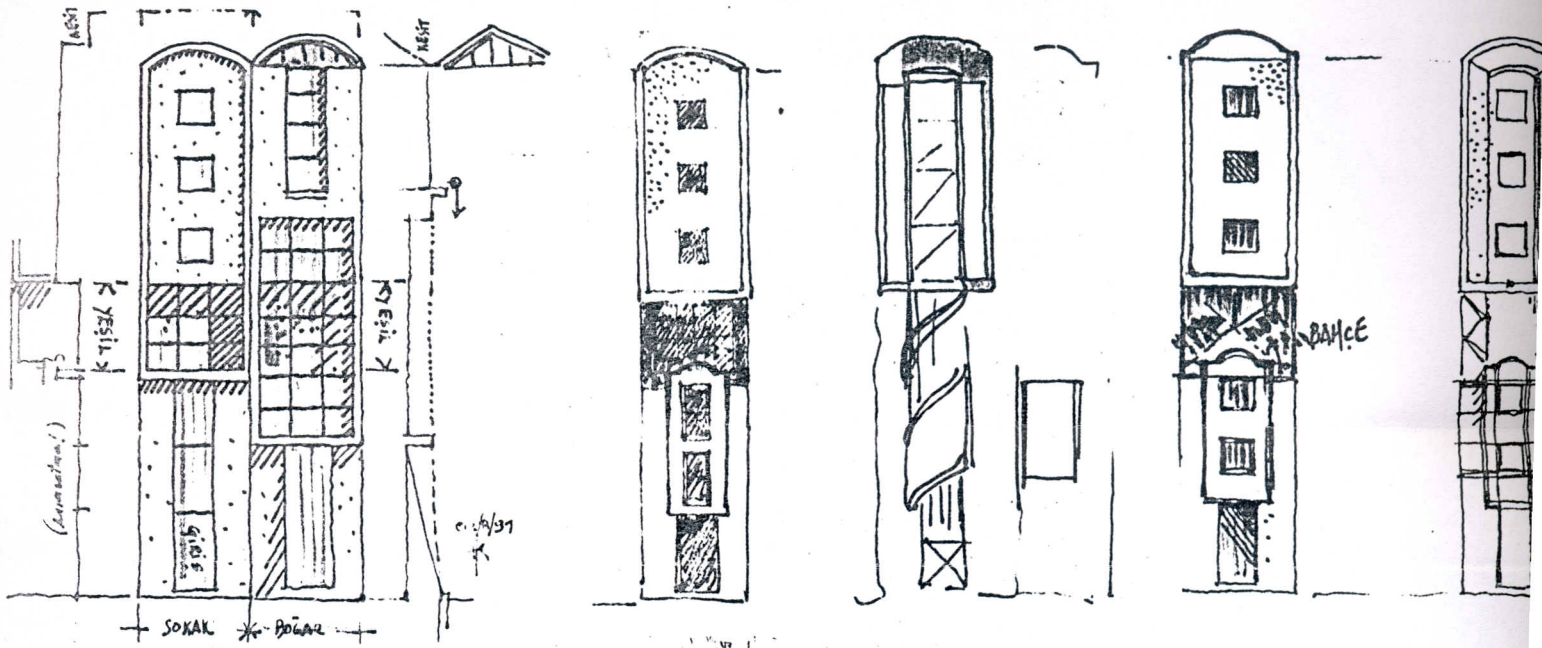


Figure 4.2.10 E Residence, Sketches from design

The lower part of the façade has been covered with the plaster dusted with erased marble, and the upper part with the big dimensioned Carrera marbles (Karabey, 1995), (Figure 4.2.11).

The upper part is a simulation of contemporary cumba according to Karabey (Karabey,1995), and a 'gofre', an addition to the street façade according to the definition of Erkmen (Figure 4.2.12).

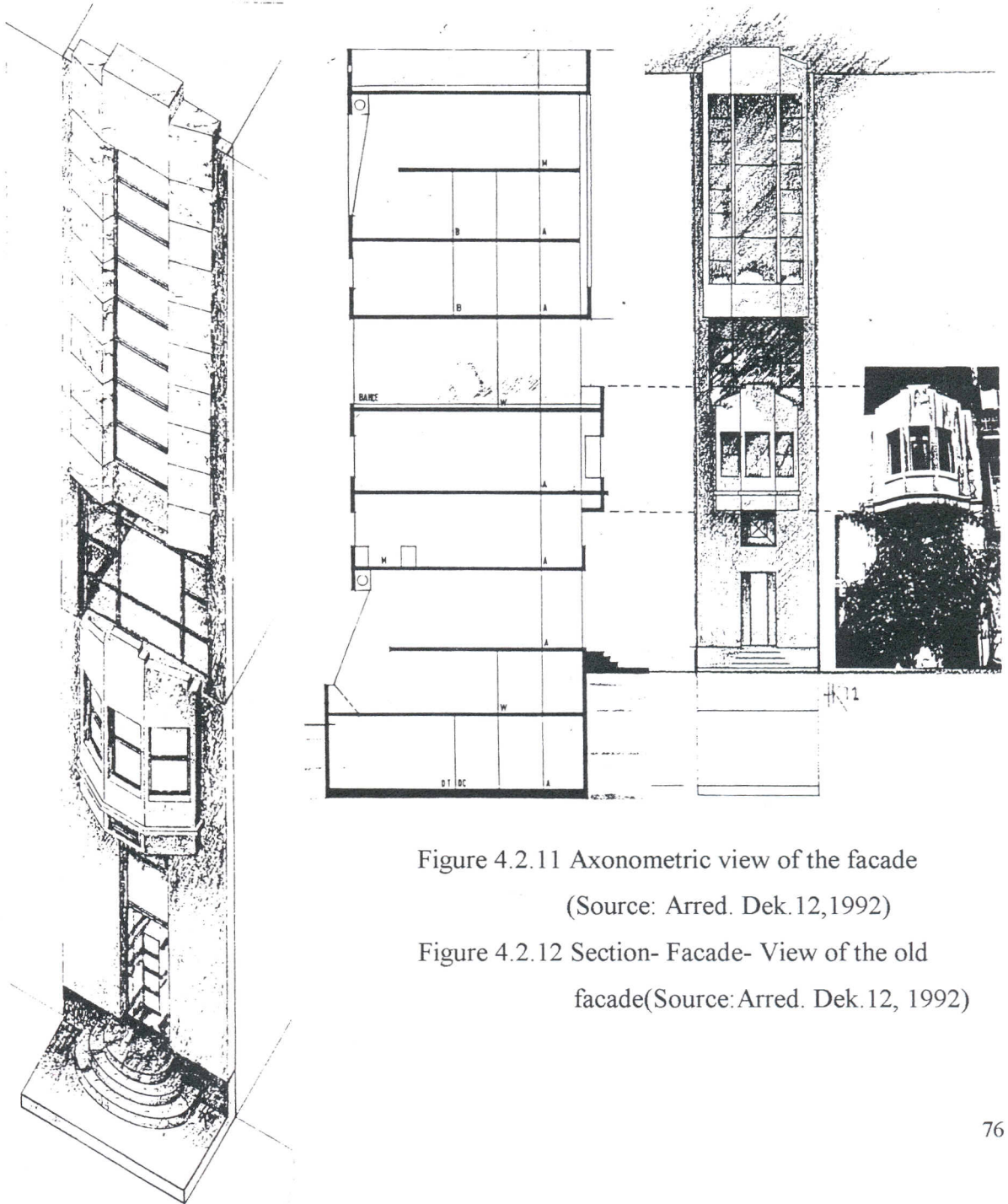


Figure 4.2.11 Axonometric view of the facade

(Source: Arred. Dek.12,1992)

Figure 4.2.12 Section- Facade- View of the old

facade(Source:Arred. Dek.12, 1992)

Gön Leather, 2. Building (Building Award-1996)

Architect: Nevzat Sayın

Project Date: 1994

Construction Date: 1995

Owner: Gön Deri Ürünleri A.Ş.

In an industry building, architectural values are tried to be analysed and there is the respect to the production and labour throughout the whole project. The sensitive design approach in such an industry building is an original approach. From the plan organization to the implementation of each detail, the purity and functionality can be seen.

The building is constructed at the reserve area which take place at the back of the first building built in 1990 (Figure 4.2.13). However it has relation with the 1. Building, inside itself, it is independent. The building consists of spaces like office rooms, meeting rooms, storages, kitchen, dining-hall. It is completely a brutte concrete construction, placed on a project area of 10000 m. Simple and longlasting materials and details are used at each part of the project (Mimarlık 268, 1996) (Figure 4.2.14)

The building has no relation with the bad visionary environment. It represents a good sample for the buildings around.

Sayın emphasizes that he has always worked with good clients and he shows the relation with the owner of The Gön Leather Factory as the most important one. He states that they have done approximately everything together. They even had no acquaintance at the beginning, but as time went by they discussed every matter from the beginning to the end. The owner had no intentions of interfering into the fields of the architect and Sayın had always cared for the requests of the client (Sayın, 1996).

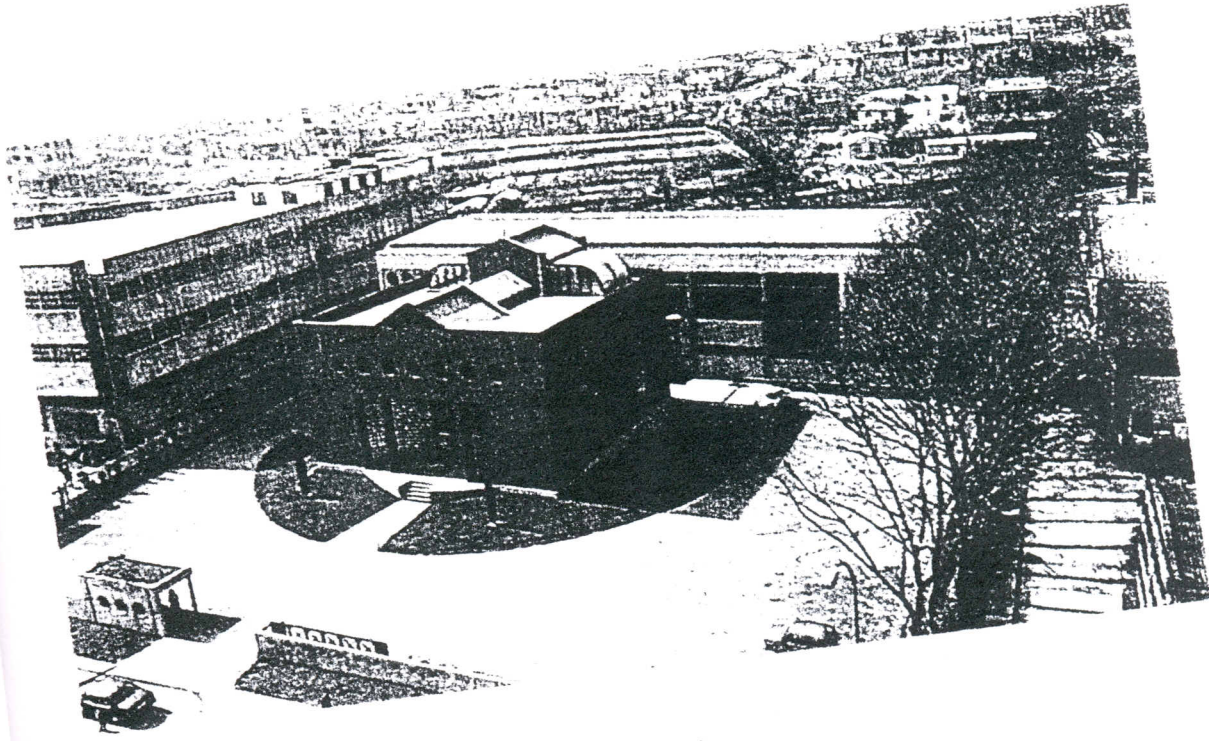


Figure 4.2.13 Gön Leather, First Building, 1990
(Source: Mimarlık 270, 1996)

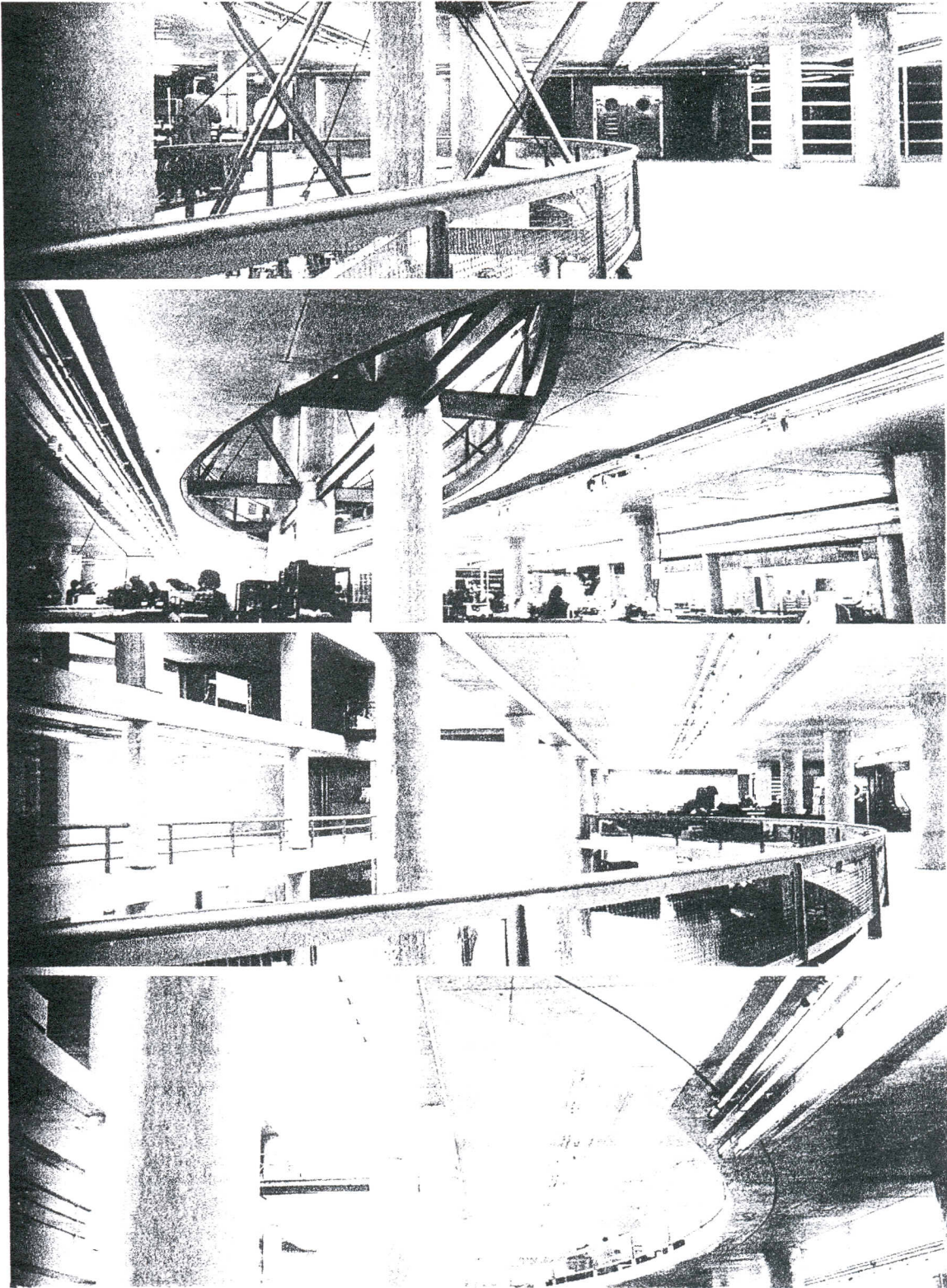


Figure 4.2.14 Gön Leather, 2. Building, Views from interior spaces

(Source: Mimarlık 270, 1996)

House at Tekirdağ (Building Award-1998)

Architect: Nevzat Sayın

In the jury reports, the project is identified as an original interpretation of the 'big house' which can distinct this house from the others. The purity and experimental research in construction technique defines the character of the house. The choice of material and its usage is an important architectural design approach (Mimarlık 7, 1998).

There are some special design approaches belonging to the project; (Sayın, 1999)

- Reaching the building site from the office takes more than an hour even in good traffic and the frequency of site visits directly affects the method of the design and construction technique.
- The strong desire of the client for a stone house from the beginning of the design process.
- Using the most sufficient material which is both economic and easy to apply. Accordingly, plaster had not been used and it is decided to work with gas concrete blocks and cast in situ exposed concrete. Prefabric elements were not preferred because of the scale of the project.

A 25×30×60 cm element was available for the design and all the measures are considered as multiples of this element. The dimension of the wall and spacing were established according to the possibilities of materials and sometimes it was needed to work with reinforced concrete. The building was seen like a lego land at the construction stage. According to Sayın it resembles a '6000 stone game' (Figure 4.2.15).

Sayın says that; ' Every stage was an integral part of the completed whole. Everything was open and easy to follow, supervise and immediately intervene on if necessary. We have seen from our experiment that, as we had thought, improved 'traditional' or 'old' materials and methods can often bring about good results.' (Sayın, 1999), (Figure 4.2.16), (Figure 4.2.17), (Figure 4.2.18).

Nevzat Sayın emphasizes a metaphor of 'emptiness' in his explanation about the project and he adds '...it is an emptiness in the forest. The building is directed to the north, to the highest point. The walls of the back side prevents the cold weather coming from Balkans...There is an emptiness in front of the building. The relation of the emptiness with the building provides the relation of that emptiness with the forest. It is rigid...'. Here he underlines the contrast of the pure mass with the green forest. He draws definite lines between the forest and the house, the building is like a hole in the green background (Sayın, 1999), (Figure 4.2.19).

However the richness of the creative solutions can be argumentative when it is examined among with the other sample projects, because of the parameter of choosing the samples among the National Architectural Exhibition and Awards, instead of his more creative projects, this house project is selected for the case study.

The general approaches of architecture of Sayın can be seen in both of the projects mentioned in that research. These can be briefed as follows according to his explanations; (Cansever, 1998, Sayın, 1999)

- Practicing architecture with the minimal basic elements,
- The compatibility of constructing in the conditions of Turkiye,
- Reflecting the present day conditions.

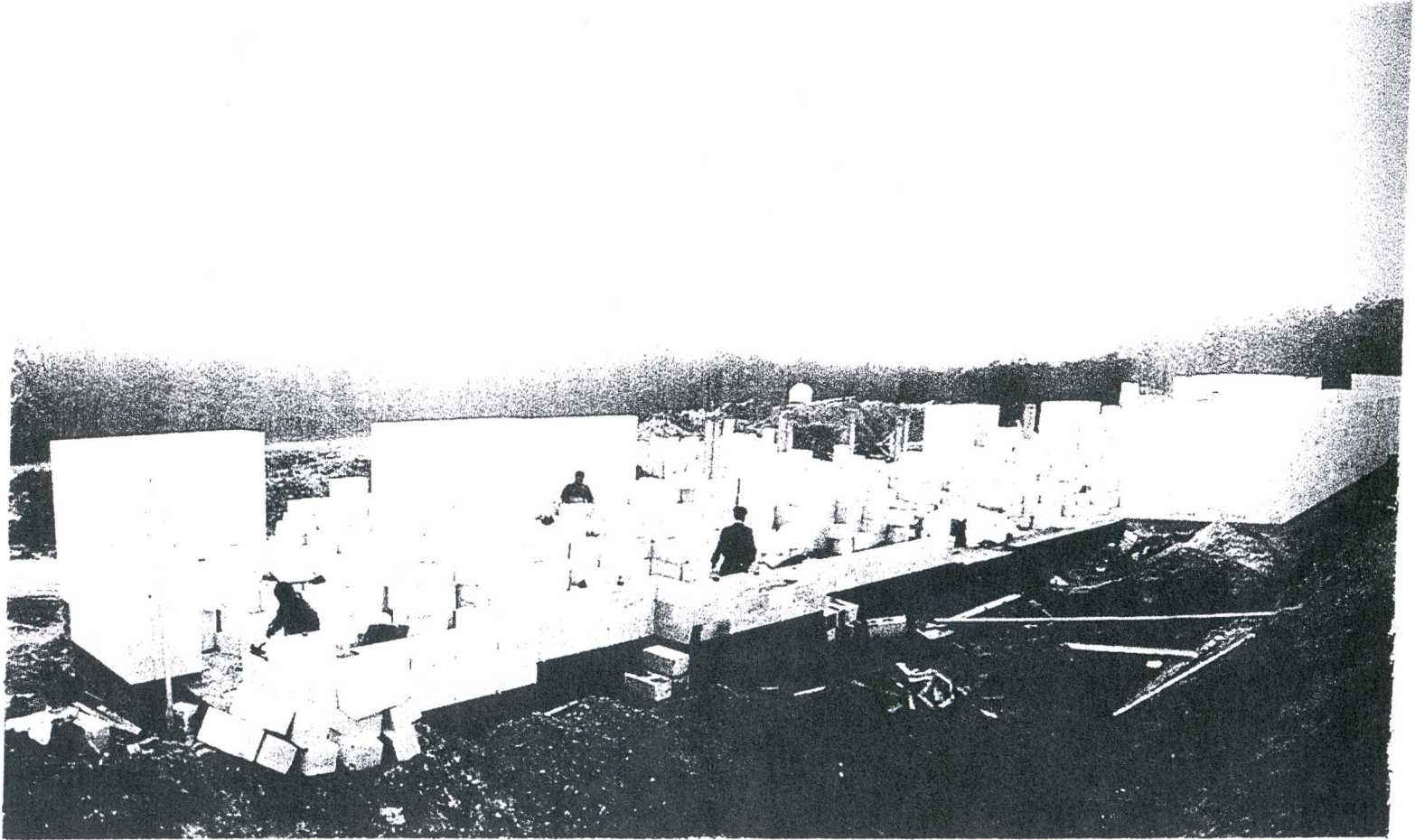


Figure 4.2.15 Tekirdağ House, The building was seen like a lego land at the construction Stage. '6000 stone house game' (Source: Yapı 206, 1999)

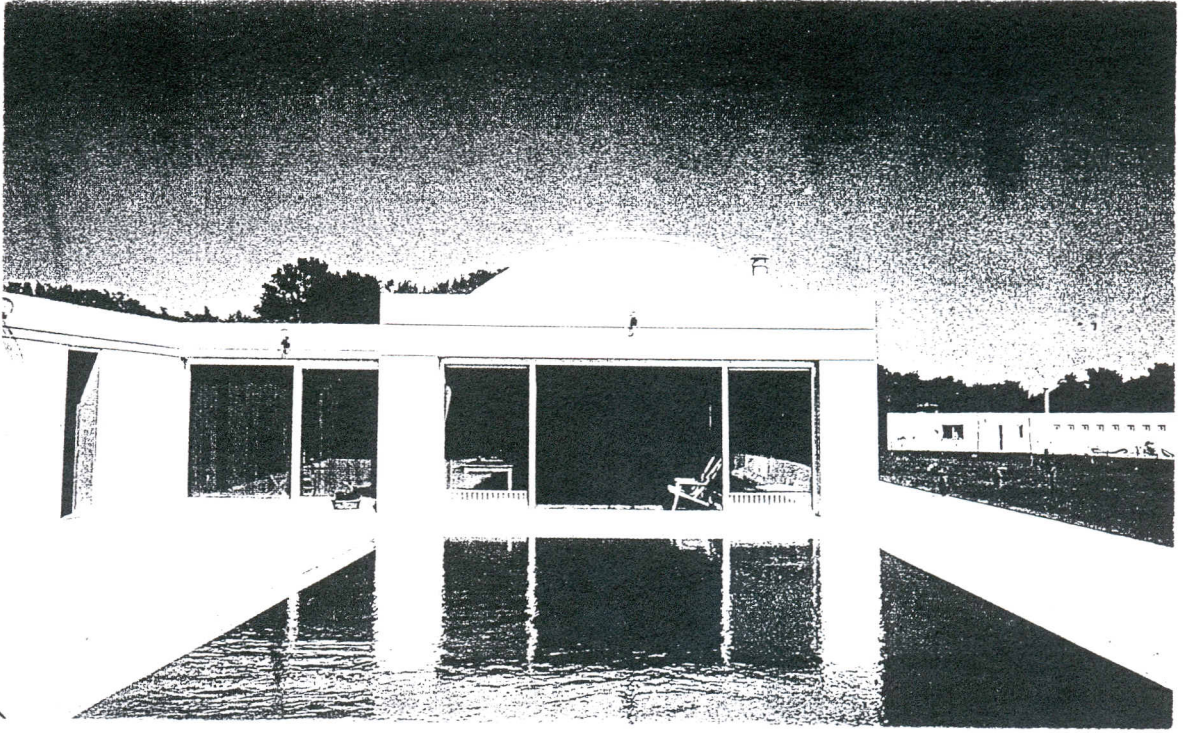


Figure 4.2.16 Tekirdağ House, View from the swimming pool (Source: Yapı 206, 1999)

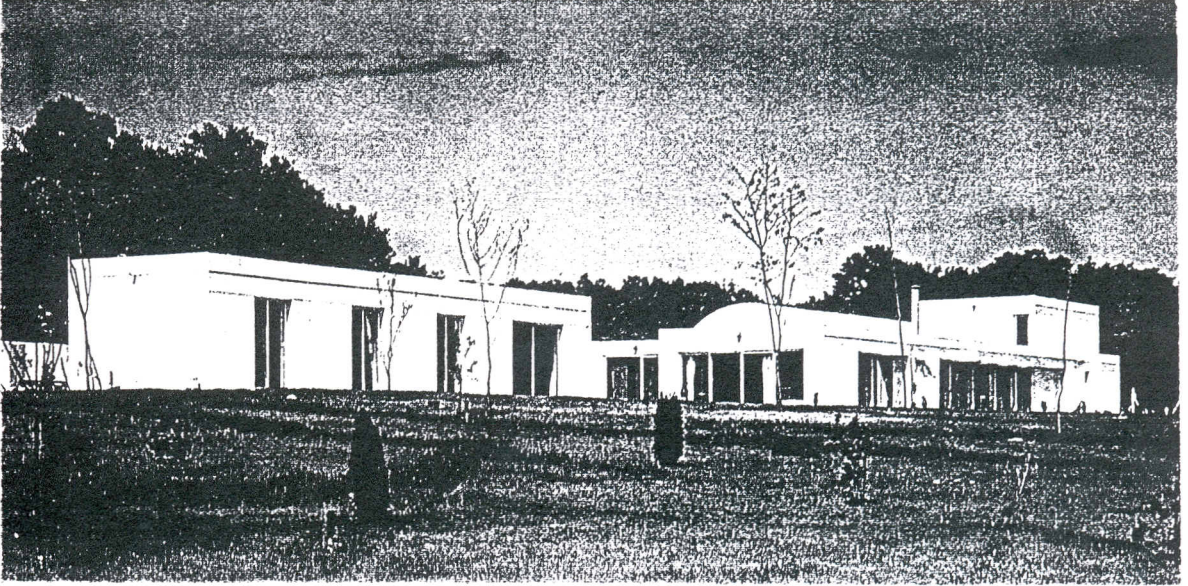


Figure 4.2.17 Tekirdağ House, View from the garden (Source: Yapı 206, 1999)

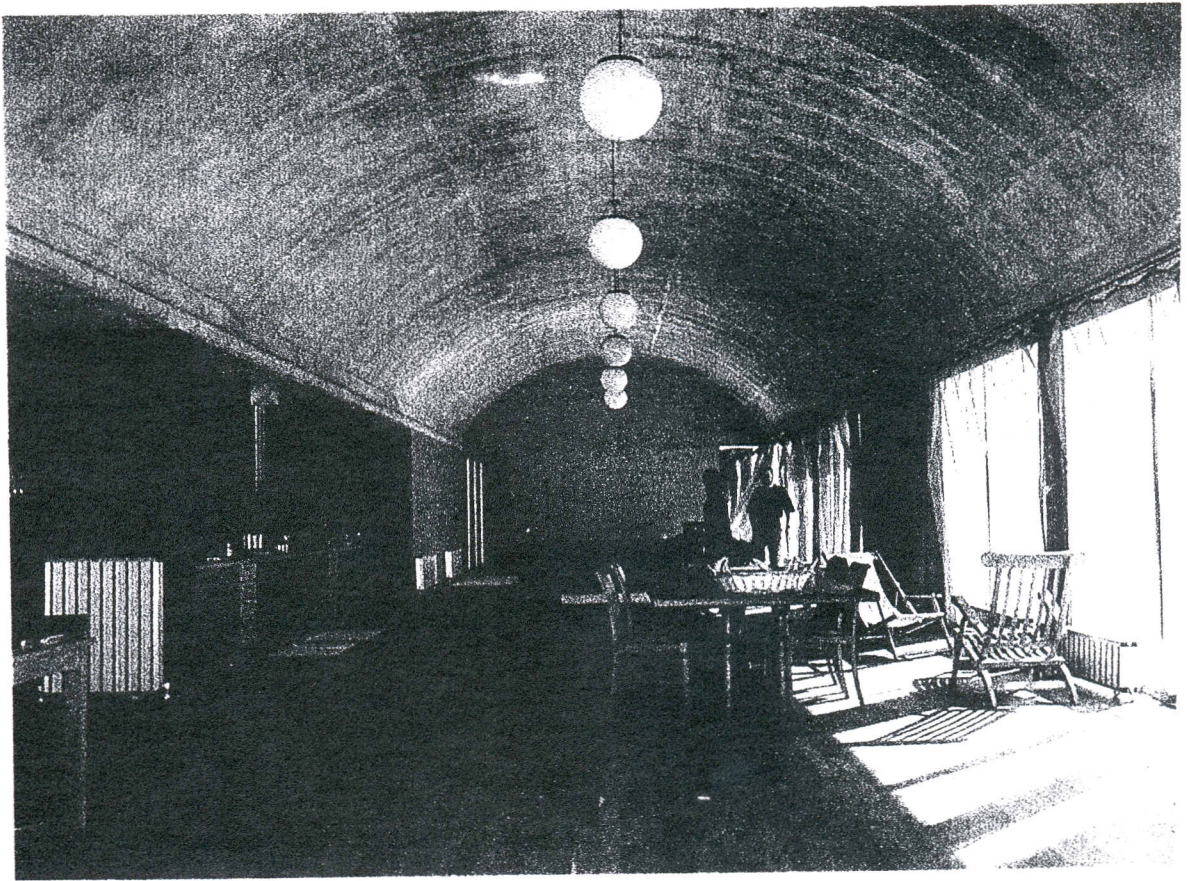


Figure 4.2.18 Tekirdağ House, View from the interior space (Source: Yapı 206, 1999)

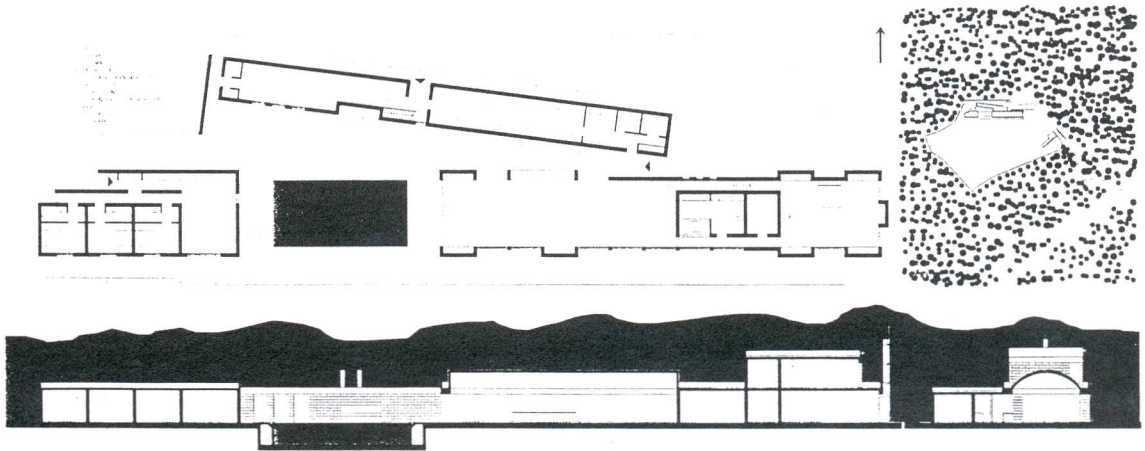


Figure 4.2.19 Tekirdağ House, Plan, Site organisation (Source: Mimarlık 7, 1998)

The Peritower Hotel (Building Award-1996)

Architects: Merih Karaaslan, Nuran Ünsal Karaaslan

Project Date: 1989

Construction Date: 1990-1996

Owner: Kur İnş. Tic. And San. A. Ş.

The distinction from the other touristic buildings by the original approach in the design of both inside and outside of the building, by using the analogies from the region represents the main selection criteria of that project. The jury report acknowledged the building for its 'successful and moderated allusions to Cappadocian images in both outer form and interior spaces.' (Mimarlık 270, 1996), (Figure 4.2.20).

Deep researches have been made on the forms and spaces of Cappadocia and nature - architecture relations during the design of The Ataman Tourism Facilities and these researches have been the preparation process for Peritower project.

There has been no images, or added ornaments on the building, and the building has given an appearance of a 'rough work' by its completed form (Figure 4.2.21). The theme of 'houses leaning on fairy chimneys' has been realised by basic architectural elements such as slanted surfaces, conical and cubical forms, materials. The Cappadocia theme has been emphasised from the whole to the details in this building as mentioned above (Karaaslan, 1997)

The rational management of a hotel building has a special importance in hotel designs and is generally solved by one nucleus solution which can be seen at linear or cross type plan scheme or tower architecture or by a common solution, the rooms arranged along a hallway. A two nuclei solution has been accepted in The Peritower Hotel, and the rooms have been placed by sets (Figure 4.2.22). Accordingly, both the required mass and spaces have been received and a richness at space organizations and continuity have been provided. In addition, these two nuclei have been solved in a common space instead of closed spaces and by that way a chain of spaces in which the visual relation has not been

interrupted from the highest to the lowest floors has gained. Such a solution has provided possibility for a future expansion, too. In the future, new block fitting the theme of 'houses leaned on fairy chimneys' could have been added (Karaaslan, 1997), (Figure 4.2.23).

Instead of the attractive, expensive hotel applications seen recently, simple interior spaces have been formatted. A 'cave-house' atmosphere has been created by the colours used and the lightning arrangement. To give this effect, the plasters on the walls have not been done regularly. Paint has been applied directly on the plaster without a gypsum layer. At the end the required effect has been received and the cost has been decreased. (Karaaslan, 1997)

In this project, the images and memories of Karaaslan's childhood is an important factor at his design approach. He used the analogies and metaphors specific to the historical and natural images of Cappadocia region.

Karaaslan said 'This was an especially enlightening experience for me, as I was rediscovering the land where I had spent my childhood, through the eyes of an architect. We completed the project by pursuing the local formal and spatial traditions. It can be said that this project initiated a new phase in our career, in which we gradually abandoned our modernist training and returned to the authentic traditions of Anatolian (mainly Cappadocian) architecture.' (Karaaslan, 1997)

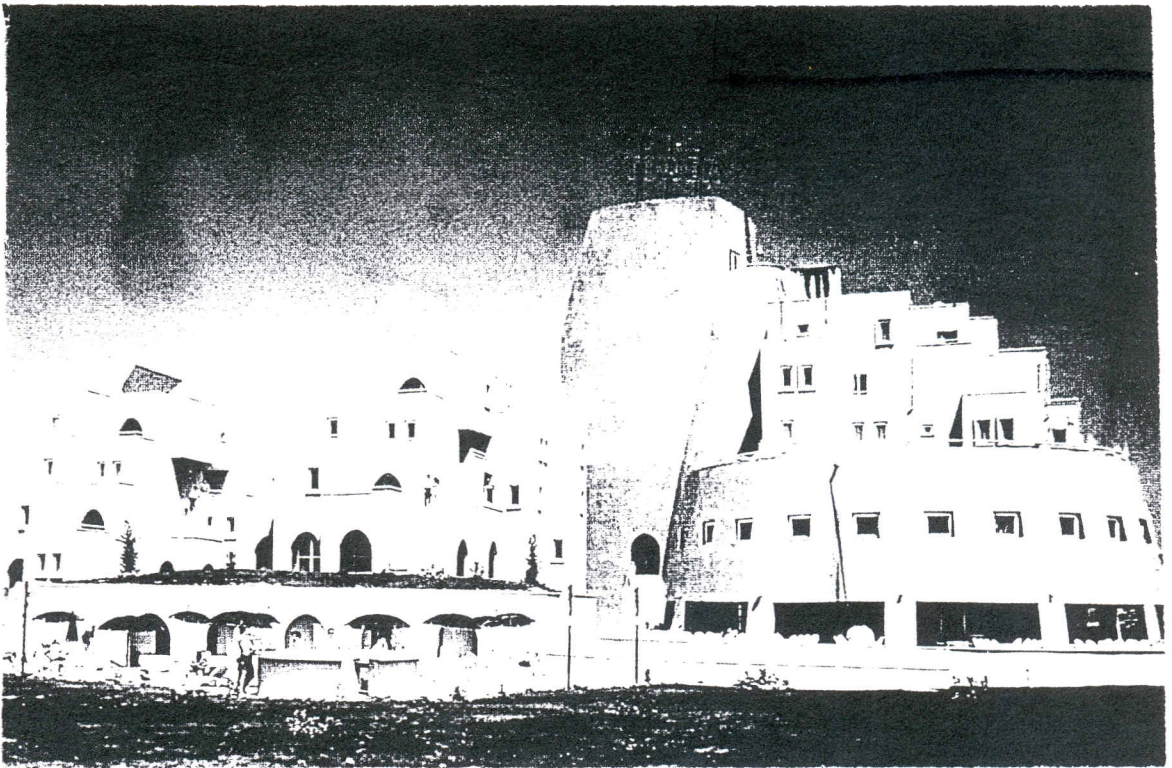


Figure 4.2.20 The Peritower Hotel

External view

(Source: Yapı 184, 1997)

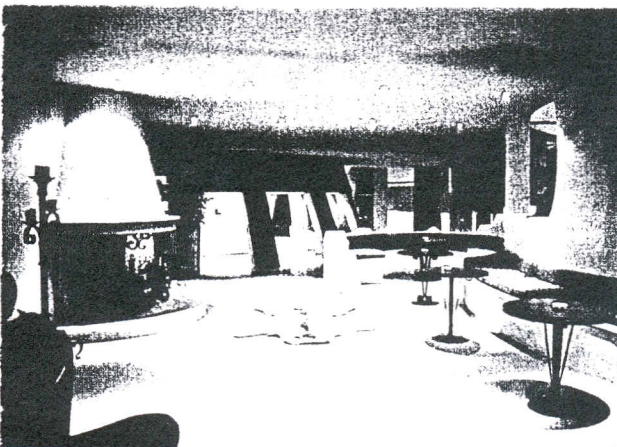
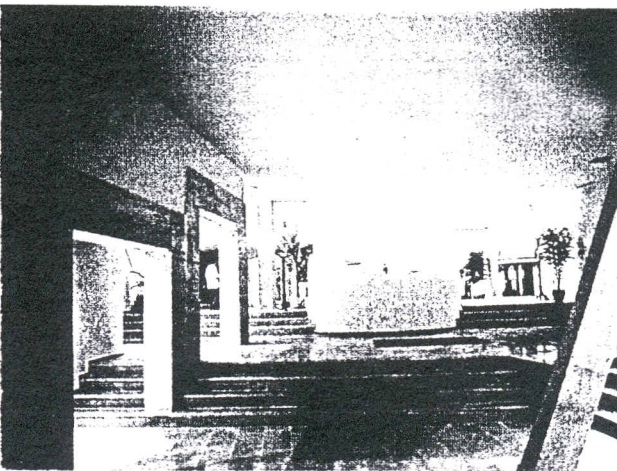


Figure 4.2.21. a-b. The Peritower Hotel

Interior spaces

(Source: Mimarlık 270,
1996)



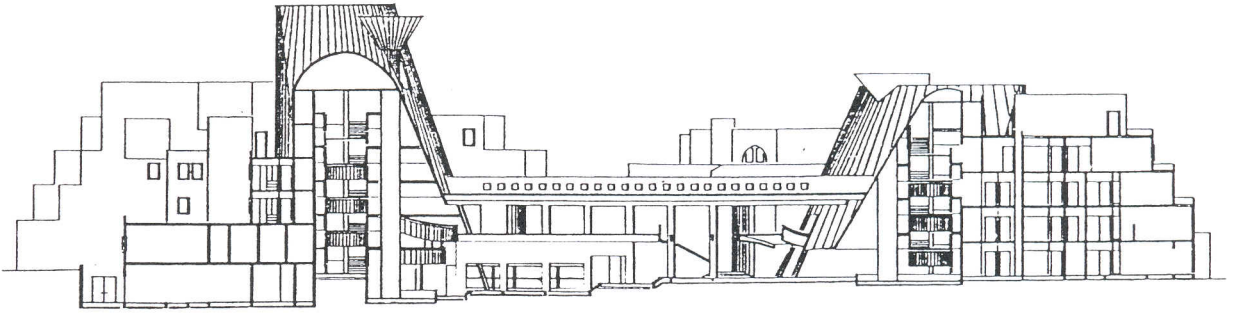


Figure 4.2.22 The Peritower Hotel, Section (Source: Yapı 184, 1997)

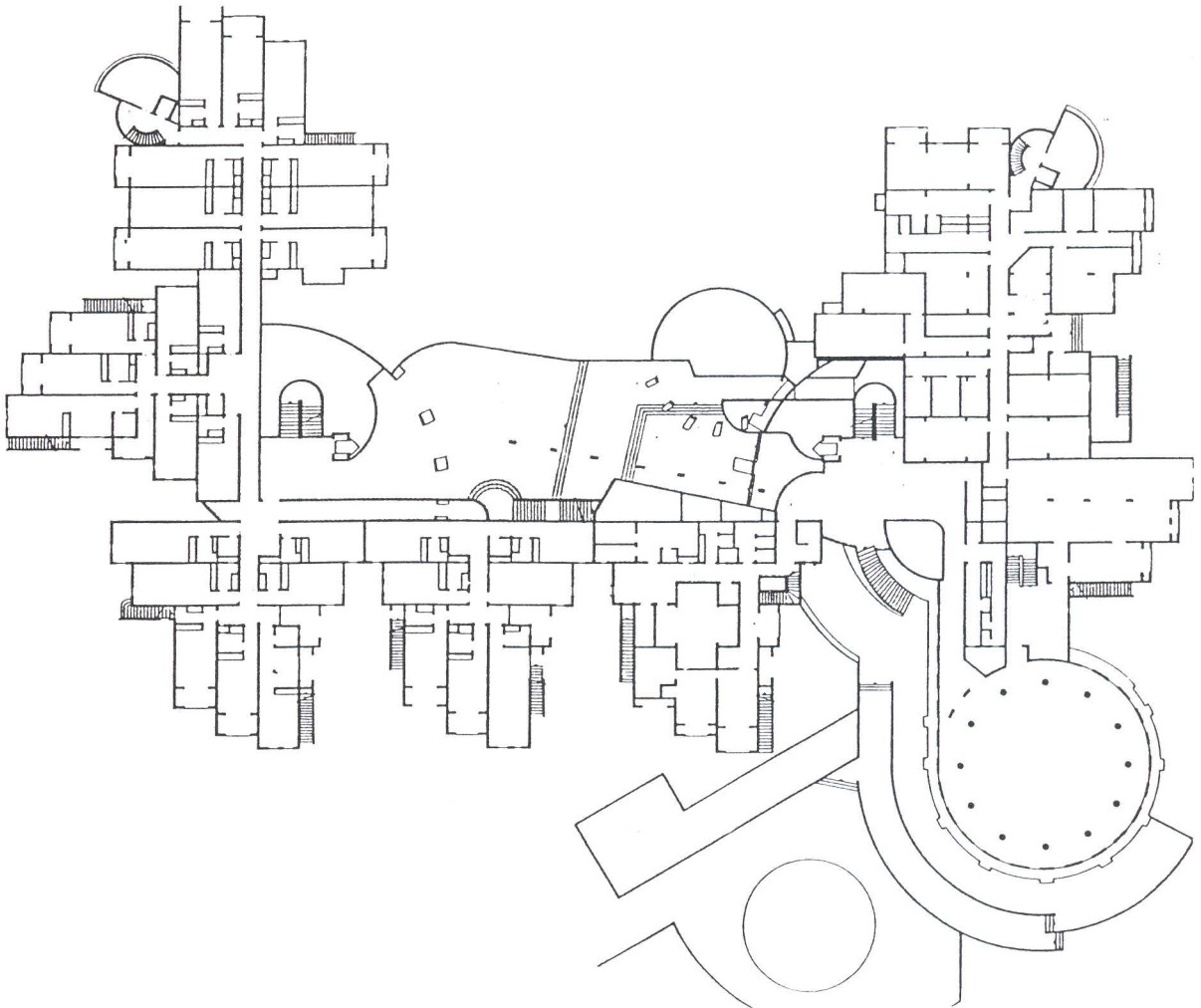


Figure 4.2.23 The Peritower Hotel, Plan (Source: Yapı 184, 1997)

Sami Sisa, Dođan Tekeli (The Grand Award-1994)

Lassa Tyre Factory Building (İzmit-1975),

The Halk Bank General Headquarters Building (Ankara-1983)

A contextual framework developed within a universal language can be the general identification of the architecture of Sisa and Tekeli. This universality is also seen at the architecture of Konuralp and some other architects like Ragıp Bulu or Sezer Aygen (Güz, 1996).

Sisa and Tekeli are always in a search of new and rich expressions in their architecture. But the continuity of their Modernist style has never changed. Their architecture does not give reference to regional or historical precedents but to the design procedure itself focusing on the context and the technology used in the construction systems.

It can be understood from their speech that their education did not affected their architectural style. They have used metaphors of Modernism although they took classical education. The approaches and concepts of Modernism were never mentioned and the leading architects of that approach were not taken into consideration by the educators. But they learned more about Modernism and Modernist architects from the books and magazines.

Sisa and Tekeli has attracted attention with their creative solutions especially in the design of industrial and office buildings. The general concepts of their architecture is based on;

- The original environmental criteria, ('The urbanity' according to the definition of Sisa (Arred. Dek.,94/6)
- The determinativity of the construction technology,
- The human scale and the light,
- The rationalist and functionalist style with a sensitive design approach.

The Halk Bank Building is a rationalist structure. In Halk Bank Headquarters building, their interpretation of high rise building has been again original. Generally the human

factor is not seen in the high rise buildings but in this building there is a 'human touch'. The inner courtyards and gardens repeated at every 5 floor are the spaces where human-scale is added to the design (Figure 4.2.24). Also instead of making a glass mass, rising 30 floors high for giving the human-scale some other architectural elements like the windows, partititions, colonads, and terrace balustrades are used (Figure 4.2.25).

Besides rationalism and functionalism, development has been one of the main architectural aims of Sisa and Tekeli. The architects has evaluated precision and technical development as parallel concepts with 'contemporaneity'.

There is a symbolic approach which is defined as a competition provision. The project area is located at the corner of the main roads that enter the city, so the jury and the members of the bank wanted to have a building with a symbolic value. Sisa and Tekeli examined symbolism as a form which will always be on mind and with the concept of monumentality. A carved square mass form is formed in which two parallel office blocks are connected with a vertical nuclei. This building form represents analogy of a city gate according to the site's situation (Yücel, 1994),(Figure 4.2.26).

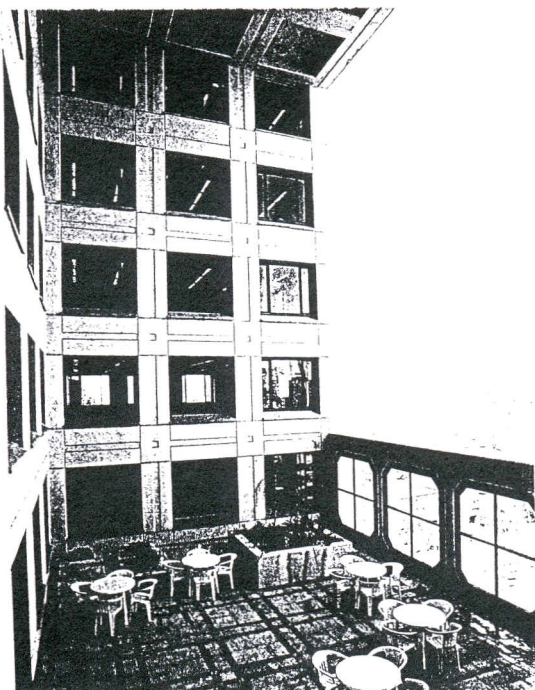
Lassa Tyre factory is 'opus magnum'* among their architecture.(Özkan, Arred. Dek.,94/6). Instead of making a big can box with a metallic percision and rigid lines, they prefer soft lines. This softness is a kind of metaphor of tyre. Two concepts, high tecnology and nature, however seem to be very hard to be in harmony, Lassa project is one of the leading examples proofing this hard work. The yellow and beige colors on the green plain of İzmit give the sense of 'being there for a long time' (Figure 4.2.27).

*opus magnum; great artistic undertaking, completed or in course of being completed

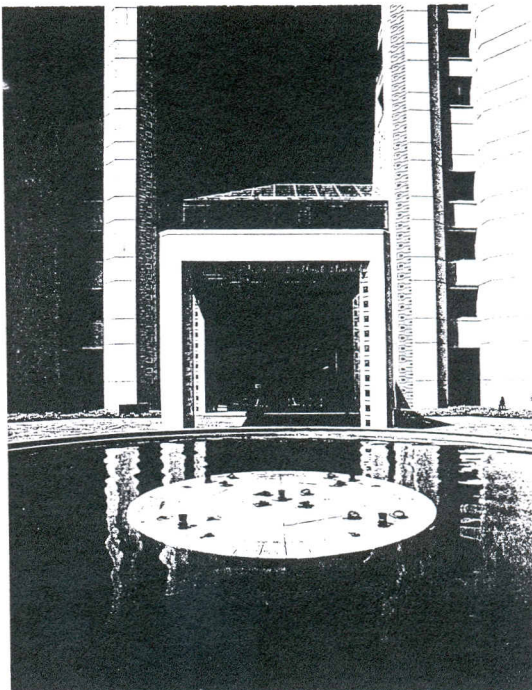
Sisa and Tekeli always search for new techniques and materials. Each design has its original element which is different and developed from the previous ones. According to Süha Özkan this approach can be accepted as incremental design method.(Özkan, Arred. Dek.,1994/6). They discover very important and brave solutions which can be accepted as invention. In Lassa Tyre Factory, the usage of G.R.P.(fiberglass) technology as light power and using that material in wide areas is a very good example of this experimental search. Composed material of fiber glass and polyester has been used in order to take light indoors (Figure 4.2.28). For reaching a humanistic scale and ornament, the vertical panellings covering the façade has been detailed by grooves and the fiber glass slits on the roof continueing on the façade are lowered till to the human height. In addition to that application, circled windows on the eye level has been arranged on the prefabricated panels of façade (Figure 4.2.29). Belong more than eight systems, reinforced concrete system had been chosen according to the primary principles of economy, easiness and quickness in construction. The columns are situated in a grid of 12m×16m and the span of 12m has been connected with prefabricated reinforced concrete beams. (Sisa & Tekeli, 1994)

Lassa Factory is one of the leading examples of industry buildings among both the national and international examples. It should be mentioned with the factory buildings of James Stirling, Renzo Piano or Louis Kahn. Tekeli and Sisa have taken it as a mission to adapt advanced technologies to the architecture of Turkiye in the degree of their fitting circumstances (Özkan, Arred. Dek., 1994/6).

Tekeli defines their process of architectural design as 'induction'. According to Tekeli, a detailed analytical examination should be done, the problem should be decomposed and functional problems should be solved within mathematical precision. The choices about the organization of parts, scheme of circulation, materials are legitimized by a system of reasoning that dwells on functionalist themes. (Akcan & Zelef, 1994)



a



b

Figure 4.2.24 The Halk Bank Building, a. View from inner courtyards (On the left)
b. View from the entrance (On the right) (Source: Tekeli & Sisa, 1994)



Figure 4.2.25 The Halk Bank Building, View from outside (Source: Tekeli & Sisa, 1994)

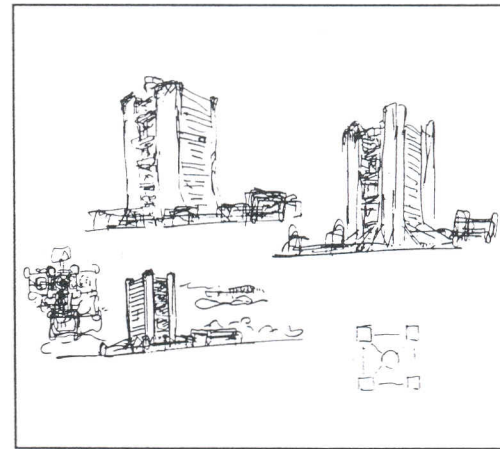
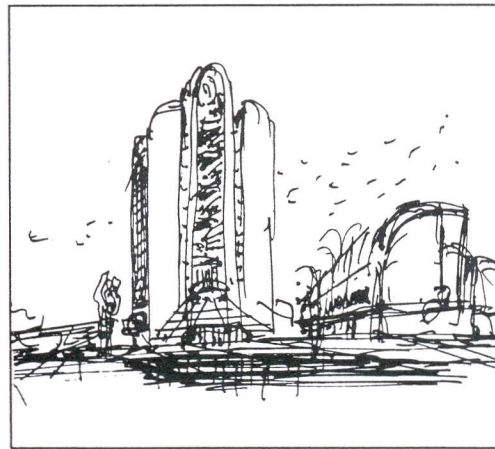
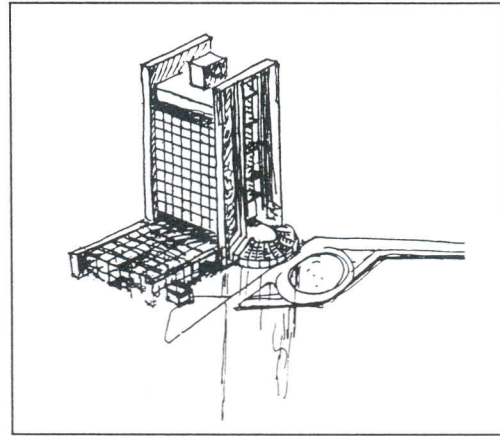
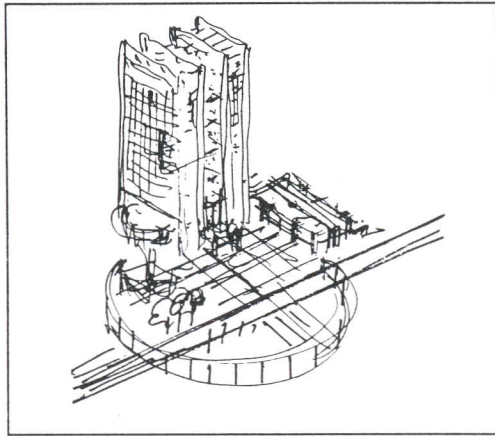
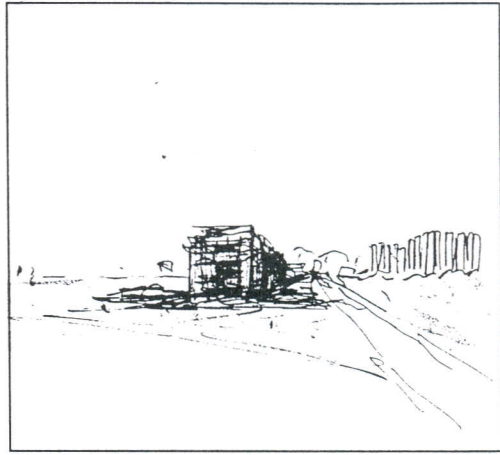
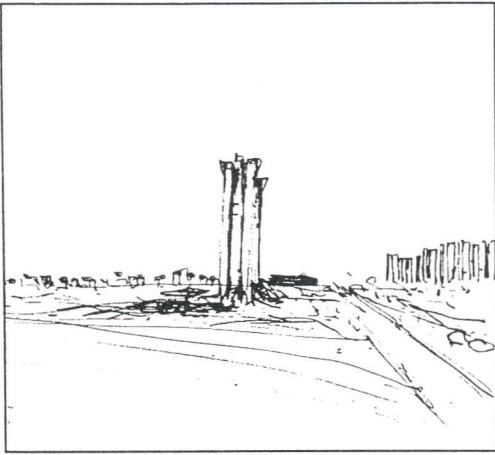


Figure 4.2.26 The Halk Bank Building, (Treasury and Foreign Trade Councilory, today)
Sketches from design approaches (Source: Tekeli & Sisa, 1994)

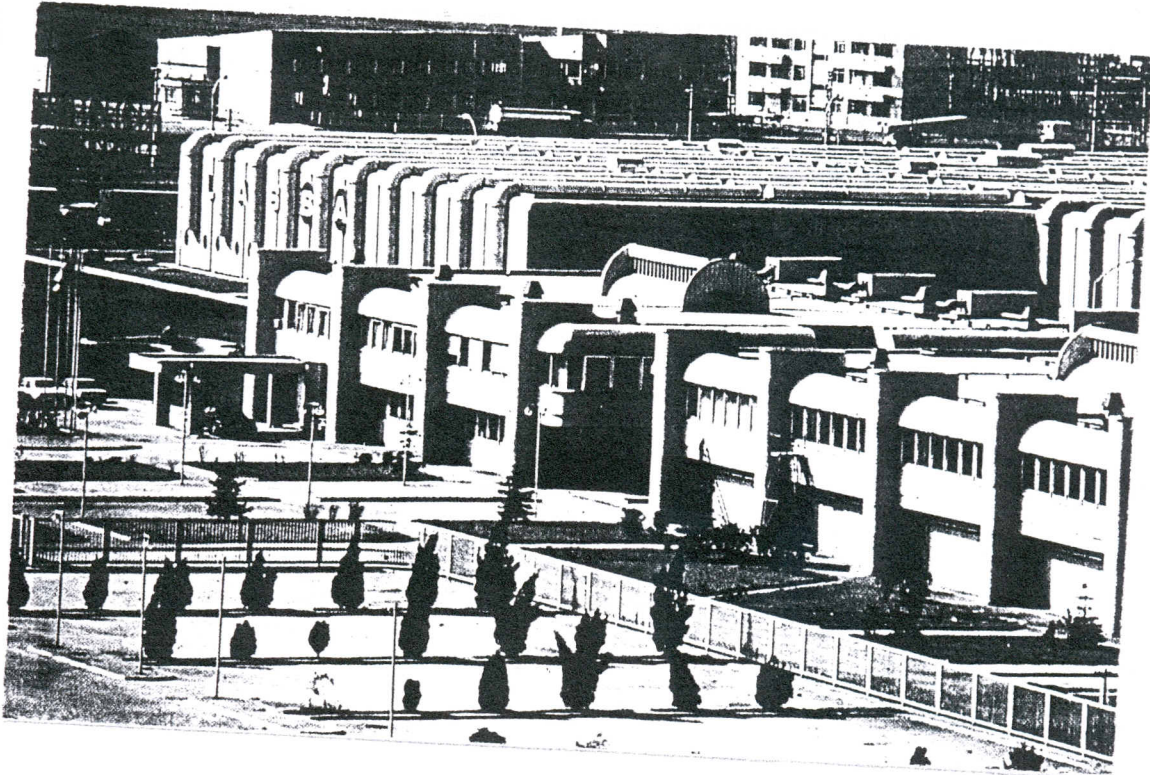


Figure 4.2.27 The Lassa Tyre Factory, External view (Source: Tekeli & Sisa, 1994)

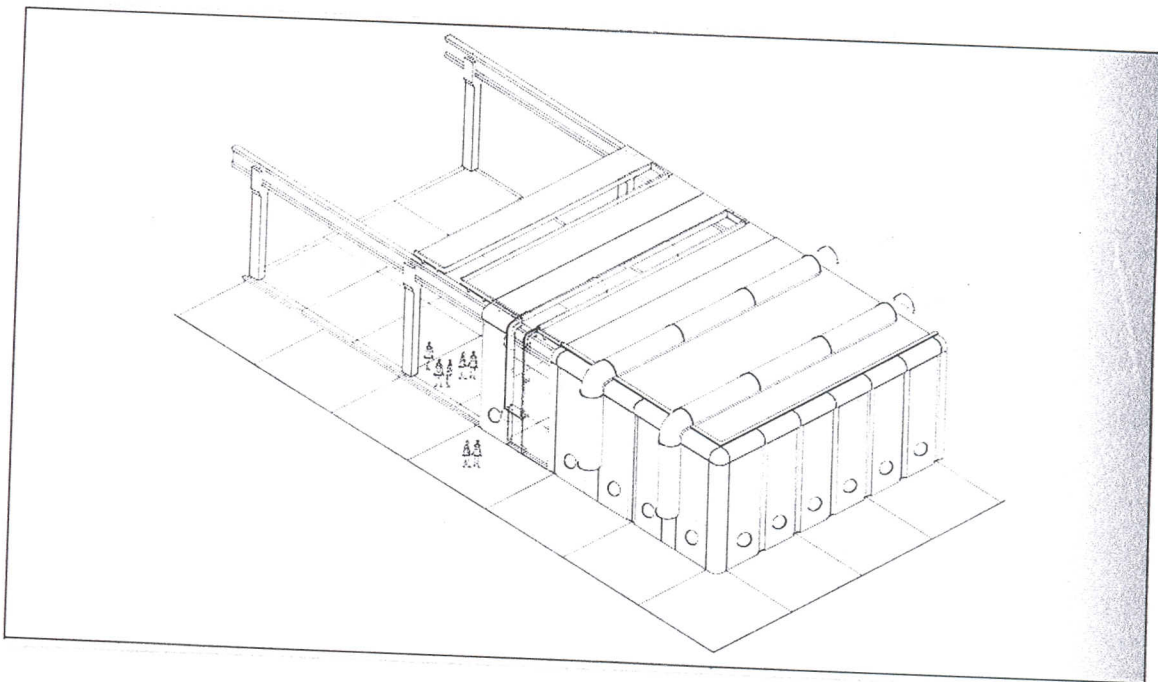
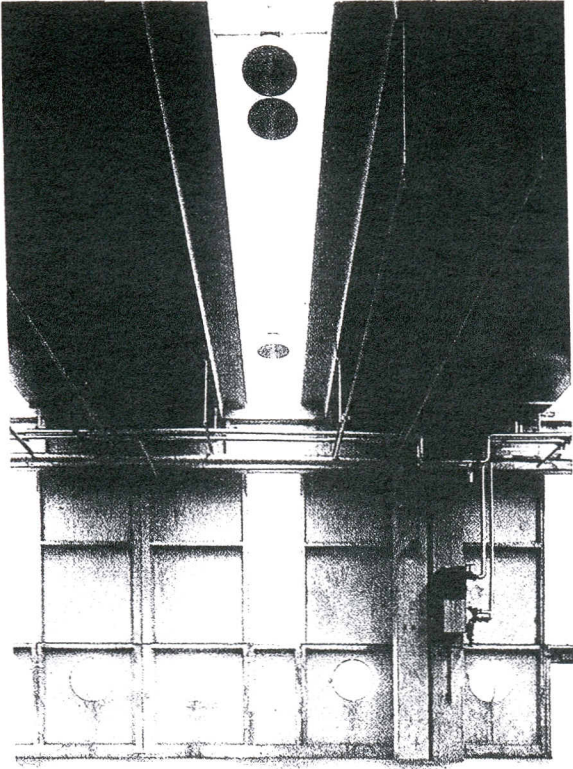
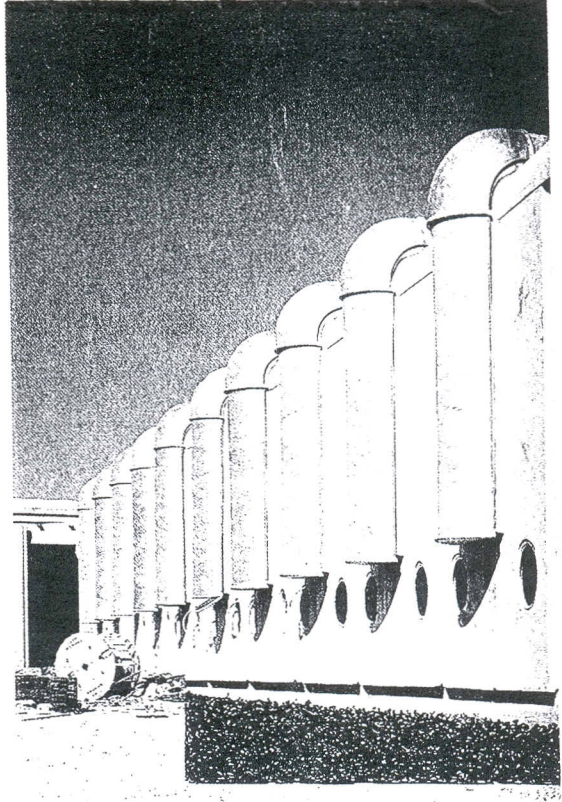


Figure 4.2.28 Axonometric view of the construction system (Source: Tekeli & Sisa, 1994)



a



b

Figure 4.2.29 The Lassa Tyre Factory

a. View from interior space (On the left), Fiberglass and polyester has been used in order to take light indoors

b. External view (On the right), Circled windows on the eye level

(Source: Tekeli & Sisa, 1994)

CHAPTER 5

CONCLUSION

Today, Turkiye being a developing country, is in need of creative solutions for the solution of problems more than ever. Creativity has to be considered as a responsibility for overcoming these problems.

The reality of the fewness of the studies and researches about creativity in our country is very worrying. Educational inputs must teach the person using his abilities in the best way. It must not be forgotten that creative human beings are helpful for both themselves and also for the community in which they live.

To keep up with the industrial and technological developments and also to adapt them, creative individuals are needed. Nations and individuals have to use their imaginative power to find out original solutions for providing the life in harmony with the scientific developments. Otherwise social crisis, depressions, tension, and conflicts between individuals may cause national problems and social ills.

Architectural attitudes are the reflections of real life and also the reflections of cultures, with their positive and negative developments and problems. Individuals start to change their lives beginning from their close environment.

Being conscious about creativity and a scientific approach to the concept of creativity are the main ideas of this research. In the analysis of the creativity in architectural design process, the channels which are accepted as the effects on the architectural creativity are classified in three groups. By the help of clarifying these channels and creative design process, it is aimed to decipher the creativity fact. Some of the effecting channels of architectural creativity are mostly given during education of architecture like the study of scale, proportion, geometry, materials or history...The channels which can be accepted as more intangible are left for the period after graduation. The designer tries to learn what

design is all about rather than waiting for years to occur by the help of deciphering these channels and the creative design process. This must be tried to be balanced during architectural education.

In conclusion, this study can be underlined as follows:

- The main idea of this research is to analyse, the developing creative attitude, which can be detected in the nature of every individual, while scientifically approaching to the concept of creativity. It means that creativity is not only accepted as a talent but it is something that can also be developed. The advantage of some genetic abilities is obvious but everybody has ability in one way or the other. The fact is to find out this way and being aware of the power of creativity.
- Architecture is both an artistic and scientific profession that is always in need of creative solutions. Therefore the education of creativity is a very important matter of architectural education. The place of analyses of creative design process and creativity techniques in the basic design education is underlined in the section about education. The creative act is a subject that can not be thought directly, but the education could help students to become more aware of their potential sources.
- The experience gained with the help of the design methods and the creative design processes of the professionals could be a guidance to the designers at the beginning and could also help them to develop their own approach. Especially, the designers at the beginning, always examine the projects of creative architects as samples in order to understand the concepts in the formations of their projects. These researches should not be based on the formal foundations but further on the reasons of conceptual approaches.
- The importance of researches on the concept of creativity and developing creativity are undeniable however the methods of developing creativity can be argued. Creativity is not a systematical habit so the main idea is to gain the habits of transforming the intuitions into actions. The creative process is a kind of psychological mechanism and the creativity techniques atomises these mechanisms. The techniques are also the tools

which help to improve some of the creative abilities. Two of the techniques, 'Brainstorming and Synectics', which are the leading ones about architecture, are examined throughout the study however the individuals or groups can select the best technique suitable for themselves.

- According to the previous researches on this subject, examining creativity on the end product is shown as the only way of analysing creativity concretely. So the projects from National Architectural Exhibition and Awards are selected for exemplifying the creative end products. The projects are selected according to the criteria of creativity determined basically on the concept of 'originality', which are not very far apart from the criteria of jury. The existence of these criteria provides the evaluation of creativity of the examples. Some of these criteria of creativity can be leadingly seen at the projects such as the analogies and related with these facts, the effecting channels of architectural creativity can be distinctively seen among them, like the childhood images of Merih Karaaslan in the project of Peri Tower.

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ORIGINALITY	MILLI REASURANS	SABAH PRINTING CENTER	RESIDENCE	GÖN LEATHER 2. BUILDING	TEKİRDAĞ HOUSE
Conceptual Design Approach (Childhood, education, metaphors, analogies, the needs of clients...)	Urban Space, Making the use of natural light, Simplicity, purity concept Creating an atmosphere of spaciousness	Introducing the printing presses to visual appreciation is original. (An open-visible -central Printing Area)	Contemporary interpretation of 'tower house', Preserving decision, Minimalist approaches	Respect to the production and labour throughout the whole project	Original Interpretation of the 'big house' The material choice and its usage important design approach Experimental research in construction technique
Architectural Language (Morphological Properties) (Analogies, metaphors...)	Aiwan, The single column as a sign of the symbolic power, Contrasts with emptiness and massive mass Refined expression	Open flexible office areas, atriums	Tower house, Vertical organisation of inner side and façade, A metaphor of contemporary lifestyle	Boat formed steel-brutted concrete construction	Stone house image with new materials, 'legoland' vision, long, horizontal plan organisation
Environment Interaction (Analogies, metaphors...)	Urban Space Contrasts such as solidness-emptiness, solidness-transparency Continuity in horizontal lines of the environment	No environmental interaction, far away to residential area	Preserving the height in general, harmony with close environment	No interaction with the bad visionary environment	A metaphor of 'emptiness' in the forest. Rigid interaction with environment
Construction Technique-System	Concrete-Flexible Open Areas- Aluminium Panels	Experimental searches in building technology and construction technique Load-bearing waffle slabs- special space frame- transparent curtain walls	Reinforced concrete	Brutted concrete- Steel	Gas concrete block exposed concrete
Material	Concrete-Granite-noticable frames-the fume coloured glass, metallic brightness, refined, simple expression of high technology	For noise isolation; Aluminium with EPDM wicks, laminate glass, perforate aluminium panels on the space frames	Concrete Plaster dusted with erased marble, Carrera marbles	No plaster usage Enduring and functional material usage details	No plaster usage
General Design Approach	Universality-Purity	Universality	Minimalism	Purity- Functionality	Purity

	SABAH PRINTING CENTER	RESIDENCE	GÖN LEATHER 2. BUILDING	TEKİRDAĞ HOUSE	PERİ TOWER HOTEL	DOĞAN TEKELİ-SAMI SİSA	
						LASSA TYRE	HALK BANK
al t	Introducing the printing presses to visual appreciation is original (An open-visible -central Printing Area)	Contemporary interpretation of 'tower house', Preserving decision, Minimalist approaches	Respect to the production and labour throughout the whole project	Original Interpretation of the 'big house' The material choice and its usage important design approach Experimental research in construction technique	Contemporary Interpretation of regional architecture <u>Childhood memories</u>	Modernist and universal style Reference to technology, construction system instead of regional-historical precedents	
sign of s and	Open flexible office areas, atriums	Tower house, Vertical organisation of inner side and façade, A metaphor of contemporary lifestyle	Boat formed steel-brutte concrete construction	Stone house image with new materials, 'legoland' vision, long, horizontal plan organisation	'Cave house' atmosphere Basic architectural elements, slanted surfaces, conical and cubical forms...	Harmony of high technology and nature	Original approach of high rise building with the 'human touch'
ess- lines	No environmental interaction, far away to residential area	Preserving the height in general, harmony with close environment	No interaction with the bad visionary environment	A metaphor of 'emptiness' in the forest. Rigid interaction with environment	Analogies from regional images (fairy chimneys)	The yellow and beige colors on the green plain of İzmit give the sense of 'being there for a long time'	'City gate' analogy Monumental and symbolic approach 'The Urbanity' concept (Sisa)
Areas-	Experimental searches in building technology and construction technique Load-bearing waffle slabs-special space frame-transparent curtain walls	Reinforced concrete	Brutte concrete-Steel	Gas concrete blocks-exposed concrete	Reinforced concrete	Reinforced concrete-prefabricated reinforced concrete beams	Reinforced concrete
e ed e ology	For noise isolation; Aluminium with EPDM wicks, laminate glass, perforate aluminium panels on the space frames	Concrete Plaster dusted with erased marble, Carrera marbles	No plaster usage Enduring and functional material usage details	No plaster usage	Paint directly on plaster	G.R.P (fiberglass+ poliester), Panellings	Concrete, Marble covering
	Universality	Minimalism	Purity-	Purity	Purity-Modernist	Rationalism-functionalism-modernism	

The drawings of primary sketches, show how the idea first explored in the creative process of the architects.

Here is the first sketches of Frank Gehry for the Winton Guest House, Minnesota, 1983.

The medium of the drawings: Pen-Ink

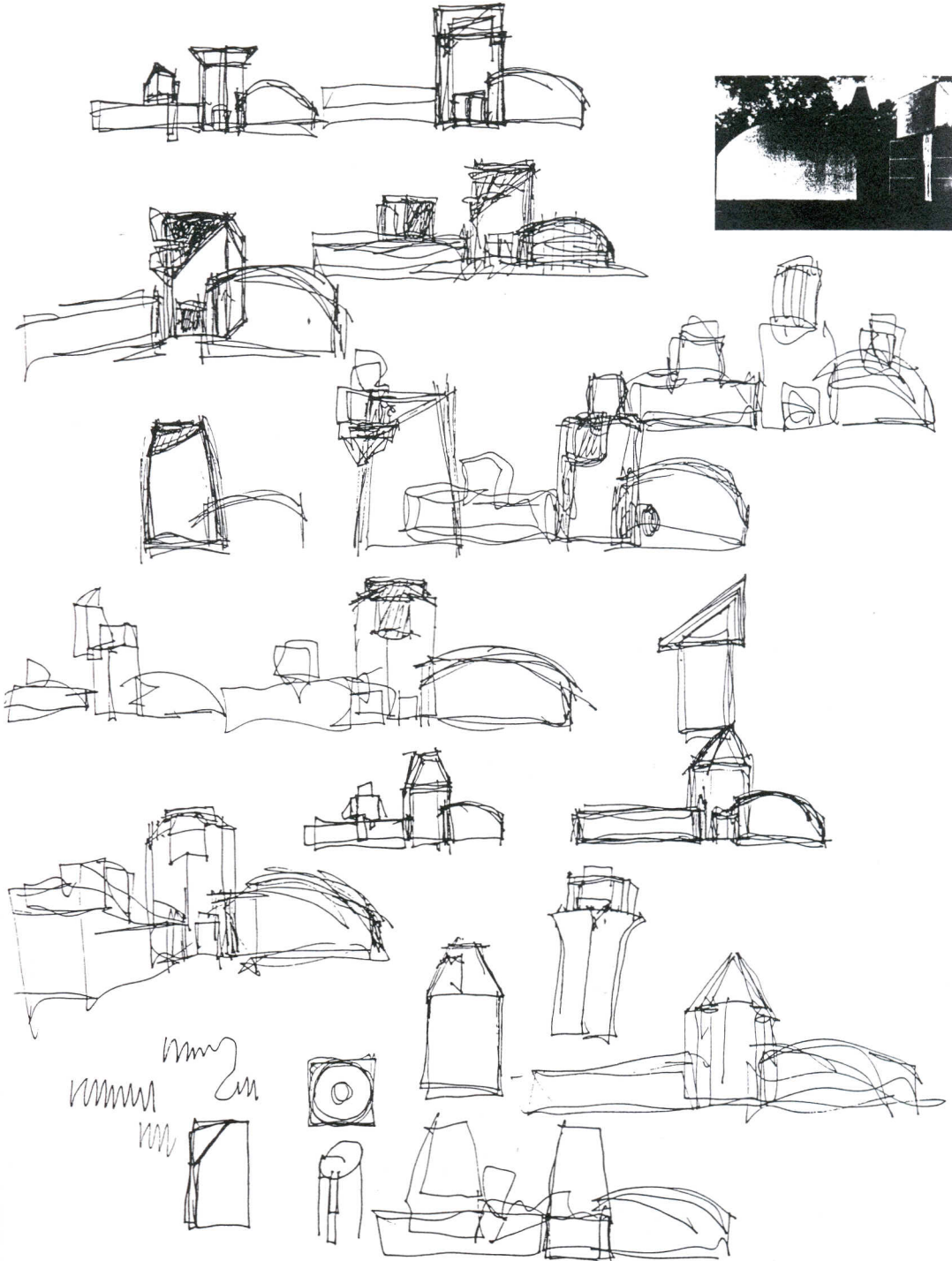
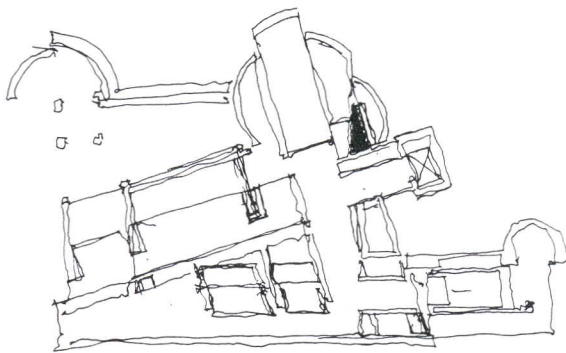
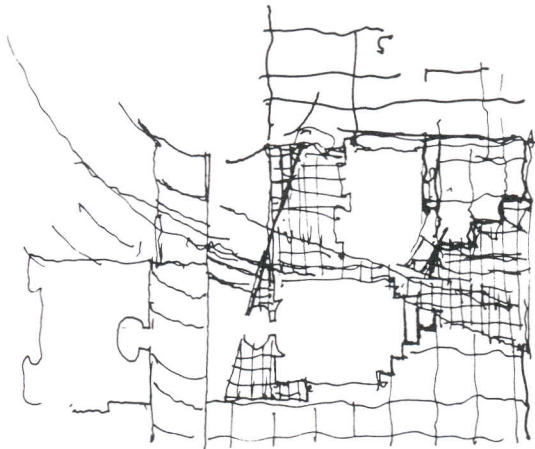
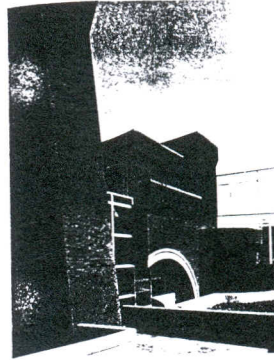


Figure 2.2.2 The drawings of Frank Gehry (Source: Lacy, 1991)

The sketches of Peter Eisenman for Wexner Art Center, Ohio University, Columbus, 1989

The medium of drawings: Pen-Ink

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GROUND

PLANNED WALKING
MURRAY REZ.

26 FEB 80

Figure 2.2.3. The drawings of Peter Eisenman (Source: Lacy, 1991)

The sketches of Zaha Hadid for Moonsoon Restaurant, Sapporo, Japan, 1989

The medium of drawings: Pen-Ink

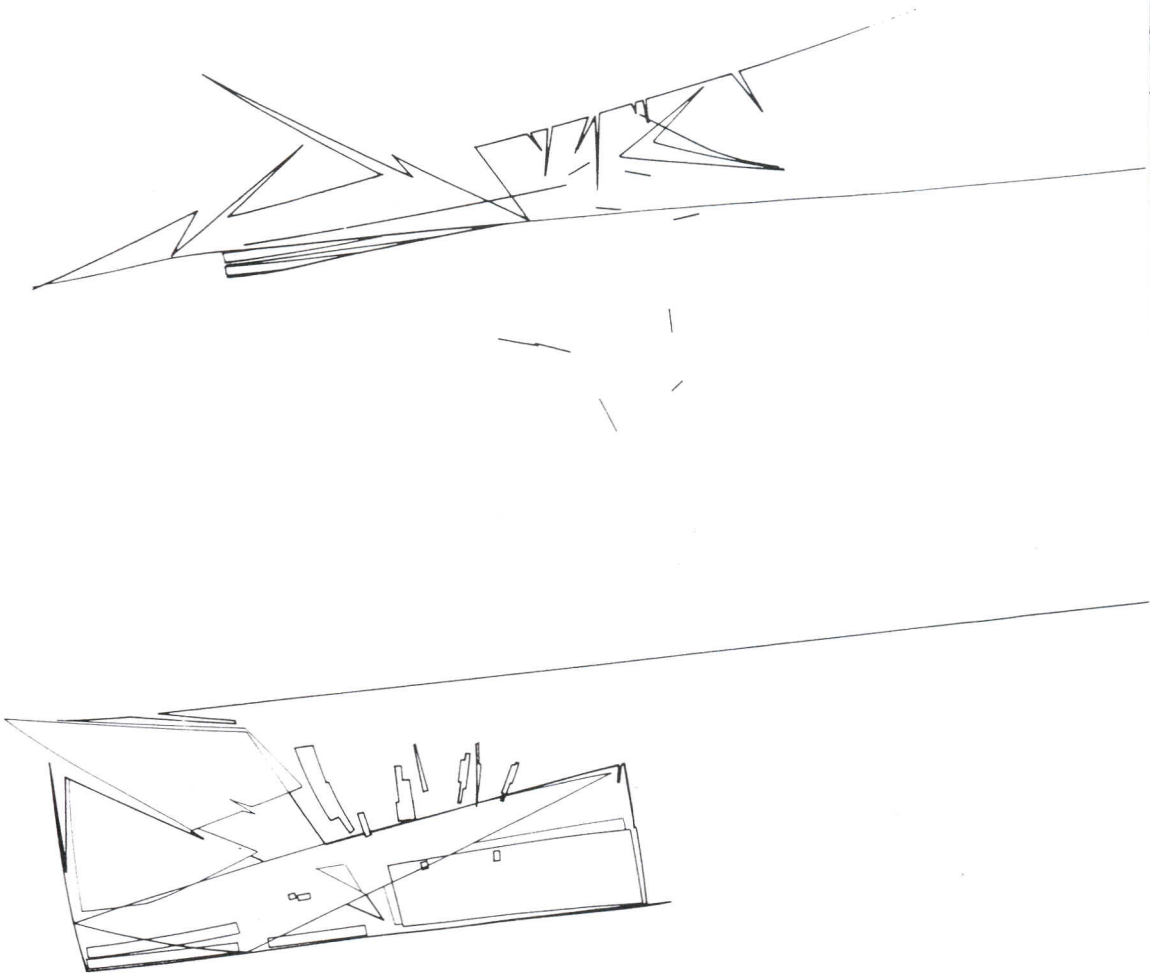
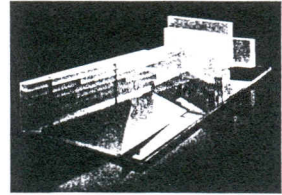


Figure 2.2.4. The sketches of Zaha Hadid (Source: Lacy, 1991)

The sketches of Daniel Libeskind for City Edge Project, Berlin, Germany.

The medium of drawings: Ink and pencil on paper

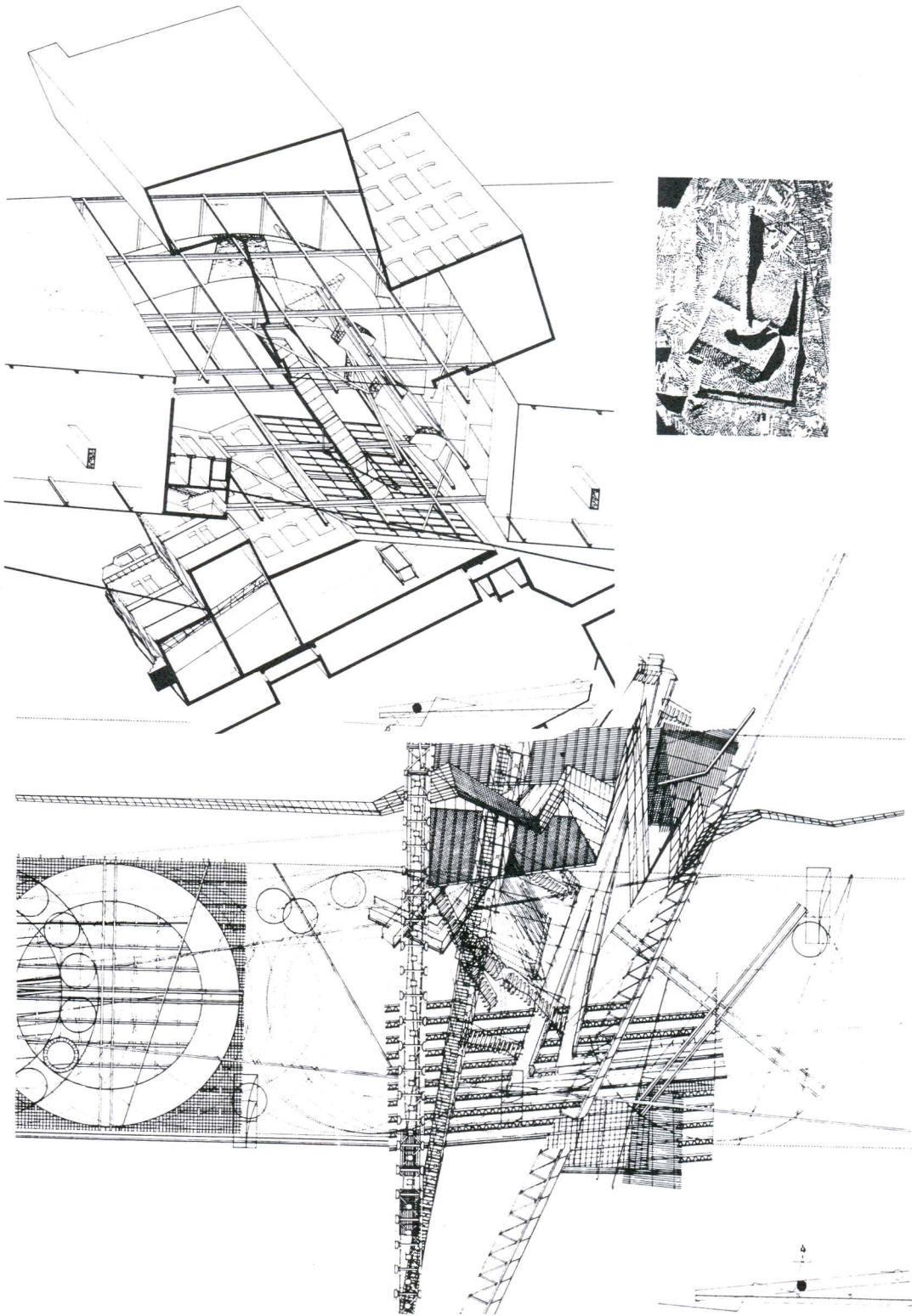
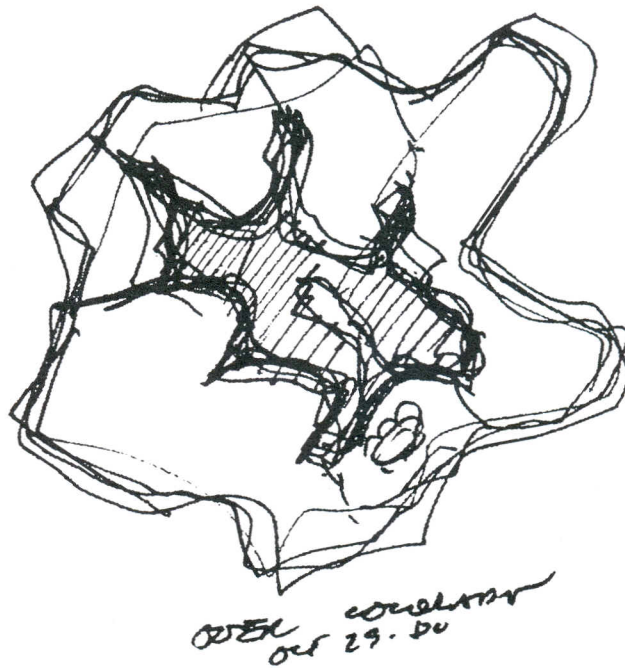


Figure 2.2.5 The sketches of Daniel Libeskind (Source: Lacy, 1991)

Conceptual sketch for the Ferguson house in Kalamazoo, Michigan. It was drawn while flying over Colorado on October 29, 1980.



Concept development sketch for the Grasis House in Vail, Colorado. It was drawn during an SAS flight to Stockholm on September 10, 1991.

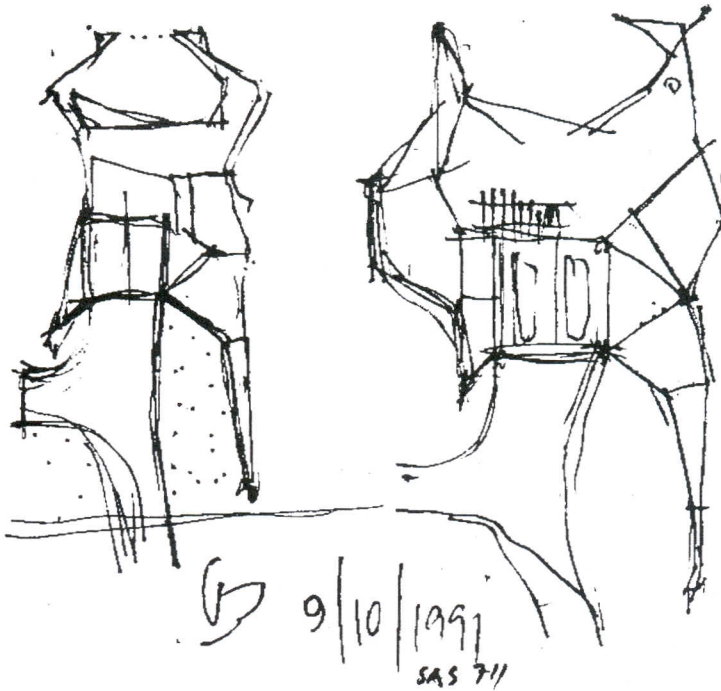


Figure 3.1.2. The sketches of Gunnar Birkerts (Source: Birkerts, 1994)

Marge House model, 1989, designed for the wilderness of Drummond Island, Michigan.
A rock metaphor suggested the building's form.

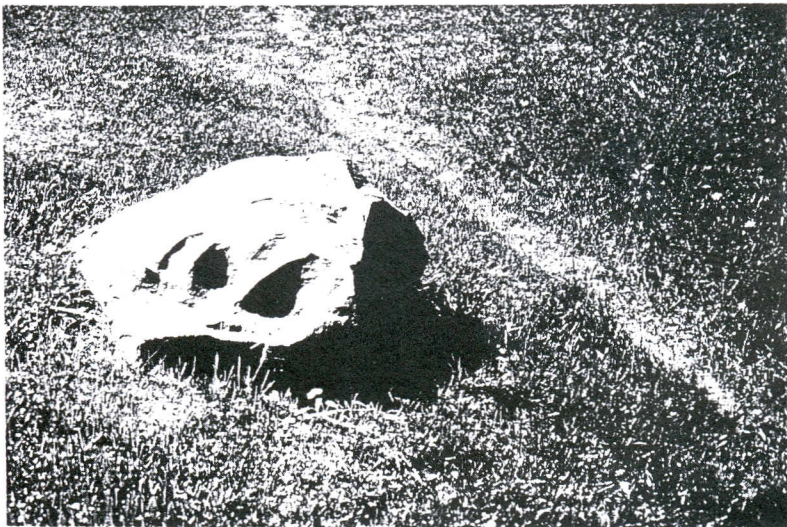
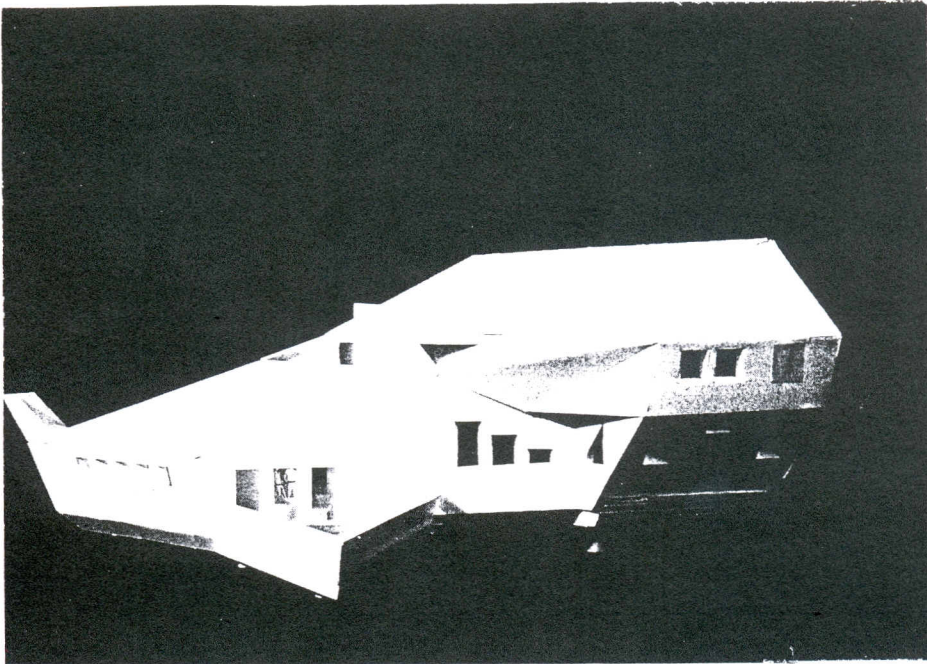


Figure 3.1.3. The model of Gunnar Birkerts showing the metaphor of rock.
(Source: Birkerts, 1994)