LIVENARCH IV

(RE/DE)   CONSTRUCTIONS
IN
ARCHITECTURE

4th INTERNATIONAL
C O N G R E S S
livable environments
&
architecture

Karadeniz Technical University
Faculty of Architecture
Department of Architecture

July 09-11 **2009**
Trabzon **TURKEY**

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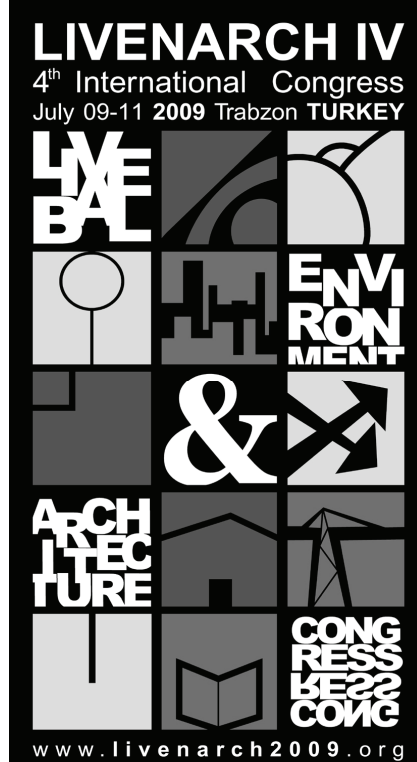
Edited by
Şengül Öymen Gür

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LIVable **EN**vironments and **ARC**hitecture
4th international congress
july 9-11, 2009, trabzon, turkey

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Manuel CUADRA

Universität Kassel, Germany; International Committee of Architectural Critics, CICA

During World War II German cities suffered enormous destructions of 60, 70 and more percent of their historical core. Frankfurt am Main for example lost due to the bombing and the consequent great fire from 1944 the complete wooden medieval city, which up to then had constituted its urban identity. After the war, this destruction was considered as a chance to rebuild the cities following the principles of the modern movement, which had been so strong in the 1920s. Through the compact conglomeration of skyscrapers in the heart of the city, Frankfurt developed since the 1960s a completely new urban identity, which best corresponds to its image as one of the most dynamic trade and financial centres of Europe.

Surprisingly enough for such a progressive city, the planned restructuration of a very central area between the Town hall – the *Römer* – and the Cathedral – the *Dom* – provoked one of the sharpest polemics relating architecture ever seen in the place. Initially it was a small group of citizens, who demanded the reconstruction of the medieval houses that existed here until 1944. However, almost immediately, the media and the political parties expressed their identification with this desire – in strong opposition to the experts: the urban planners, architects, the historic preservation offices and others.

In his presentation, Manuel Cuadra documents the discussion and its stages putting it into an historic perspective. He makes references to similar situations in Berlin, Dresden and Braunschweig since the 1990s and then emphasizes on Frankfurt am Main delivering background information and showing with many images the projects developed during the *Altstadtdiskussion* as an attempt to bring together the emotional expectations of the citizens and the points of view of the experts.

CONSTRUCTIONS AS, CONSTRUCTIONS' ECOLOGY AND ENERGY ISSUES IN ADVANCING BUILDING TECHNOLOGIES

Peter L. ARNKE

ARNKE HÄNTSCH MATTMÜLLER, AHM ARCHITEKTEN BDA, Germany

SIGNIFICANCE OF THE GERMAN FEDERAL "ENERGY SAVING ORDINANCE (ENEV)" IN ARCHITECTURE

Energetically and climatic conditions will change the importance and responsibility of our built environment

The built environment is one of the key factors shaping our humanity. It causes significant environmental and social changes and is one of the most important economic factors for all societies. In Germany for example private households generate 28.5% of the proportionally largest energy consumer of our economy, followed by industry 28.3%, transport 28.0% and commercial / retail / service with 15.2% (2006). [1]

The development in construction in the future decades, will be characterized more than ever on the objectives of the environmentally conscious, resource-friendly, sustainable and energy efficient action. These economic, social and environmental goals have to be compatible with requirements of comfortable and cosy lounge areas and highly qualified architectural places and take them into compliance. It is the special responsibility of industrialized nations who consume the biggest amount of the world energy, to establish procedures for the mission fields for construction, operation, maintenance and the recycling of structures (lifecycle system) which are related to the regional, climatic, social and economic conditions within habitats of high quality. This includes also open spaces, landscape and traffic as well.

This responsibility requires new forms of planning and building culture and will cause a fundamentally change in the shape of architecture and urban planning.

Integrated planning for ecological thinking and acting

The topics of the ecological planning and building are in many ways interdependent. It is about the development of sustainable urban planning concepts and coordinated

architectures. Building design / use, structural design and rational energy use are parameters of sustainability, optimizing the material flow and life cycle. Construction technology of today encompasses the entire chain from planning to construction to use and deconstruction. The range of qualified standards and legal rules is large and is growing steadily.

The complexity of requirements will affect the planning process. Today we have to coordinate and integrate different kind of profession to solve the new emerging questions. From the early stages of planning, the project team of architects and professional planners with the involvement of users, and possibly in consultation with other specialists in qualified manner. Therefore we need appropriate planning tools like software and simulation tool to solve our future tasks.

In this sense we will examine the German EnEV whether it is a suitable planning tool.

Energy efficiency as one of the main factors in ecology-minded planning and building

A major focus in the theme of ecological planning and building is the power supply. Statistics show that in the final energy score the space heating with 74%, is the highest consumers in private households, compared to warm water with 11.9%, mechanical energy with 7.9%, other process heat with 4.6% and illumination with 1.5% (2006). [2]

In the process of the current energy generation and distribution we figure a huge amount of conversion losses.

This results in the demand for an enhanced implementation of measures for rational energy use, to increase efficiency in the conversion and delivery, and to intensify the use of renewable energy.

Particular attention has to be given to the energetic refurbishment of existing buildings. In comparison to modern buildings, old not insulated buildings consume a lot of energy. Huge efficiency gains are possible and necessary. When technically feasible we currently can reach a 35% reduction in energy consumption. [3]

To increase the energy efficiency we have to look for the overall system of the building, like the technical equipment as well as architectural elements, like

- mitigation to prevent heat transmission,
- reduction of ventilation heat losses,
- increase the heat gains,
- increase the utilization of heat generator,
- increase the daylight supply and electric lamps efficiency,
- avoidance of refrigeration technology.

Energy Saving Ordinance (EnEV) - Foundations and content

In the year 2002, the Federal Government of Germany has introduced the 1. Energy Saving Ordinance (EnEV) which currently is in the 3rd Revision as EnEV 2007, to reduce the energy and accompanying with this, to reduce the CO_2 emissions in the building industry. Prospective we will have the EnEV 2009 in autumn this year.

The overall energy of the architecture and the technical system is going to be assessed in its utilisation phase. The EnEV 2007 specifies:

- the energy certification of buildings as well as the authorization to energy performance certificates
- Energy requirements for new construction and modernization, renovation and expansion of existing buildings
- Minimum requirements for heating, cooling and ventilation technology as well as hot water supply
- Energetic inspection of air conditioning.

In principle the EnEV applies to all heated and cooled buildings or parts of a building. In addition, there are special rules for heritage building and monuments. The energy certificate reflects the overall energy balance of a building, rating the overall energy efficiency related to the useable floor space and the primary energy need. There will be recognized not only the heat loss and the entire technical system of the building, but also the energetic effort that is needed to produce fuel, to transport it to the building as well as the efficiency of the technical equipment. The commitment to exhibit and present the energy certificates will be differentiated by the EnEV 2007:

- Required for new buildings
- Partly mandatory for existing buildings
- Obligatory for public buildings, depending on the audience size and traffic

Additionally, with the EnEV 2007 one get the choice for the documentation for existing buildings:

- Need-based statements (based on the calculated energy engineering) and
- Consumption based statements (based on the measured energy consumption).

Energy certifications which are needed for public legal evidence have to use the "Reference building procedure" for residential and non residential buildings or renovations, which are needs-based statements according to DIN 18599. The DIN 18599 is divided into 10 sections and takes into account all the different components of the technical systems, the specific use and disposition of the building (use of boundary conditions, climate data).

DIN V 18599 Energetic evaluation of buildings

Calculation of the utility, retail and primary energy demand for heating, cooling, ventilation, drinking water and lighting

Part 1: General balancing procedures, terms, zoning and evaluation of energy
Part 2: Effective energy requirement for heating and cooling of building zones effective energy
Part 3: Effective energy requirement for the energy for air conditioning
Part 4: Use and final energy need for lighting
Part 5: Final energy need for heating
Part 6: Final energy need for ventilation systems and air heating systems for housing
Part 7: Final energy need for technique of ventilation and air conditioning refrigeration systems for the non-residential building
Part 8: Use and final energy need of warm water system
Part 9: Final and primary energy need of combined heat and power plants
Part 10: Use of boundary conditions, climate data

The EnEV 2009 will rise up the energy saving request for another 30 per cent. The advanced "Reference Building Method" will also be used for residential and existing buildings. The possibility of the consumption-oriented certificate will be cancelled. [4]

Example: building envelope, - an interface component'

The building envelope as an interface between the built space and its surroundings, has a multiple, not only aesthetic function. It influences the comfort of buildings and touches the energy needs very strong.

The rules of EnEV are based on a similar reference building with specific limits on the heat transferring surface related transmission heat loss of the outer wall, windows, doors, the floor and the roof. It's called the heat transfer coefficient. Additionally it also counts the total energy flow, the degree of light transmittance of glazing, the sun, the solar heat gains of opaque components and the degrees of shading. It is the task of the architecture to value all the components to find a new design and new shape. Additionally, by use of appropriate active elements, for example in the fields of electrical and thermal solar energy, distributed and / or free ventilation or glare and sun protection, the multi-functionality of the building envelope can be achieved. In this manner the EnEV provides space for new and future developments: "If [...] physical plant or technical components used for their energy rating no recognized rules of technology or [...] announced secure experience, so this component is to be attributed with similar energy characteristic. [5]

Planning tool EnEV

Basically we can say, that the usual unique pieces of architecture in the development of planning, execution and operation, needs an intelligent legal basis to secure the required efficiency of the energy demand, which is available as a planning tool to provide similar reviews and scores.

The demand-oriented energy certification of the EnEV presents, with competent application and utilization of the potential setscrews' to be a suitable and flexible

planning tool for modern, energy design. It is in the architect's response to adapt this instrument as creative designer.

ENDNOTES

[1] Quelle: Bundesministerium für Wirtschaft und Technologie (2008)
[2] Quelle: Bundesministerium für Wirtschaft und Technologie (2008)
[3] Vergl. Beitrag Prof. Dr.-Ing. Gerd Hauser zum Energiesparkompass 2009 im Fachverband Wärmedämm-Verbundsysteme e.V.
[4] Siehe Information des BMVBS http://www.bmvbs.de
[5] Zitat aus der Verordnung zur Änderung der Energieeinsparverordnung vom 29. April 2009 der Bundesregierung Deutschland (nichtamtliche Lesefassung)

SUSTAINABILITY SCIENCE AND ARCHITECTURE
NEW ULTIMATE STATES AND MATERIAL EFFICIENCY
THE FIERCE URGENCY OF NOW

Karl SPIES

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Auch Architekten und Ingenieure müssen auf die Grundsatzfrage, ob wir es schaffen Wachstum und Wohlstand für immer mehr Menschen zu sichern, ohne unsere Erde / Umwelt zu ruinieren nachvollziehbare Antworten geben können. Das Bauen ist in fast allen Bereichen an den Verbrauch von Ressourcen gekoppelt und Emissionen und Bauabfälle belasten die Umwelt.

Es gibt wichtige und spannende Auseinandersetzungen in der Architektur. Das Entwerfen und Konstruieren guter Architektur ist zwar weiter eine tragfähige Zukunftsaufgabe, aber unsere Hauptaufgabe steht inzwischen unter anderen Vorzeichen. Heute geht es weltweit um Nachhaltigkeit.

Die effizienten Nutzungsmöglichkeiten aller Baumaterialien bilden dabei einen wichtigen neuen Kernpunkt dieser Auseinandersetzung.

Der Bericht 2008 der Vereinten Nationen zu den Milleniums-Entwicklungszielen zeigt auf der Titelseite ein Foto, auf dem Frauen "Materialien" auf ihren Köpfen tragen. Die Lasten können sie sicher tragen.

Ein Vergleich mit Europa: Jeder Europäer bräuchte die Kraft Steiners (Olympiasieger in Peking im Gewichtheben), wollte er die Masse der natürlichen Ressourcen, die er täglich verbraucht, sicher halten. Jeder Europäer verbraucht täglich natürliche Ressourcen, die dem dreifachen seines Körpergewichts entsprechen. In einem Jahr entspricht dies dem Gewicht eines voll beladenen A 320.

Zählen wir noch den täglichen Wasserverbrauch und die pro Kopf CO_2-Emissionen hinzu, belasten wir unsere Umwelt mit dem fünffachen unseres Körpergewichtes.

Das Tragwerk „Erdsystem" steht unter Dauerstress.
Diese Art der Nutzung unseres ökologischen Umweltraumes ist nicht nachhaltig.

Im 20.Jahrhundert hat sich die Weltbevölkerung vervierfacht; 6,7 Milliarden Menschen leben zur Zeit auf der Erde, bis 2050 – so die Hochrechnungen – könnten es 9 – 10 Milliarden sein.

Als Ziel sieben – von den Milleniums-Entwicklungszielen – ist die Verantwortung gegenüber kommenden Generationen ein Hauptthema und die „Sicherung der ökologischen Nachhaltigkeit" definiert und die Zielvorgabe lautet:
"Die Grundsätze der nachhaltigen Entwicklung in einzelstaatliche Politiken und Programme einzubauen und den Verlust von Umweltressourcen umkehren."

Das zu lösende Schlüsselproblem ist eindeutig vorgegeben. Bevölkerungswachstum und Umkehrung des Ressourcenverlustes müssen unter Einhaltung der neuen Grenzzustände gestaltet werden.

Das Bauen hat einen Anteil von 50% am Verbrauch von Primärressourcen, zu 30% liefern Bauabfälle das Material für die „Müllberge", Bauwerke verursachen 40% der Emissionen.

Der Klimawandel hat die wissenschaftliche Festlegung neuer Grenzzustände erfordert.

Das Intergovernmental Panel of Climate Change hat als Ziel eine Stabilisierung des weltweiten Temperaturanstiegs auf höchstens 2 °C über dem vorindustriellen Niveau ausgegeben.
Der CO2-Grenzwert in der Atmosphäre liegt damit bei ca. 500ppm.

In einer einfachen wissenschaftlichen Gleichung dargestellt: $S \leq R$ (stress $\leq$ resistance).

Diese neuen Grenzwerte beziehen sich auf die „Gebrauchstauglichkeit der Atmosphäre". Sie definieren einen Zustand des Erdsystems, bei dessen Überschreitung, die der Biosphäre zugrunde liegenden Eigenschaften nicht mehr erfüllt sind. Werden die alten Grenzzustände, z.B. die Zugfestigkeit von Holz, überschritten, kann es zum Einsturz eines Bauwerkes führen. Wird durch singuläres Verhalten der neue Grenzwert überschritten, führt er zu globalen Schäden.

Gute nachhaltige Architektur erfüllt die wachsenden Ansprüche durch kontinuierlich sinkende nachteilige Einflüsse auf das „Erdsystem". Ich hoffe Sie sind alle mit mir der gleichen Überzeugung, dass die menschlichen Wirkungskräfte nicht die der Natur übersteigen dürfen.

Jetzt müssen Architekten und Ingenieure die neuen Grenzzustände innovativ umsetzen. Die alten Grenzzustände der Tragfähigkeit, der Gebrauchstauglichkeit und der Dauerhaftigkeit sind für Ingenieure und Architekten sehr ausführlich in Regelwerken festgelegt.

Kennen Sie einen überzeugenden Lösungsansatz für diese elementare Aufgabe, die neue und alte Grenzzustände verbindet? Oder auch schon den optimalen „Königsweg"?

Für das Lösen dieser Aufgabe muss es viele Wege geben. 4 Ansätze wie diese Aufgabe schrittweise gelöst werden könnte :

- "Faktor 4 / Faktor 10 / Faktor x"
- "Triple Zero"
- "DGNB , Deutsches Gütesiegel nachhaltiges Bauen"
- "More Less", „Vernunft für die Welt", „Vom Wissen zum Handeln"

"Faktor 4" (Ernst Ulrich von Weizsäcker)
1995 haben Ernst Ulrich von Weizsäcker und Amory und Hunter Lovins das Buch mit dem Titel: „ Faktor Vier – Doppelter Wohlstand, halbierter Verbrauch" veröffentlicht, mit dem Forschungsansatz der absoluten Reduktion des Naturverbrauchs.

"Faktor 10 / Faktor X" (Friedrich Schmidt-Bleek)
Schmidt-Bleek entwickelte schon Ende der 80 er Jahre ein theoretisches Werkzeug (MIPS = Material-Input Pro Service-Einheit), das sich auf die Entwicklung von Produkten anwenden lässt und verfolgt als Leitlinie die Umstellung von einer "Durchfluss- zu einer Systemerhaltungs-Wirtschaft" die nur 10% der Energie und der Rohstoffe braucht.

Triple Zero Konzept (Werner Sobek, Klaus Sedlbauer, Wolfgang Riehle, Wolfgang Schuster und das Referat Städtebau und Umwelt der Landeshauptstadt Stuttgart)
Zero Energy: Reduktion des Energiebedarfs auf Null, Energieerzeugung durch das Gebäude selbst
Zero Emission: Verzicht auf Emissionen (Bsp. CO2), Vermeidung von Feinstaub
Zero Waste: Demontierbare Konstruktion, Vollständige Rezyklierbarkeit

"Triple Zero – Das Klima-, Energie- und Ressourcensparprogramm der Metropolregion Stuttgart 2008-2013" wird gerade in einem Forschungsvorhaben unter der Federführung der Deutschen Gesellschaft für Nachhaltiges Bauen und unter der wissenschaftlichen Leitung von Werner Sobek an konkreten Bauaufgaben untersucht.

DGNB
In Deutschland hat das Bundesministerium für Verkehr, Bau und Stadtentwickelung (BMVBS) und die Deutsche Gesellschaft für nachhaltiges Bauen (DGNB) ein Zertifizierungssystem für nachhaltige Bauwerke entwickelt. Das DGNB-System basiert auf deutschen bzw.europäischen Normen, Verordnungen und Richtlinien. Das Zertifizierungssystem bewertet sechs definierte Themenfelder:

- Ökologie
- Ökonomie
- Soziokulturelle und Funktionale Aspekte
- Technik
- Prozesse
- Standort

Jedes Themenfeld ist für eine nachvollziehbare und vergleichbare Beurteilung in Kriterien gegliedert. Für jedes Kriterium sind messbare Zielwerte und Gewichtungsfaktoren definiert, für die je nach dokumentierter oder berechneter

Qualität bis zu 10 Bewertungspunkte erreichbar sind. Die Bedeutung der Kriterien wird mit Faktoren 0 – 3 gewichtet.
Der Erfüllungsgrad bestimmt sich aus dem Verhältnis der erreichten Punktzahl zur maximal möglichen Punktzahl.

Neben Ansätzen zur Materialeffizienz gibt es in der Zwischenzeit auch eine Vielzahl von Aufsätzen und Aufrufen. Beispielhaft sei „More Less", „Vernunft für die Welt" und "Vom Wissen zum Handeln" genannt.

Auszug aus „Vernunft für die Welt" einem Zusammenschluss von Architekten, Ingenieuren und Stadtplanern (2009):
"Wir müssen mit der Planung und Gestaltung unserer Städte und Bauwerke eine ökologische Wende erreichen

- indem wir den Einsatz von Energie, Material und Boden um ein Vielfaches verringern,
- indem wir umweltschädliche Emissionen vermeiden,
- indem wir den Einsatz der Baustoffe so planen, dass sie nach ihrer Nutzung zur Grundlage neuer Produkte werden."

Der Weg von der Theorie zur Praxis lässt sich nur gehen mit der Maxime „More less", also mit mehr Innovation, Kreativität und Vernunft weniger Material, Energie und Rohstoffe zu verwenden und nicht zu verbrauchen.

Beispielhaft werden vier Konstruktionen aus den Bereichen Brückenbau, weitgespannten Fassaden, Dächern und Hallen gezeigt.

Zusammenfassung:
Natürlich wollen auch Architekten und Ingenieure wirtschaftlichen Erfolg. Zukunftsfähig, dauerhaft und tragfähig werden unsere Arbeiten jedoch nur dann, wenn wir den Wert der natürlichen Grenzen und der natürlichen Ressourcen in die Mitte unsere Planungs- und Nutzungskonzepte stellen. Die Wechselwirkungen zwischen Sustainability Science und Architektur liefern hervorragende Möglichkeiten sich auf das Wesentliche zu konzentriert
Am 28. Mai 2009 haben die Teilnehmer des St. James`s Palace Nobelpreisträger-Symposiums in London ein Memorandum verabschiedet. Ein Kernsatz lautet:
„We know what needs to be done. We cannot wait until it is too late.
We cannot wait until what we value most is lost."

Wir wissen, was zu tun ist.

Aristoteles:
"Alles was getan wird, ist es wert, gut getan zu werden."

Alles was gebaut wird, ist es wert, nachhaltig gebaut zu werden.

Sustainability Science
and
Architecture

New ultimate states
and material efficiency

The Fierce Urgency of Now

The Millennium Development Goals Report

UNITED NATIONS

2008

$$S \leq R$$

stress ≤ resistance

Structures

Old ultimate states
- Bearing strength
- Serviceability
- Durability

+ new ultimate states
- Max. +2°K (base year)
- 500 ppm CO_2
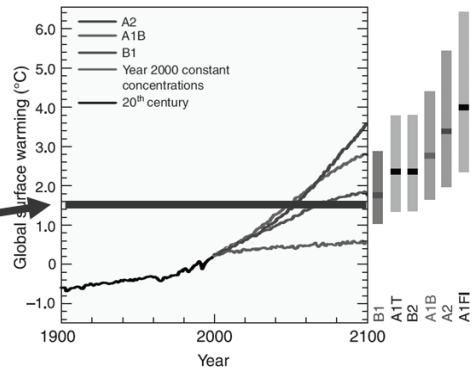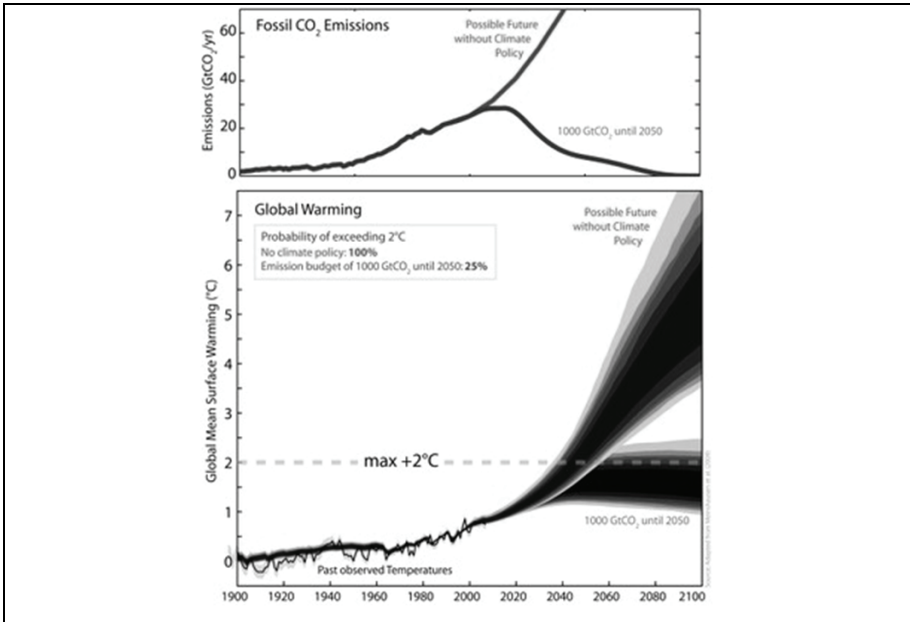
Four methods of resolution

- „Faktor 4 / Faktor 10 / Faktor x"
- „Triple Zero"
- „DGNB , Deutsches Gütesiegel nachhaltiges Bauen"
- „More Less", „Vernunft für die Welt", „Vom Wissen zum Handeln"

▶ The Certificate: For the evaluation of the building's quality, five topics are considered. The quality of the location is presented separately.

▶ The German certificate makes sustainability measurable and comparable.

Kriteriensteckbrief Nr.:	G.1.1.1		Seite 1 / 7
Bezeichnung	**Treibhauspotenzial (GWP)**		

Bearbeiter	Institut für Massivbau, TU Darmstadt	Bearbeitungsstand	03.06.2008
Gültig für Zertifizierungsversion		v.1.01	
Zuordnungen	Bewertungsgegenstand	Gebäude	
	Aspekt	Ökologische Qualität	
	Kriteriengruppe	Ökobilanz	

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„Alles was getan wird, ist es wert,
   gut getan zu werden." (Aristoteles)

Alles was gebaut wird, ist es wert,
   nachhaltig gebaut zu werden.

CRITICISM

(RE/DE) CONSTRUCTIONS OF CITY AND SOCIETY:
TRANSITIONS FROM SOVIET TO POST- SOVIET ERA IN BAKU CITY

Hossein SADRI, Senem ZEYBEKOGLU SADRI

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ABSTRACT

This paper aims to understand the relationship between the political reconstruction of society and transformation of city via investigating the changes of concepts such as public and private spaces after the transition from a planned socialist economy to a free market economy in Baku city, Azerbaijan.

Keywords: Transition, Public and private spaces, Post-soviet era, Baku city

INTRODUCTION

During the history of urban development, the concepts of "city" and "border" have progressed jointly. As Mumford mentioned, the earliest meaning of "town" is an enclosed or fortified place. In fact, the determinate physical forms of borders, city walls, had a formative role during the transformation of villages into cities (Mumford, 1956). Furthermore, it is possible to refer to different types of divisions in different cities in terms of religion, ethnicity, class, occupation, and etc. In addition to "divided city" (Fainstein, 1993) and "dual city" (Mollenkopf, 1991) some other divisions were enumerated in Peter Marcuse's *The Layered City* such as "quartered city", "gentrified city", "suburban city" and "tenement city" (Marcuse, 2002a: 94-97).

In his paper *The New Borders of Globalization*, Marcuse mentions about the changes of the borders in the city in line with globalization. According to Marcuse, the lines of partition within cities have been looked needless and on their "way out" and cities has had a chance to become multi-cultural, diverse and layered (Marcuse, 2002b: 1). But at the same time, new borders of our time have turned out to be non-spatial. A new type of border forming within cities has become "less narrowly spatial" and has hardened socially, politically, and economically (Marcuse, 2002b: 2).

We can observe this process more severely in cities of transition from state-socialism to global capitalism due to crucial changes they have gone through in social, political and economic areas. According to Tsenkova, most of the post-Soviet cities have had

the opportunity of becoming centres of economic development, service growth, technological improvement and cultural diversity during transition, but at the same time they have experienced rapid social polarization, poverty and environmental degradation which aggravated the non-spatial divisions in these cities (Tsenkova, 2006:21).

Baku, the capital city of Azerbaijan (a former Soviet state), has witnessed this transition quicker and more destructive. The reasons can be listed under three main categories: a) rapid economic development deriving from oil sources, b) stationary political transformation of the country to democracy and c) the war between Azerbaijan and Armenia exactly after the collapse of Soviet regime and as a result migration of a huge number of displaced and refugee persons to the city. These three items plunged the city into a chaos and disarrangement. Development of the city progressed in an unplanned and freewheeling fashion creating injustice and polarization between people in terms of economic and social factors. The results of the direct shift of Baku city from a socialist economy to capitalist free-market system, without any reforms in political system of the country such as decentralization of power and construction of local autonomies, can be best understood and its social disasters can be predicted through a comparison between the model of post-socialist urban transition and the model of transformation of Baku city (figure 1).
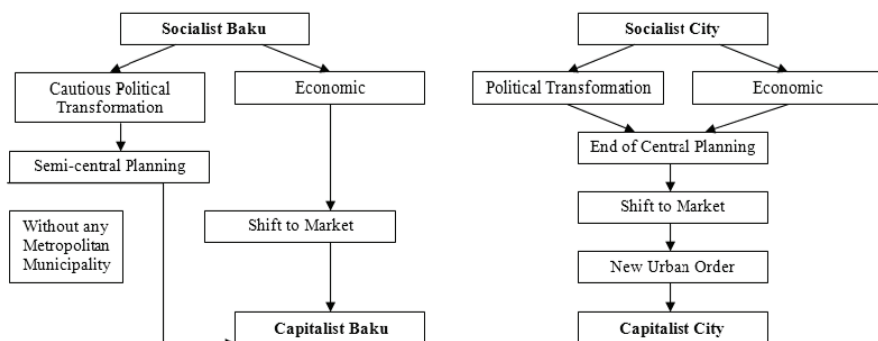
Figure 1. On the left: Model of Baku's transition (By Authors) and on the right: Simplified Model of Post-Socialist Urban Transition (Kovacs, 1999: 2)

In this paper we aim to explain the urban transformation of Baku city during the post-Soviet era in terms of socio-economic and political changes and highlight the non-spatial boundaries which have been formed within society.

With that aim, the first part of the paper will focus on a brief history of Baku. The following part will deal with urban development of the city and explain formation of different borders within the city. After that, socio-economic and political features of the Post-Soviet Baku will be discussed. The next part will shed light on the (re/de) constructions of the city and the society during this period. The results of this

transition in terms of the creation of new borders within the city and the society will be discussed in conclusion.

A BRIEF HISTORY OF BAKU

According to archaeological excavations, the foundation of Baku city dates back to Bronze Age, more than two thousand years ago (Ashurbayli, 1998: 35). In addition to the weight of oil and salt output and madder and saffron cultivation, the basis of its economic development had been served by the exportation of these goods either by land caravan ways or by sea (Ashurbayli, 1998: 294).

In the 13th century, when Baku was one of the richest commercial centres of Caucasia, Mongolian destruction of the city undermined the economy of the city and disturbed the oil industry. However, in the 14th and 15th centuries, Baku became the main port on the Caspian Sea and took an active part in the international transit trade with silk and other goods between the East and West. This was the period of feudal flourishing of the city (Ashurbayli, 1998: 294).

In the 17th century, in addition to the growth of handicraft production and the great oil and salt exportation, the role of merchants in the social life of the city had increased. During the first half of the 18th century, after the collapse of trade in Azerbaijan and in the Middle Eastern countries, the rise of Feudal system halted in Baku. Ashurbayli attributes this situation not only to the displacement of trade ways and feudal intestine wars but also to the decrease in the amount of oil exportation due to independence from the use of oil in the military after the spread of firearms in the east (Ashurbayli, 1998: 295).

The conclusion of two treaties between Persia and Russia brought a considerably peaceful environment for Azerbaijan. In addition to that, with the impact of the rise of the oil industry, the economy and the social life in the city had improved during the second half of the 18th century (Ashurbayli, 1998: 295).

At the beginning of the 20th century, after World War I, Azerbaijan Democratic Republic (1918-1920) was established. During this period the state adopted a modernization project. In 1920 Azerbaijan Soviet Socialist Republic was founded and Baku became one of the capital cities in the USSR. During this period with respect to the socialist economic system most of the benefits of Baku's oil was used in other states of the USSR and the city's development lost its speed. Nevertheless, inequalities and poor living conditions in the city started to improve.

Urban development and architecture of these three eras (feudal, capitalist and soviet eras) are clearly separated from one another. They have not intertwined with, but developed at the vicinity of each other. In other words, the architecture and urban design of all these periods have developed within the borders of their own territories. To be able to grasp that division within the city, one should look at the history of urban development of Baku.

URBAN DEVELOPMENT OF THE CITY

In general, Baku's urban development can be examined under four major eras; Medieval, Oil Boom (1880-1920), Soviet (1920-1991) and Post-Soviet eras. Geographically, the traces of the first three eras can be observed in three concentric circles which surround the same core: the inner core was shaped during the Medieval period, and is contained within the massive citadel walls of the "Inner City"; the Oil Boom era characterizes the next, middle orbit; and the third circle, which is approximately 10 kilometres wide and surrounds the middle orbit was shaped during the Soviet era.

Figure 2. Concentric circles of Baku (reproduced by authours from the original maps of Fatullayev, 2005)

The impacts of the Post-Soviet era cannot be defined by exact geographical borders. These appear in all of these three circles and cover the traces of the previous eras.

Medieval Era - The Inner City (*Ichari Shahar*), located at the centre of Modern Baku, inside the fortress walls, constitutes the medieval image of Baku. This 22 hectares area is included in UNESCO's list of protected sites (Nasibov, 2004).

Picture 2. Qiz Qalasi (photo by authors)

More ancient part of Baku fortress is a coastal part and contains the earliest monuments such as the minaret of Mahammad Ibn Abu Bakr's Mosque (*Siniq-qala*) and the Maiden Tower (*Qiz Qalasi*). In the 15th century the complex of the Shirvanshahs' Palace was built at the highest point of *Ichari Shahar*. In the 17th and 18th centuries the trade highway of the city started to grow and connected two markets: The upper bazaar (*Yuxarı bazar*) with rows of stalls belonging to jewellers and big traders and the lower bazaar (*Aşağı bazar*) with groceries and small craftsmen's workshops. This street constitutes the main axis of the Medieval city and along with it, there are a number caravanserais, mosques and bath-houses (Nasibov, 2004).

Picture 3. One of the caravanserais in Ichari Shahar (photo by authors)

Oil Boom Era - Transforming into a centre of one of the *uyezds* (an administrative subdivision) of the Russian Empire, and parallel to that, the rapidly growing oil industry during the 19th century brought about an impetuous growth in Baku. The city began to develop and occupy more and more new free lands and between the years 1806-1881 the city extended its limits to an area of 1300 hectares and the rate of the growth of the population outran all of the big cities in Europe (Fatullayev, 1998).
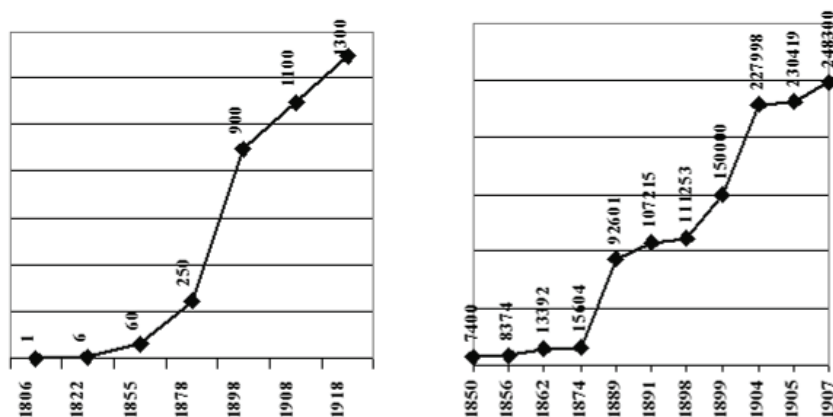
Graphic 1. Graphics of Baku's acreage (on the left) and Baku's population (on the right) during oil boom era (Fatullayev, 1998)

Beginning from 1859 civil engineers and architects set to work on the first complex general plan of Baku, and in 1898 a more detailed, complete and professionally accomplished general plan of city development was created (Fatullayev, 1998).

During this period, owing to the investments of some oil industrialists on the construction of mansions and improvement of the city, Baku obtained an original appearance, which endows it with its well-deserved fame of "Paris of the East". Various architects from different backgrounds were invited to the city, and through the use of different architectural styles varying from Neo-Renaissance to Neo-Gothic, from Neo-Baroque to Classicism and Modern, made Baku a museum of history of architecture. On the contrary, due to the development of the industry and the flow of the population into the city, the living conditions of the working class started to deteriorate. These conditions particularly appeared in the suburbs of the city, in the industrial districts where the settlements of Baku oil workers were located side by side the industrial buildings and oil extraction sites. Today, we can only see the "valuable" architectural monuments which have been protected from that time, but the oil workers' settlements and traces of their hard lives have disappeared (Nasibov, 2004).

Map 1. Baku's urban development between 1806-1918 (Fatullayev, 1998: 65)

Soviet Era - Architecture and urban planning in Baku city during Soviet era can be categorized under four different styles: constructivist architecture, national architecture, and architecture of Stalin and Khrushchev eras.

Constructivism put an impact on the architecture of Baku especially between the years 1920-1935. Reconstruction of the city in order to improve the living conditions was a prevalent issue during this period. Numerous housing projects and public buildings including hospitals, educational, cultural and entertainment buildings started to be constructed especially in the suburban areas. The change that put the greatest impact on the city's façade was the construction of workers settlements. Most of these housing projects included small houses with less than two storeys and had an extremely simple and modest architectural style. During these days, architecture in Baku followed the tendencies of the day and with the motto of "efficiency for purpose", constructivism widely spread. Constructivism rejected the idea of "art for art's sake" replaced it with Socialist Realism lying behind the laconism of forms. Construction of public gardens, parks and squares and planting of greenery were other projects which were implemented and in addition to that, first versions of the general plan of the city were produced during this period (Nasibov, 2004).

With the establishment of the Union of the Architects of Azerbaijan, the second style appeared. Azerbaijani architects started to use the national architectural language of Azerbaijan in their buildings and this period is called as Azerbaijani architecture of Soviet era (Nasibov, 2004). During this period most of the decisions about city were made in the city and this gave a chance for local architects to apply their dreams.

The architecture of the period between 1930s and 1950s is defined as architecture of Stalin's era. During this period, the centre of power was transferred to Moscow and as a result all decisions related to Master Plans started to be made nationally. The national plan included construction of public buildings and crucial infrastructure projects (Khanlou, 2005: 33).During this period the central part of the city was reconstructed. Old buildings of area were destroyed and buildings with unordinary heights were constructed in their place on the one hand, and on the other, several projects of town building were regulated for dwelling of inhabitants of demolished buildings in suburban areas (Nasibov, 2004).

After 1950s the period identified with Khrushchev started. In 1958 a general plan entitled as the Decree of the Soviet Ministers of the Republic and marked the development of the city up to 1976 was prepared. This decree aimed to improve the quality of living conditions of houses and decrease the outgoings of constructions. This period witnessed the construction of large scale mass housing projects which

were generally pre-fabricated and concrete buildings with typically nine storey heights; application of new construction methods and the use of new materials such as concrete, metal and glass (Nasibov, 2004 and Khanlou, 2005).

POST-SOVIET BAKU

In the last decade of the 20th century, USSR collapsed and Azerbaijan opened its borders to free market and international economic organizations such as IMF and WB and rapidly transformed into capitalist system (Dikkaya and Çaylak, 2008). The first stage of the economic development of the country was marked by a great oil contract signed in the year 1994 in Baku known as "Contract of the Century". Later, especially after the second Gulf War, due to increasing oil prices, Azerbaijan became one of the fastest growing economies of the world (Ziyadov, 2006).

This "Oil Boom" brought about a "Building Boom". According to Khanlou, numerous high-rise buildings have "sprung up like mushrooms after rain" (Khanlou, 2005: 32). This meteoric construction without depending on any plan or strategy presented an anarchic development in the city (Khanlou, 2005). In addition to its disorder, especially in the central part of the city where there are many buildings with historical value and diverse architectural styles, this stream was disruptive. With Goltz's sentence, "the Baku which was built by the First Oil Boom is being destroyed by the Second Oil Boom" (Goltz, 2005: 28).

In addition to its damage on city's architecture and urbanism, this fast economic development and transition caused crucial social effects especially resulting from the war with Armenia and its continued effects; the country's poor social programme and inequitable development plan, and lack of coordination in local scale.

The Post-Soviet Baku has two faces because of different powers affecting the city at the same time. On the one hand, luxurious and splendid buildings are being constructed by using the latest architectural technologies, in order to create an image for the city that could attract global capital. On the other hand, many people who had lost their jobs and social securities after the collapse of the Soviet system and others who had come to the city as a result of the collapse and war in search for job opportunities are struggling for a decent life. In other words, it is possible to see the two faces of the city at the same time: the glorious face of the global city and the catastrophic face of deprivation and poverty.

The face of Baku in Post-Soviet era is considerably heterogeneous. On the one hand the city has a beautiful image of a global city. On other hand most of its inhabitants are deprived of decent life standards.

Picture 1. General view of Baku (photo by authors)

(RE/DE) CONSTRUCTION OF CITY AND SOCIETY

Baku is a good example of reconstruction of society and city with immense changes that it went through in a short period of time. In this sense, looking at contradictions of the society and the built environment will give us the opportunity to grasp changing values during transition from soviet system to free market system.

Property ownership constitutes the most important of these changes. Encounters with the idea of property ownership for the first time through the programs of privatization of public housing agitated the urge of property ownership. The demand having quantitatively more houses rather than liveable houses originated a new construction sector. According to this new system, contractors finish the construction work of a house at the level of rough construction, without doing any installations or finishing such as doors, windows, coating and floor covering. After that, clients buy the houses in the form of rough construction, with prices half as much as completed houses, and do the fine works according to their own will. This new system, in which clients can buy two houses with the price of one single house, increased the purchasing power and consequently boosted profits in construction sector.

Picture 4. An example of rough constructed buildings (photo by authors)

In an open letter of Sultan Sultanoghlu to First Lady of Azerbaijan, the relationship between capital and construction sector was fairly reported. The part which was liberally quoting Karl Marx states that:

"Capital is happy with a 20-percent return, delighted with a 50-percent return, ecstatic with a 100-percent return, delirious with a 200-percent return. And with a 300-percent return, Capital becomes insane. And the return rate in the building boom in Baku is 300-percent" (Goltz, 2005: 31).

Another issue related with property ownership is the maintenance of buildings. One can easily observe that communal sense did not progress in Baku city due to deprivation of people from sense of ownership during the Soviet era. As a result, people did not feel any responsibility for taking care of public spaces of their home environment such as entrances, stairways, courtyards or facades (Khanlou, 2005: 33), and all public spaces are in poor conditions. In addition to this lack of communal sense, the contradictions between strong wills of the property owners are also apparent on the facades of the buildings. Each apartment owner coats his/her apartment's facade with a different colour. And these colourful facades show the lack of common mind in decision making even in the neighbourhood scale.

Picture 5. Different materials and colours used in facade (photo by authors)

The existence of private property has also put an impact on traffic in the city. During the Soviet era, automobile ownership was strictly limited and in condition that a person wanted to buy a car, he/she had to enrol in a long list. This limitation had enabled a control over motorized vehicle traffic in the city. However, streets of Post-Soviet Baku are full of European cars, which can be easily purchased and the amendment and maintenance of streets did not come along the same way with the increase in car ownership. In addition to that, there has not been any improvement in public transportation since Soviet period and metro and public buses are in poor quality. Furthermore, condensation of population in the city centre has also augmented motorized traffic and this has altered the proportion of car/pedestrian in favour of cars. For that reason, the streets and wide boulevards which used to serve passengers in the Soviet era are now dominated by cars and full of traffic jam and noise. Traffic problem also complicated access from one place to another in the city, and this has led to the creation of polar zones and inequality within the city as centre/periphery, high quality/poor quality areas (Khanlou, 2005).

This inequality does not only exist between different parts of the city, but also between families living in the same apartment building. The construction of interiors of apartments by apartment owners resulted in different interiors depending on the economic conditions of owners.

The concept of order provided by the central government has also changed. With the disappearance of the central authority, efforts of producing long term urban development strategies have also vanished. Moreover, the pace of growth of the city does not allow such kind of planned development. The lack of a metropolitan municipality which can govern the city as a whole brings the lack of planning and this results in inadequacy in areas of infrastructure, development and heritage policies (Khanlou, 2005).

This lack of perspective and long term approach has also penetrated people. Architectural make-up has replaced fundamental solutions. Embellishing old and ill-conditioned buildings through wrapping their facades is not only a way of covering their problems, but also declares a good image of the building and provides good income for their owners. However, this practice and in addition to it, construction of low-standard and weak buildings to reduce expenses in an earthquake area like Baku threatens the safety of two million people living in the city.

Picture 6. An example of covered facades (photo by authors)

CONCLUSION

In Post-Soviet Baku, the decisions between old/new, historical/contemporary, social life/individual benefits and motorized vehicles/pedestrians are given according to economic values, rather than human values. As a result, a fragmentation among the inhabitants of the city in terms of economic conditions has appeared.

Nevertheless, this fragmentation does not entail physical borders, but, as Peter Marcuse states clearly, it sets social, cultural and economic borders within society. "Iron curtain" was destructed but is being reconstructed again as perceivable borders among people, putting heavy impacts on living conditions of people

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THE MOST RESENT APPLICATIONS IN TRABZON AND URBAN IDENTITY

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ABSTRACT

Urban identity has a structure that has been formed in a long time period. The importance of background can't be undervalued in formation of the identity. The important thing is that set balance with history and future and provides continuity in the formation of identity. At the same time values of city such as geographical location, topography, cultural structure, traditions, life style, and socio-economical status have importance in formation of the identity. These values has supplied to being unique and characteristic of the city.

There are upsurge in population and industrialization in cities latterly. The cities that have been caught unprepared to this situation have been the scene of speedy and unplanned structuring with mistaken administrative decisions. The cities have looked like each other. The distinctive structure of the cities has deteriorated because of destroying historical monument, disregarding context in designs, and plying planning. These applications have damaged history of the city, urban memory and caused being lost of urban identity. Organizing of historical values and nowadays requirements truly is important in point of protection of urban identity and providing continuity.

In the cities there is speedy structuring at the present time. Structure of the cities has altered very quickly. Urban identity has disregarded in every application that has been performed in the city. Meaning and worth of existing state in point of urban identity has been undervalued with implementations such as destroying of existing building that has been historical, demolition which has been performed while new highway has being built. Eventually such applications have damaged continuity of urban identity and historical values.

The concept of urban identity has been investigated in constructed surroundings in Trabzon City situated the north of Turkey where has lost identity of cities. In this paper has researched factors that have composed Trabzon urban identity. The city has altered speedy as a result of various implementations which have been performed in constructed surroundings in last 10 years. In this research have been discussed positive and negative effects of this alteration on urban identity.

Keywords: Urban identity, Urban space, Constructed surroundings, Memory

INTRODUCTION

Cities take current shapes with being collected of facts that have occurred in process until now. Many factors are partly effective in the formation of the cities depending on conditions of time until now. Elements constituted and distinguished the cities from each other generate the urban identity. The most important feature of the urban identity having a changeable structure is its originality. The originality arises from the contributions which the features of the city gave to the urban identity depending on location and time. For example, while topographic characteristics are more determinative in some cities, in the others economic structure are more effective. However, the main point that must be remarked is that the urban identity is formed by different factors such as socio-economic structure, socio-cultural structure and natural features. Sustainability should be provided in changeable structure of the urban identity. New formations wanted to be attached to the city in process of the city development must improve the city and mustn't be reverse by the existing urban identity. Thus, protection of urban memory with sustainability is obtained in urban identity and this situation develops the sense of belonging of city-dweller.

Cities existing every period changed significantly from many aspects such as urban definition and structure nowadays particularly in the result of various developments occurred last years. The reasons laid in the basis of the mentioned change are speedy growth of population, technological developments, globalization, and alternation of socio-cultural and socio-economic structure. The reflection of this situation to urban identity is generally caused the cities not sustaining the existing identity and began to resemble each other, except for some cities.

When these experiencing developments have been evaluated for Trabzon city, it can be seen that the city has its typical identity until a certain term. However, today the typical identity has altered in certain size and sustainability of the identity isn't provided. In this paper, firstly the concept of "urban identity" was defined, then, the main spatial components generating identity of Trabzon city were investigated. The effects of the last term projects constituted in Trabzon on urban identity were explained.

THE CONCEPT OF URBAN IDENTITY

Identity, by the simplest form, is a concept putting forward the difference between "existence" and other existences **(Lynch, 1960).** As for the urban identity, it defines all of the characteristics of the city distinguishing them from others. Many factors are effective on formation of the cities. The main point causing the differentiation of the cities is the effects, reflections, significances, and contributions of these factors showing diversities from city to city. Therefore, these diversities provide the city to constitute the typical urban identity.

Urban identity is formed by influencing many factors such as architectural tradition, technological developments, customs, using languages, passing wars, managerial system, political and economical developments, religion systems, and lifestyles existing in the city as well as physical characteristics, and taking shape towards alternation. Shortly, identity and character of the city are considered as a whole with

spatial elements of nature, social-economic and building environment, and are formed depending on alternation of these elements (Suher, Ocakçı and Karabay, 1996).

Having a dynamic structure and being in consistently alteration, the city causes the urban identity change naturally in course of time and even in some situations it causes the urban identity to change consciously (Sahil, 1995). The important thing in alteration process is providing the sustainability. It should be provided that the characteristics coming from past and being effective on shaping of urban identity are protected and combined with new developments.

Built environment is a significant datum source in perception of urban identity. Eventually, developments and changes during history in urban life has reflected to the built environment. Therefore, the protection of the built environment is important because of conservation of existing values and their transmission to the future. The urban identity can be defined with built environment units like existing buildings in the city, streets, public squares, open and green areas.

Providing the sustainability of the urban identity supply the adoption of the city and city-dwellers and cause their relationship to become stronger. These elements consisting of the identity are also tools stimulating the memory of city-dweller. Cullen, Lynch and Alexander were emphasized that sustainability of the spatial experience is important for psychological kindness of city-dweller (Baytin, 2006). Therefore, sense of belonging to the city is increased with confidence of living in a familiar environment. This also provides positive contribution in protection of the city by city-dweller. This situation contains mutual pragmatism in terms of the city and city-dweller.

EFFECTIVE FACTORS IN ALTERATION OF THE URBAN IDENTITY

The city consists of many factors and change according to alteration of these factors. Changes in the cities lead to identity change being the indicator of original values which the city has. This situation develops in a natural process. However the size of the change is important at that point. Changes being large, deep-rooted and not getting into the process can lead to problems in terms of preservation of sustainability and of keeping the urban identity alive.

It is known that the cities are similar to each other and have no identity, nowadays. Current developments in modern period are shown as reason of underlying of this simulation in the world. While the diversity of local identity had been derived from the accumulation of the centuries in collective memory until the modern period, in modern era and after, the cities began to resemble each other with leaving behind the local features and the emergence of settlement pattern in universal nature. The features which the universal styles making possible to leave behind the traditional ones is that the styles of new settlements take shape under the way of politics and economical developments rather than cultural habits and life practices (Ateş,1998). The reasons of the being non-identity of the cities are economical and technological developments, variations appearing by population movements in population

structure, and emergent situations by speedy urbanizations in Turkey. These factors have caused to social alteration and their reflection to physical environment.

Main factors effective in change;

Community structure; a fast flow of population appears from rural areas to the cities with industrialization. This situation leads to the change in population structure in urban areas and their reflection to the physical environment of the city. Mental and behavioral conflicts were appeared as a result of sharing the same space of city-dwellers and people migrating from rural areas to the cities and this led to confusion (Birlik, 2006). The physical reflection of this situation is in the form of polarization in the city, inadequate infrastructure and lack of housing.

Characteristics related to local and identity were left in the background with modernism's effect and only shaped the new lifestyle put forward (Aksulu and Aykut, 1996). Moreover, city-dwellers who have different income in the cities take place in different areas inside of the city. All these developments affect the appearance and formation of the city.

Technological developments; the traditional construction systems and materials were replaced with modern construction system and materials like reinforced concrete, steel and brick in line with technological developments. These developments in technology lead to quickly the changing of existing urban texture because of allowing more rapid production of building, implementing and supplying of material easily.

Moreover, people live in better conditions with technological developments nowadays. Demand for previously produced spaces and buildings decreased because of the demand for better and more comfortable ones. Therefore, these areas and buildings were neglected and left without repair and were converted to dormant places. Thus, the areas and buildings that witnessed the certain period of the city were abandoned to disappearance.

Economic factors; rapid population growth in the cities and heavy structuring led to the creation of land rant. Development plans are changed, urban transformation and renovation projects are designed, historical sites are narrowing, the areas and buildings which were important for urban memory are destroyed under the name of public interest for the land rant. Therefore, there is a negative intervention to the city's physical structure and existing identity.

Also, global economic applications which affect the all over the world cause to consumption-based editing of all thing in the city. The consumption society formed in consequence of these events rapidly consumes all things. Not only products but also lifestyles, values, stable relationships, the commitment to the buildings, areas, people and learning styles have a part in among them and they are leaving in time (Baytin, 2006). This attitude causes to the emergence of a uniform spaces and buildings which were built with globalizations and are not included in local identity. Therefore, cities being similar to each other are formed.

Rapid urbanizations bring together the distorted urbanization. This situation causes to unplanned city development and to damage the historical texture having a

significant role in the formation of urban identity and to produce buildings being away from aesthetic concerns, excursive, inadequate in terms of quality and quantity and damaging the silhouette of the city. Therefore, values that are local and unique to the cities are being destroyed.

MAIN SPATIAL COMPONENTS CONSTITUENT TRABZON CITY IDENTITY

Trabzon city's historical process, socio-cultural features gained in historical process, built environment next to the natural features are effective in the formation of its identity. Social-cultural characteristics of the city weren't addressed in detail in the paper in terms of limitation of the subject.

 The foundation of Trabzon being a coastal city was based on until 2000 BC. There was the influence of different cultures and civilizations like Kommende, Meds, Persians, Romans, Byzantines and Turks with Ottoman and Republic Period in the city. The city constituted the north part of the Silk Road owing to it's geographic location and became an important trade center with its ports. The city keeps its importance for the region throughout its history with its location, being a trade and transit center, and hosting different cultures. The trails of the wealth coming from history and the values that the city has in today's conditions can be seen in the built environment.
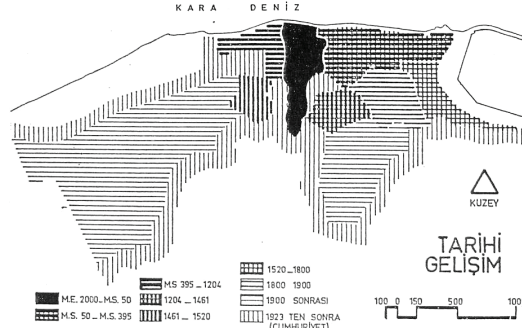
Figure 1. The Development Map of Trabzon (Karadayı, 2000)

The city was founded firstly in Ortahisar Quarter and around. Then the city established between two deep valley-inside of the city walls- expands up to today's Kalepark, Çarşı, Kemerkaya, İskenderpaşa, Cumhuriyet quarters by passing over the city walls (Karadayı,2000). The next expansion of the city is in the form of bounces depending on the land conditions. The city continues its development in all possible regions in the Republic Period. This development didn't show a feature owing to the lack of adequate settlement space and being a high demand in urban areas. The city takes present shape by extention where the topography permits and even obligation of the topography (Figure 1) (Anonim, 2006).

The city is established on a topography including three valleys being perpendicular to shore- Değirmendere, Zağnos and Tabakhane- and is formed from mountains

starting to rise from sea level to the south in the east-west direction after the narrow coastal strip (Figure 2). These natural thresholds (hills and valleys) and the slope play an active role in formation of the city. For example, the axis parallel to the sea is built because of being transportation difficulties in the north-south direction of the city depending on topography. This has caused to intensive structuring parallel to the sea especially in the sea coast.

Figure 2. Active valleys in the urban identity: Zağnos and Tabakhane Valleys (URL1, 2009)

Comparing city's old and new photos, there was a settlement being compatible with traditional texture, supplying the ventilation of the city, consistent with topography, connected with the shore in the former city, seen from the coast, but now, there is a landscape being away from the aesthetics, broken from the shore depending on the various reasons. The characteristics which adds value to the city and include the originality couldn't be protected and the city received the current view.

Other valuable topographic items are Boztepe being located in a dominant point in the city center and having a perspective which the city center can be seen spaciously and Ganita being a special corner and allowing embracing the city-dwellers with the sea (Figure 3). On the other hand, the green volume of the city has significantly decreased because of heavy construction.

Figure 3. Other topographic items; Boztepe and Ganita (URL2, 2009).

Another factor being determinant in the formation of urban identity is built environment. Built environment contributes to the definition of city development and change in different sizes. The building locates in the life story of the settlement owing to carrying different properties and generating physical environments. They are important in term of reflecting the some characteristics such as the city's status in a certain period, knowledge, appreciation, the skills, social-cultural-economic relations of the city-dwellers and dominant production format (Mardan, 2001). Neighborhoods, streets, squares, parks, open spaces and single buildings in the city are spaces that reflect the city's development process and experiences.

When Trabzon city is investigated as a built environment, there are buildings and monumental structures peculiar to the city due to having a rich history and being significant for region in present day. Even though the number of the historical buildings was more in the past, there are buildings being preserved and given identity to the city today. Among the main historical values on buildings scale Kostaki House, Houses in Ortahisar, Consulates and High School (Figure 4) can be given. Buildings constructed in Republic Period are Trabzon High School designed by Bruno Taut, being one of the famous architects of the modern era, and Karadeniz Technical University campus (Figure 5). Also, Huseyin Avni Aker Stadium that becomes identical with the city is another significant item. Atatürk's House, Ayasofya Church, Castle and the City Walls, Zağnos and Tabakhane Bridge, Gülbaharhatun Mosque and Tomb, İskenderpaşa Mosque and the Trabzon Governor Mansion are the other significant historical buildings (Figure 6).

Figure 4. Prime historical buildings adding identity to the city; Kostaki Residence, Anatolian High School, Consular Buildings and Houses in Ortahisar (URL3, URL4, URL5, 2009)

Figure 5. Republic Period buildings adding identity to the city (URL5, URL6, 2009).

Figure 6. Prime monuments adding identity to the city (URL3, URL 5, 2009).

Public squares are important urban spaces. The public squares in Trabzon have varied from past to the present day as well as they have historical characteristics. In spite of this, they protect their importance for the city. Taksim Square constituting the heart of the city and historical Kavak Square take place among the most significant public squares of the city (Figure 7).

Figure 7. Taksim and Kavak Square (URL5, 2009).

Kemeraltı, Uzunsokak, Maraş, Kunduracılar, Semerciler and Gazipaşa Streets in Trabzon are significant places in terms of urban identity because of undertaking function, including originality with shapes, testifying to historical process of the city and carrying marks of the historical texture. For example, while the Maraş Street being one of the main arterial road and being constituted by destroying several Turkish neighborhoods during Russian Invasion –in beginning of 1900's- take shape with a historical event (Tarakçıoğlu, 1986), Semerciler and Kemeraltı being historical hostels take shape with trade actions.
Another important factor for the city is three parks located as open spaces, (Figure 8). These areas altering in direction of urban development are always significant public sphere for city-dweller. They are crucial resources as green areas in the city as well as enabling to gathering and socialization of city-dweller.

Figure 8. Prime open green spaces adding identity to the city: Atapark, Meydan and Fatih Parks.

On the other hand, it can be thought that Sümer Cinema, Suluhan, Cudibey Primary School, and Hamamizade Culture Center were among mainly buildings which weren't reached to present-day owing to various reasons (Figure 9).
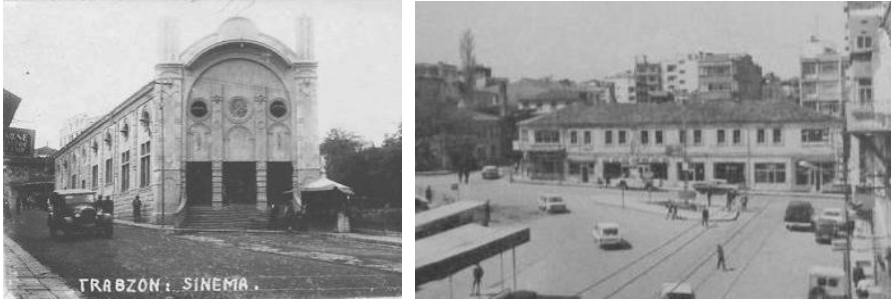
Figure 9. The historical Sümer Cinema and Suluhan (Bölükbaşı, 2006).

When the identity of Trabzon city is generally evaluated, the city has still an original identity, although it lost the important characteristics being effective on identity in time.

APPLICATIONS IN LAST DECADE IN TRABZON AND THE URBAN IDENTITY

It was mentioned that Trabzon city was located in slope area, harmonious with topography, and there was a structure in human scale in memories of old peoples who were lived in 1950's and notes of travelers. It was also explained that housing areas were consisted of two or thee floor buildings, streets were defined with garden walls instead of building walls, wisterias were hang from garden walls, and mandarin and orange trees was decorated the gardens in housing areas being out of market buildings before.

As for nowadays, the significant amount of the existing values were damaged or destroyed as the results of developments in the world, country and in the city. The providing of sustainability of the urban identity was hindered with implementations from the development plans to single buildings. The city has now a physical environment of densely buildings. Therefore, distinctive characteristics of the city couldn't be protected (Figure 10).

Figure 10. General perspective of Trabzon city (URL3, 2009).

The effects of great projects applied in last decade on the urban identity were discussed in this part of the paper. The subject was investigated with the last term projects such as Tanjant and Black sea Shore Highways constituted by the aim of

transportation, in single building scale Forum Trade Center and The Old Tekel Building Renewal projects, and Zağnos Valley Transformation   Project applied in slum area. So, the sustainability of urban identity or being gained of new identity with new built environment which is constituted in Trabzon city was studied in the light of last years' arguments that the cities resemble each other and destroying variations belonging to cities.

One of the significant problems of the cities is transportation at the present time. The problem tried to be solved with enlarging of old ways in the cities or constituting of new highways. The Tanjant and Second Black Sea Highways built in last term are projects that are constructed to solve the transportation problems of Trabzon city. Chosen routes for these projects and conditions as a result of implementation affect the urban identity negatively.

Tanjant Highway that came into question firstly with a design competition in 1968 was completed in 2005. There were lots of arguments about the route of highway since it was finished. The real reason of the discussions for the highway- especially designing as passing through densely structuring regions- is the road's passing over The Ortahisar Region. Ortahisar is registered as the second Degree historical sites by Cultural and Natural Heritages Protection Board because of being the first residential area of the city, having a texture reflecting the characteristic and originality of city. Finally, in spite of the all opponent opinions, historical city walls were damaged and several historical houses were destroyed partly or totally (Figure 11). Besides, the columns of viaduct used to pass Zağnos Valley- it is the junction point of the highway and Ortahisar region- deformed the silhouette of historical texture. Remaining entrances of the existing buildings under the new highways, becoming densely and speedy structuring through the highway, destroying the buildings which were generated memory for the city-dweller, alienating the physical environment by becoming different throughout the highway are the other negative effects of the Tanjant Highway, (Figure 12).

Figure 11. The effects of Tanjant Highway on historical texture (Erol Yalçınkaya and Sancar, 2008).

Figure 12. Silhouette of Tanjant Highway from historical city and Taksim public square (Erol Yalçınkaya ve Sancar, 2008).

The other project related to transportation and effective on the urban identity is Black Sea Shore Highway. Trabzon was a city connected closely to the sea until 1960's (Figure 13). Lifestyle and culture in Trabzon being developed up by this feature is determinative on the urban identity. The first highway that passed through the city before 1960's was built along the shore in 1960's, later the second highway was constituted in 2007 by getting filled of the sea regardless of appearing negativities (Figure 14).
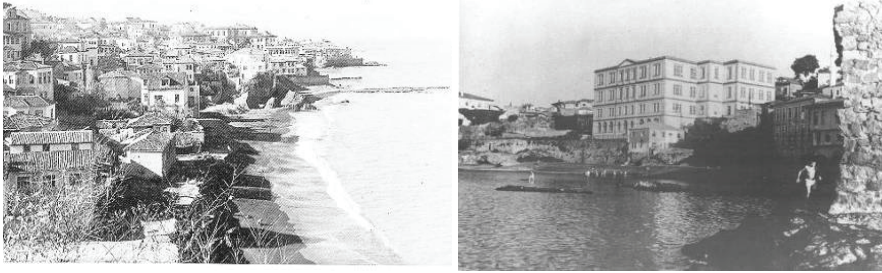
Figure 13. Trabzon City Shore view before the highway; Çömlekçi and Kemerkaya (Bölükbaşı, 2006, URL5, 2009).
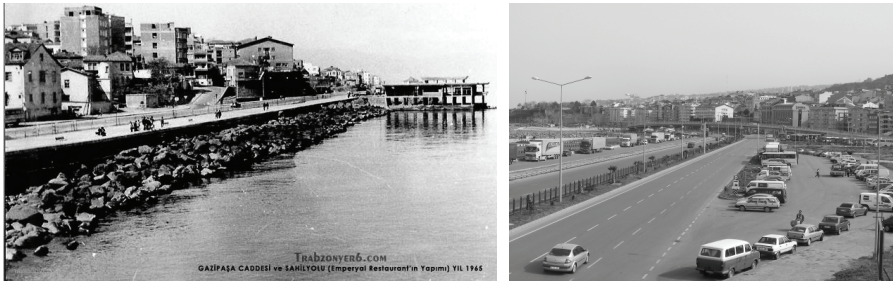
Figure 14. Trabzon city shore vies after the first and second highways (URL7, 2008).

Relationship between the city and shore damaged by the first highway, was more damaged with the second highway. These highways caused the urban identity affected negatively, damaged the city texture by interruption of relation between the city and shore and caused densely and high structuring through the highways. It had been backed down from implementations which had provided the visual relation between the city and shore and ventilation of the city and has been given to the city today's view.   Damage to the city is multi-faceted in terms of effects as cultural, social, economical, ecological, touristic and environmental in addition to history and texture of the city. For example, many values like historical port located in Moloz and used at city's most promising commercial term disappeared by the shore highways.
Zağnos Valley is located in west border of historical region where the city was firstly established. The valley supplied natural air corridor and green band for the city before densely structuring. It was said that the region located in south of Zagnos Bridge and constituted the first level of urban transformation projects at the present day became the owner of traditional Trabzon Houses and mandarin gardens (Sarı, Şen and others, 2009) .This area is turned into intense and distorted housing region in time because of being exposed to migration. It was a region lacking in aesthetic, inadequate of infrastructure services, had an unhealthy environment view. Besides, some reasons like being close to the city center, taking place in the historical region,

not including security for flood and other disasters etc. make important the region in all respects.

The region was cleaned from featureless housing and converted the area into   a social-cultural center by "Zagnos Urban Transformation Projects" performed by Trabzon Municipality and the Mass Housing Administration (TOKİ). The application was found positive due to improving of the slum area in terms of urban identity. Even though the project is successful in the view of gaining a view of the first appearance of the valley, it is inadequate in terms of saving a modern identity to the city because the relation with historical texture and environment was supplied in the design and this made the project ordinary (Figure 15).
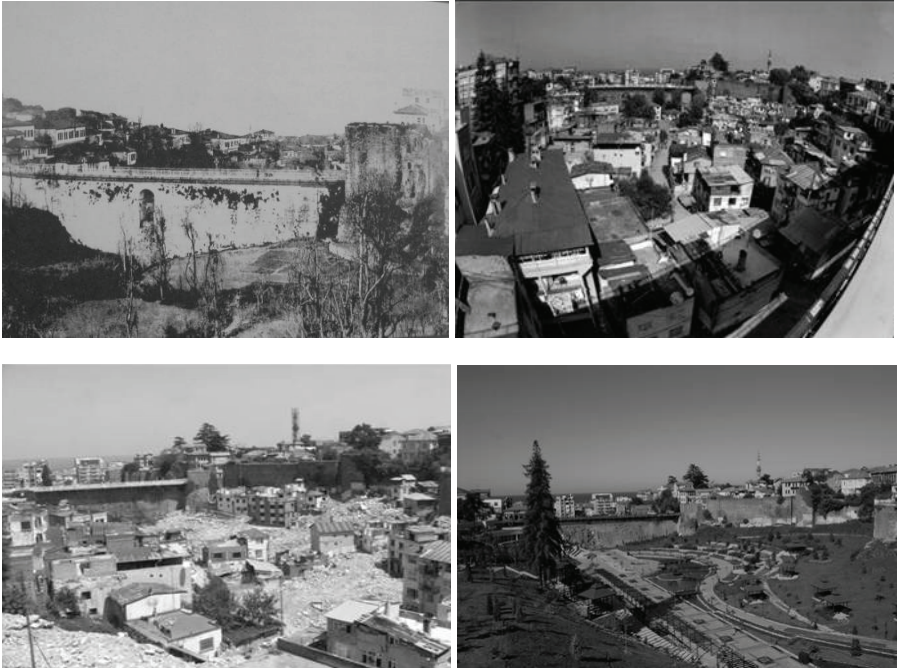
Figure 15. The designing process of Zağnos Valley (Bölükbaşı, 2006, URL3, 2009).

In the same region, Tekel Building being in content of Trabzon Old Tekel Building Renewal Project that is in implementation phase was a historical building and was registered in 1998 because of being industrial heritage. The buildings that consisted of three parts had two distinct period characteristics. The first building constructed between 1948-51 years was the last building having the identity of the Republican period. It reflected the style of Second National Architecture Style (Figure 16) (Anonym, 2006).

Figure 16. Tekel Building and near surroundings; the castle and city walls (Özen and Sert, 2006).

The purpose of the project is to provide re-joining to the urban life by reviving the old Tekel Building. A competition was organized with this aim. It was demanded from the participants that the certain part of the building was protected and the rest of the building was re-designed by being destroyed. It has been started the construction of the first selected project (Figure 17).
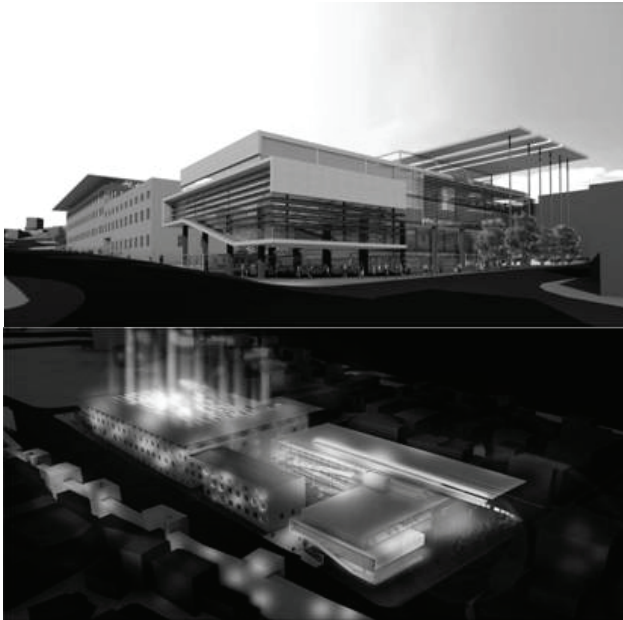
Figure 17. The Old Tekel Building Renewal Project (URL8, 2009).

The southern part of the building which must be protected was damaged during the construction works and it was decided to destruct of this part. After the destruction, it is provided to re-construct by decision of Trabzon Cultural and Natural Heritage Protection Committee. Today, nothing remains behind from The Old Tekel Building (Figure 18).

Figure 18. Remaining from the Tekel building; Atapart Shopping Center (URL5, 2009).

The effects of project on the urban identity are evaluated over purposes of the projects and meaning of The Old Tekel Building for the city. The effects of the project can be felt well when the building begins to serve the city with its completion.

The Old Tekel building was significant because of being an industrial heritage, a witness of the certain period of the city, and an important memory point of the city. Therefore, destroying of the southern part of the building constituted in Republican period was failed in terms of providing of the urban identity's sustainability. On the other hand, it is found positively that the dormant building will be opened for using of city-dwellers in terms of the urban identity.

Another project is the Trabzon Forum shopping center which is located in the east of Trabzon and next to the 100th Park. This area being an exhibition space was turned into "tourist hotels and commercial space". The shopping center was built in 28 acres area. 10 acres of the area was obtained by filling of the sea (URL9). The area's green identity completely is differentiated by the construction of the shopping center and passing of the shore highway from the 100th Park. Summer field where city-dwellers had a picnic was eliminated owing to the passing of the shore highway from the 100th Park. On the other side, the city had a modern space emerged by the requirements of the era by the shopping center having huge dimensions and being used contemporary materials in its construction. At this point, choices is open to debate considered that are lost and gained (Figure 19).

Figure 19. 100th Park and Trabzon Forum shopping center (URL5, 2009)

CONCLUSION

First of all, the study discussed the spatial elements that affect the urban identity. Later, it was discussed on positive and negative aspect of the major projects, constituted in the decade, on the urban identity. In the paper, data was obtained by comparing the effects of status of projects before and after on the urban identity. Therefore, it was revealed the negative and positive effects of the last term applications on the identity.

The subject was evaluated on five major projects; The Tanjant and Black Sea Shore Highways, Forum Shopping Center, The Old Tekel Building Renewal Project, and Zağnos Valley Urban Transformation Project. Although the highway projects were brought to partial solution to the traffic problems, they have negative effects on sustainability of the urban identity. Zağnos Valley Urban Transformation Project including the conversion of the slum areas into open and green spaces is a significant and positive application in terms of effects on the urban identity. The other two projects, Forum Shopping Center and The Old Tekel Building Renewal Project, caused to be lost of some important values for the city when the meaning of their areas and structures are considered. However, the effects of these projects will appear by time when their effects are considered to be gained a contemporary identity.

In this case, it should be considered that every project performed in the cities have effects on the urban identity. In all circumstances, the sustainability of the urban texture and values must be provided to qualify the cities. It should require that the city-dwellers are sensitive on these issues. Therefore, the protection of these features which are significant for the city must be provided.

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REPRESENTATION OF POWER AND IDENTITY
IN THE HIGHRISE ARCHITECTURAL FORM

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ABSTRACT

Space as an expression of human existence, beginning with the premodern times, has housed living modes and rituals of people and has been charged with meanings and symbols. Natural surroundings and the built environment, had provided grounds for symbolism; the earth for instance, could acquire meanings such as 'the mother', 'the cradle' or 'the tomb'. The ancient pyramids were considered to be man-made mountains for the pharaohs to climb and reach the skies and become gods. Modern architecture established a certain language relating the physical form with the function and the meaning. An architectural form fullfilled an image as well as a requirement, and carried implications of certain values. Theorists like Lefebvre and Giddens led the way to theoretical evaluation of the space as a social production. Consideration of architecture as a medium/mechanism of representation, which involved references to the spectator/public, followed. Architecture became more engaged with external factors, more open to influence of socio-political, economical agents. Continuing development of architechtonics along with improving multidisciplinary thinking approaches enabled the design and production of challenging structures, complex spaces bearing complex implications.The building became a construction in all senses of the word. Among messages conveyed to people through architecture; power, prestige, identity appear to be the most expressive ones and seem to have found best expression in the 'skyscraper' form. This paper focuses on the evolution of the skyscraper; how the image of the highrise form had been influential in the modern era, and whether it still fulfills the representation of power and identity in the era of globalization. Could it be that the image -the social construct- tends to change? Or is it the architectural form –the physical construct- that is being altered? The discussion will be carried through selected examples from western and non-western megacities, in order to observe whether the architecture produces idiosyncrasy or multiplication/sameness, and perceive the flourishing architectural tendency on display.

Keywords: Architecture, Representation, Power, Identity, Skyscraper

INTRODUCTION

Space as an expression of human existence, beginning with the premodern times, has housed the living modes and rituals of people and has been charged with meanings, symbols or implications. Natural surroundings as well as the built environment, provided grounds for symbolism; the earth for instance, could acquire a number of meanings; such as 'the mother', 'the cradle' or 'the tomb'. In Lefebvre's words, space could be "marked abstractly by means of discourse, by means of signs." Only, neither a capacity for abstraction would be valid for the members of the premodern societies, nor "the distinction between the practical and the symbolic" was recognized by them. In time, analytical thinking developed and more complex meanings and spatialities became recognizable (Lefebvre, 2005).

Built forms also acquired symbolic value. Pyramids and ziggurats were considered to be artificial mountains for the rulers of the ancient civilizations to reach the skies and commune with the gods. Reaching the skies meant reaching divinity which as well could be interpreted as reaching a prestigious status in our understanding today. Oculus of the Pantheon had been considered as an opening to the sky allowing souls to ascend and mix with the skies, displaying a version of architectural expression of the prestigious movement of rising. However, building high seems to be the most influential tendency of mankind in representing a high status. This tendency along with the developing technologies, reached its uttermost definition in the 'skyscraper', which is the subject of this paper.

Skyscrapers as they started to be constructed at the turn of the 19th century to the 20th, became symbols of wealth and respectfulness of the newly established corporations in the US and consequently in Europe. In a short while, the highrise structures became an inevitable component of the growing cities' skylines, and intangible issues related to these formations such as meaning, representation began to be discussed.

The aim of this study is to focus on the highrise form and its image, within the context of a postmodern, globalizing world, trying to explore whether and how the image of the early modern skyscraper has been altered; whether there are alterations in the image –the social construct- or the architectural form. Following a short history of the highrise, this theme shall be explored through selected examples from the western and non-western urban settings.

THE HIGHRISE STRUCTURES OF THE PREMODERN AND MODERN TIMES

It is possible to observe a fairly long history of the highrise structures in the world of architecture. Medieval fortifications housed turrets/towers for watching and for guarding the settlement. The Great Wall of China had been built, rebuilt, and maintained between the 5th century BC and the 16th century to protect the northern borders of the Chinese Empire. Stretching for more than 6700 kms in total, the Great Wall included a large number of watch towers.

Medieval Italy was another significant setting for tower constructions. Cities of San Gimignano and Bologna in the Middle Ages had housed a remarkable number of

towers. Today, San Gimignano still conserves fourteen towers of varying height. In Bologna, the two most prominent ones, called the Two Towers: the Asinelli Tower and the Garisenda Tower are the landmark of the city. The reasons for the construction of so many towers are not clear. They were possibly used for residential purposes. A hypothesis is that the rich families had them built for defensive purposes. In later centuries, the remaining towers had been used as prison, residence, sight post and even for scientific experiments.

Siena of Tuscany region in the medieval era, holds a specific place. Torre del Mangia, a 14th century structure had been built as one of the tallest secular towers in medieval Italy. With its 102 m height, the tower was built to reach the exact height of the Dome of Siena, as a sign that the church and the state had equal amounts of power. Similarly, height of the towers of the Romanesque cathedrals was a subject of competition; one symbolised the power of the pope and the other of the king (Turani, 1992). Following the Romanesque period, the aim in building the Gothic cathedrals and their towers was to build as high and as light as possible.

Builders of the Islamic places of worship did not seem to have a similar concern about the height of the building or the minarets, however the number of minarets had a meaning in the Ottoman mosque architecture. More than one minaret would signify that the mosque had been constructed for the sultan or a member of the royal family. Even if the mosque was modest in size, there would be at least two minarets. In that sense, the minaret as a tall structure seen from everywhere, represented the Sultan; his identity and his power.

The relationship between the highrise structure and its representational properties besides the functional, seem to have a long history finally reaching its most distinguished and well defined status in the modern period.

Modernity, with a new perspective of understanding the built environment and the built form, encouraged by the developing technology and production modes in construction, produced a new architectural language relating the physical aspects of architecture with the function and the meaning, usually with reference to social ingredients. An architectural form, material or building technology fullfilled an image as well as a requirement, and carried implications of certain values and meanings. The use of natural materials or exposed structural elements signified realistic, true and honest architecture. Glazed facades and transparency stood for an expression of clarity, flexibility or interaction with the nature and so on.

The skyscraper had born in the American urban context. Between 1880s and 1900s the early modern highrise office buildings had fluorished in the city of Chicago. Commercial quarters in a while, took up the model of the Chicago School, and the skyscraper became a major characteristic of the American city, determining the land use patterns, integrating with the planning and public policies, exposing the technological advances, and most important of all, representing a status related to the commercial corporation, the city and the country. Tafuri states that the skyscraper has not only been an expression but also a production means of the economy of the capitalist American city (Tafuri, 1976).

Chicago School buildings and early New York skyscrapers of 1900s are mostly prismal blocks with scarce articulation or facade ornamentation reminiscent of the past styles. Later examples exhibit a more transparent, technological looking, prismal type. With the widespread use of steel structure, skin systems, elevator and other mechanical, electrical installation systems, highrise architecture took up the visual expression of technological and economical achievement.

The skyscraper is a futuristic element in modernist understanding. As it is presented in the film 'Metropolis' of 1927, the future city is a city of skyscrapers, operating as a whole, like a total device. The ones who command, live at the top of the highest skyscraper, a structure of an enormous height. The creator of 'Metropolis', Fritz Lang had been inspired by the Manhattan skyline of 1920s. Relatively, the mere height of a building was never a defining characteristic of modern architecture, yet the highrise structure has been an icon of modernity in some postcolonial and emerging nation states (King, 2005).

A POSTMODERN GLOBALIZING WORLD

Late and post phases of modernism or postmodernism beginning with mid 1970s, exhibit a more dynamic architecture. Continuing development of architechtonics and design methods enables the design and production of more complex architecture and taller skyscrapers. Improving multidisciplinary thinking approaches, easy information access and transfer, possibilities of the era, influence architecture fairly. As this phase reaches today and projects the future, it seems that architecture and the social theory keep getting more integrated. Architectural forms created, are meant to express certain themes, complex implications, multiple meanings, codes and symbols. Architecture is acknowledged and experienced through its associated images and symbols.

Theoretical basis for evaluation of the space/architecture as a social production had been established by theorists like Heidegger, Lefebvre and Giddens. Lefebvre and Foucault not only stated that architecture was socially produced and involved social constructs, moreover they suggested that architecture/space could serve as a means of control, domination and power. Following others such as Jameson, Harvey, Bourdieu, Colomina, Perez-Gomez and Dovey developed the consideration of architecture as a medium or mechanism of representation and worked on the contemporary meanings and implications the urban settings of the new era could bear in terms of ideological and cultural aspects.

Defining the "representational space", consideration of architecture as a social production, of building as a social object, involve references to the spectator, the user and the public. Architectural design and the built form become more engaged with external factors and more open to influence coming from social, political and economical agents and dominant ideologies. The building becomes a construction in both senses of the word, and it is expected to communicate with the spectator/user.

Postmodern architecture claimed realizing this through use of popular, history recalling forms. Integration of 'Deconstruction' to architecture, gave way to an

architecture of movement and instability, of complex and challenging forms, breaking, falling apart, flying, distorted images, claiming to transmit the spirit of the era.

Among messages conveyed to people through architecture, especially the highrise architectural forms, power, prestige and identity appear to be the most significant and expressive ones. These messages are carried and even imposed through architecture, through direct visual communication and their area of influence is extended to a worldwide scale, via different mechanisms; means such as the global net of media.

According to Lefebvre, space "... presupposes and implies a logic of visualization.... The arrogant verticality of skyscrapers and especially of public and state buildings, introduces a phallic or more precisely a phallocratic element into the visual realm; the purpose of this display, of this need to impress, is to convey an impression of authority to each spectator" (Lefebvre, 2005).

All available theorisations of postmodernism agree on the dissolution and deconstruction of the differences between high and popular cultures (Milner & Browitt, 2002). Jameson defines postmodernism as the "cultural dominant" of contemporary multinational late capitalism that may also be named as global capitalism. The new world capitalist system and the new culture is simultaneously post-European, American and global (Milner & Browitt, 2002). Domination of the skyscraper over the cityscape, creating a global skyline in various configurations, seems to be a consequence of global modernity.

Many theorists agree that "globalization is not simply a 'natural' term for a set of material processes shaping the contours of geographical space, but a discourse or even a myth drawn upon to legitimize particular political and economic agendas." (Yeoh, 1999) According to Smith and Yeoh, "notion of a global city is socially constructed "within a wider public discourse on globalization" and is in itself "a contested political project advanced by powerful social forces." The production of new urban spaces; "global cities" provides optimal spatial scale to attract capital accumulation (Yeoh, 1999). Globalization in that respect, creates commercially driven urban environments.

Term of 'global city' or 'world city' is generally used for cities where there is a concentration of corporate headquarters, international services for various production fields, telecommunication facilities etc. However, without much noting whether a city fulfills certain criteria or scale, architecture may provide a visual scene of a "global city". Status of being global requires a place in hierarchy, identification among others and competition. Architecture through the competition of constructing the tallest tower, through construction of a universal urban stage "the global skyline" fulfills this requirement. "The act of constructing the tallest building also constructs a world" (King, 2005).

CONCLUSION: 'GLOBAL' VERSUS 'LOCAL'

Since its invention, the skyscraper has been a recurrent figure of contemporary architecture. Tallness of the structures has increased, highrise form has evolved, and

as we talk of the era of globalization, taller and taller buildings are still being constructed. The competition for gaining the title of "world's tallest building" has not lasted.

However, there is certainly a shift in the image of "spectacular architecture". Today, not the tallest building, but the most interesting and innovative building designed by a well-known architect, attracts attention. Such a building is expected to change the fate and the image of the city, as in the case of the Guggengeim Museum and 'the Bilbao effect'. The new World Trade Center in New York commisioned to Libeskind, may be considered as a similar example. There is a long list of highrise buildings with unusual forms including the Rotating Tower, Dubai; Emirates Towers, Dubai; Burj Dubai; Burj Al Arab Hotel, Dubai; National Bank of Dubai; Ing Quarters, Amsterdam; The Washing Machine, Mexico; The Basket Building, Ohio; Federation Square, Melbourne; The Esplanade, Singapore; Cybertecture Egg, Mumbai; Stata Center, Cambridge; Gherkin Bldg, London; Turning Torso, Malmö, and so on.

Observing the world's tallest skyscrapers to be completed in 2010, and selected examples among them built in the last two decades, one detects remarkable change in forms, in comparison with the monolithic skyscrapers of the early and mid 20th century. Top twentyfive structures of the world, listed below (Table I) reveal that expression of superiority/power is not limited to aspiration for height alone. The search for eccentricity in form cannot be explained by the developments and efficient use of techtonics or the availability of computer generated volumes alone. The ideology of the era, the transforming social constructs, the concern of search for identity seem to reflect themselves on selected sites of architecture, putting on stage an architectural spectacle.

The highrise architectural form seems to have developed different characteristics under different socio-political and cultural conditions. How the highrise and its image have been influential in different parts of the world, namely the non-western countries/cities, is an issue to comment on by observing the lately constructed skyscrapers in those regions.

In the last two decades, a great percentage of the skyscrapers have been constructed in Asian and Arabic countries. Postcolonial states or others either aspiring to leadership, or as proof of developing, care for constructing taller and taller skyscrapers to express their presence. In such countries, the image of the highrise conserves being a symbol of modernity, as it was in the early modern stage (King, 2005).

It is interesting to see that at different ends of the world, the same transnational firms work in erecting the highrise structures. For instance, the American firm KPF has worked on the Shanghai World Financial Center, located in the Lujiazui Financial and Trade district in Pudong. SOM Firm has had their signature on many of the skyscrapers constructed all over the world, the latest, the tallest being Burj Dubai, which shall be considered as a consequence of the global modernity.

In early modern, to build high was mostly related to the requirements of the urban development, the land use and revealed technical achievement. Today, the parameters are different than the modern period in which the height of a building alone could be a statement of power and prestige and a skyscraper would stand for

the identity of a single company or the notion of national identity. While the earlier skyscrapers represented singular, individual identities, they now, within different city contexts, form the global skyline and the skyscraper of our era is the representation of transnationalism/ internationalism, globalization, no matter what its origins reveal.

Although identity is an issue brought out in the Postmodern theory, the phenomena of globalization and global modernity, require loosing the differences, which is contradictory. The "global skyline" appearing in different "world cities" inspite of its exciting play of forms create uniformity and the problem/concern of identity is tried to be resolved by integration of design elements recalling locality, creating an eclectic, hybrid architecture, which seems to be a rather superficial solution.
Whether the skyscraper with its tallness fulfills the representation of power and identity in our era, still remains a query to be discussed. It can be that similar messages or meanings have found new expressions in architecture. Another proposition may be that the global priorities have changed and the image of the skyscraper has changed into a "global" one.

Table 1. Tall Structures of the World to be completed in 2010 / website skyscraperpage.com

Name	Built	Country	City	Height(m)
Burj Dubai	2009	UAE	Dubai	818
Abraj Al Bait Towers	2010	Saudi Arabia	Mecca	595
Taipei 101	2004	Taiwan	Taipei	508
Federation Tower	2010	Russia	Moscow	506
Shanghai World Financial Center	2008	China	Shanghai	492
International Commerce Center	2010	China	Hong Kong	484
Petronas Towers	1998	Malaysia	Kuala Lumpur	452
Nanjing Greenland Financial Complex	2010	China	Nanjing	450
Sears Tower	1974	United States	Chicago	442.3
Guangzhou Twin Towers West Tower	2009	China	Guangzhou	440.2
Dinghao Century Stars City. R6	2010	China	Chongqing	428
Jin Mao Tower	1998	China	Shanghai	420.5
Trump International Hotel & Tower	2009	United States	Chicago	415.1
International Finance Centre	2003	China	Hong Kong	413.8
Al Hamra Tower	2010	Kuwait	Kuwait City	412
CITIC Plaza	1997	China	Guangzhou	391.1
Shun Hing Square	1996	China	Shenzhen	384
Empire State Building	1931	United States	New York	381
Mercury City Tower	2010	Russia	Moscow	380
Sky Tower	2010	UAE	Abu Dhabi	379
Central Plaza	1992	China	Hong Kong	374
Bank of China Tower	1990	China	Hong Kong	367.4
Bank of America Tower	2009	United States	New York	365.8
Almas Tower	2009	UAE	Dubai	363
SEG Plaza	2000	China	Shenzhen	355.8

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RE-CREATING IMAGES OF CITIES: IS IT RE-SHAPING CITIES? RE-CONSTRUCTION OF ISTANBUL BY THE ORGANIZATION OF 2010 EUROPEAN CULTURAL CAPITAL

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ABSTRACT

The image of a city is understood as non-productable condition inside the constant, unchangeable, absolute perception of a traditional world. The city is real, trusted and belongs to authority and maybe more than this, it is the authority itself. The city is the condition inside the space-time perception, which has the space as the constant data, and the time as the only changeable data.

However, just like the other every objects, the production of the city itself is one of the constant datas of modern world, now. The production process, which startes at the end of the failure of the traditional acceptance of the city production, can now only be seen a physical space, but also seen on every medium.

It is seen that today cities are re-creating not only physically by including the re-shaping from their walking ways to streets, having different & new scenery models and again & again, day by day, but also re-modelling by words and speeches on every part of media (tv, radio, newspaper, etc.) and posters, exhibitions, competions, city postcards, photograhps and etc. National and international organizations such as bienals, festivals, habitats are some of the important medium.

With a period, starts as assuming that a re-production of an image can be possible and "the city is an object" after breaking the idea of "the city is something constant", it is known that cities are not only geographical districts of a country, but also they are representation ways. Thus the condition, which is needed at the time, is wanted to be legitimated through the image of the city. The organization of 2010 Istanbul, the is one of the important and clear examples of this condition.

Istanbul is not only a golden city with its' stone and land that it has, for Turkish citizens, but also it is a glamous center of world cultural and art schedule for national and international artists. The production of the new image of Istanbul and the process of re-creating the cultural structure of the city find places to themselves on different medium.
Thus, the paper is a criticism on the re-creating of cities: re-production: re-construction process of today's metropolitans with special emphasis on the organization of 2010 Istanbul, the European Capital of Culture.

Keywords: Re-consruction, Image, European Cultural Capital, Re-create, Goverment policy

HISTORY OF THE INITIATIVE

The European Capital of Culture is a city designated by the European Union for a period of one calendar year. The main aim of this initiative is giving a chance to showcase the selected cities' cultural life and cultural development. In general view, a number of European cities have used the City of Culture year to transform their cultural base and the way in which they are viewed globally. Within a quick search through internet a brief, but very clear information about this initiative can be found. "In its early years the title was awarded to some of the most important cities in the European Union, including Paris and Madrid, in recent times it has mostly been used to promote relatively low profile cities, often those that have experienced economic difficulties". "During the first two decades, cities were chosen primarily based on cultural history, scheduled events and the ability to provide infrastructural and financial support. A 2004 study by the European Culture Commission (Palmer Study) demonstrated that the choice of European Capital of Culture served as a catalyst for the cultural development and the transformation of the city. Consequently, the beneficial socio-economic development and impact for the chosen city are now also considered in determining the chosen cities'.

The European Capital of Culture initiative was conceived in 1983 by Melina Mercouri, who will be the Greek Minister of Culture after 1985. With a very common information, the history of initiative is written next the name of Mercouri. She believed that at the time, culture was not given the same attention as politics and economics and a project for promoting European cultures within the member states should be pursued. The European City of Culture programme was launched in the summer of 1985 with Athens being the first title-holder. The list of the selected cities are given below:

The first 15 cities to be chosen (1985–1999) were:

> 1985 Athens- Greece; 1986 Florence- Italy; 1987 Amsterdam- the Netherlands; 1988 Berlin- Germany; 1989 Paris- France; 1990 Glasgow- United Kingdom; 1991 Dublin- Ireland; 1992 Madrid- Spain; 1993 Antwerp- Belgium; 1994 Lisbon-Portugal; 1995 Luxembourg- Luxembourg; 1996 Copenhagen- Denmark; 1997 Thessaloniki- Greece; 1998 Stockholm- Sweden; 1999 Weimar- Germany.

The first 9 cities to be chosen (1992–1999) were: (http://eccm-cultural-capitals.org)

> 1992 Krakow; 1993 Graz; 1994 Budapest; 1995 Nicosia; 1996 St. Petersburg; 1997 Ljbjana; 1998 Linz, Valletta; 1999 Plovdiv.

For the year 2000 nine cities were given the designation of European City of Culture. These cities were:
2000: Reykjavík- Iceland, Bergen- Norway, Helsinki- Finland, Brussels- Belgium, Prague-Czech Republic, Krakow- Poland, Santiago de Compostela-Spain, Avignon- France,
2001: Bologna- Italy
2002: Bruges- Belgium, Salamanca- Spain
2003: Graz- Austria
2004: Genoa- Italy, Lille- France

2005: Cork- Ireland
2006: Patras- Greece
2007: Luxembourg- Luxembourg, Sibiu- Romania
2008: Liverpool -Britain, Stavanger –Norway
2009: Linz -Austria
2010: Essen -Germany, Pécs -Hungary, Istanbul -Turkey
2011: Turku -Finland, Tallinn -Estonia
2012: Guimarães -Portugal, Slovenia
2013: France, Slovakia
2014: Sweden, Latvia
2015: Belgium, Czech Republic
2016: Spain, Poland
2017: Denmark, Cyprus
2018: Netherlands, Malta
2019: Italy (Emen, 2008, 17).
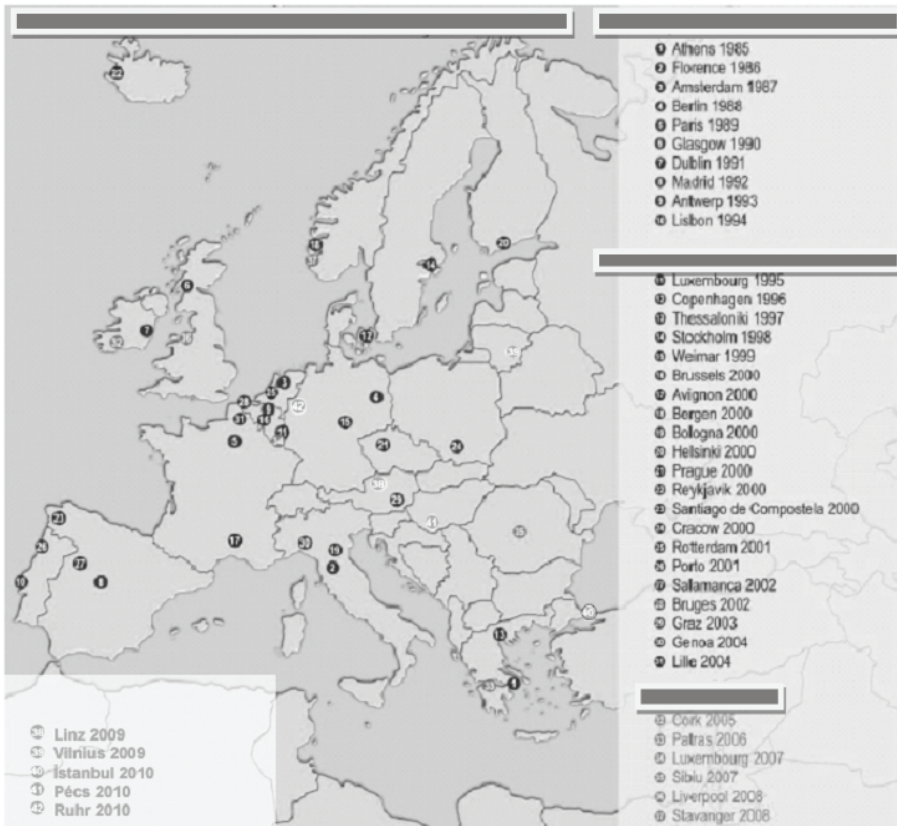
Figure1. The map of European Capitals of Culture in sequence (Niksaroğlu, 2007, s. 42).

THE CONCEPTUAL ANALYSIS OF THE EUROPEAN CAPITAL OF CULTURE INITIATIVE

While making researches on the European Capital of Culture as a concept, the most important thing to understand is undoubtly the concept of culture. As a concept, it can be said that, the culture is giving specific and absolute definition of nearly impossible, because of its' "nebula" style and abstruse structure. It is known that, different meanings have been given to this concept within chronological period. It is not wrong to say that, the borders of this concept are based on undefinity. According to Güvenç (2005, 95-113), the culture is not definite as the borders on the map, or at least the borders of this concept is not intersected on the political borders of the nation. Thus, it can be easily said that, the European Capital of Culture initiative tries to make the culture be based on the same non-leaked and unique basement. The question of "which European city?' is non-asked here; instead of asking this, it can be seen that there is definitely searching of a theoretical absolute of one and only type of culture.
If we look at the culture in a wide view, it can be easily said that, there is not a culture, but cultures are standing on the same statue basement side by side, especially cultures of different human groups, such as ethnic groups, religious groups, groups of social beliefs, and etc. living within the borders of the same country. However, it is a very clear proof to say that the creation of the initiative of the European Capital of Culture is a result of a will to have one, unique definition to a solid concept of the culture. The aim is undoubtly to demolish differences, different nations and finally having absolute similarities. Just like written in "the manifesto" of EC's commission, "the culture is at the center of the European Project".

Economical and social absolute is important, however culture is on the base of European Community. The European cultural identity is the precise and preliminarily condition of solidarity. Thus, it can be said that, multi-national Europe has a will to built a new unique and solidified Europe land.

Europe is tired to be united while having the unique culture on one hand and also on the other hand with a clear image of contradiction of multi-cultural repertoire of itself (Niksaroğlu, 2007, s. 42). Being out of the vaporizing of the uniqueness of this creation and trying to become the one and the only one always need a special effort and diligence. According to Zukin (1999), there is clear a "multi-cultural repertoire" having a plural Europe(s) in structure, but an unique Europe in form. According to Eagleton (2007), the reason of appearance of this concept is the political power. Having multi cultures within the same body is dangerous. The reason of being uncorfortable of political power of having a multi-cultural body is definitely not the treat on the order of civilization but having the multi-colored body is dangerous itself.

The political power can not be sovereign on the different life styles. It is based on a unique and similar value. Uniqueness makes the political power having legitimized itself easily and clearly. If multi colored body is something that the political power afraid of then, why is the European City of Culture becoming a scene or a platform of showing unique structure of European culture? According to the 1983 raport of the EC commission "European culture gets the attention with its' variations: climate, agriculture, architecture, languages, religions, pleasures and art styles; these kind of variations should be protected then to be watched". For the first sight, the quote can be read affirmatively, however if it is read again, the idea of having one and only and

an unique structure can be understood from this definition. European Culture is the will of having one melody. It is an initiative without the question of "according to which part of Europe"?

There is also another very important characteristic of this initiative, that can not be forgettable. It is the financial power, or the power of the capital. Here it is not wrong to mention the initiative is a platform on where the culture equals to capital and capital is one of the ways of legitimating the political power among citizens. It is also the platform on where the political power "sells" the culture while turning its' value into capital. Thus, the culture is a "wellness fountain", from where the political power drinks and therefore gets its' one of the basic need, finally survives. According to Featherstone (1996), the encouraging investment to the culture by national politicians, city rulers and special capitalists are based on this. These titles can survive by the water of this "wellness fountain". Thus, it can be said that the background of this initiative is totally formed by the will of creating a cultural industry. The cultural industry is a way of re-creating these chosen cities in an unique costume on the scene of the European City of Culture year after year: the scene has only one colored which pretends to have multi-colored layers, however formed as an united one.

With choosing as one of the cities of this initiative, the face of the capital city reforms again; re-shapes according to the form given by the initiative; given mostly by the political power and its' legitimize soldier: cultural industry.

It is in today's cities that they are re-created not only physically by including the re-shaping from their walking ways to streets, having different & new scenery models and again & again, day by day, but also re-modeling by words and speeches of politicians, and city rulers on every part of media (tv, radio, newspaper, etc.) and posters, exhibitions, competitions, city postcards, photographs and etc. National and international organizations such as biennales, festivals, habitats are some of the important medium of this process.

With a period, starts as assuming that a re-production of an image can be possible and "the city is an object" after breaking the idea of "the city is something constant", it is known that cities are not only geographical districts of a country belong to, but also they are representation ways of politicians. Thus the condition, which is need at the time, is wanted to be legitimated through the image of the city. And it is very clear here that the European Capital of Culture initiative is doing the same thing.

In first sight, the event of being the European Capital of Culture seems that it relates to being "the big", the big city, the metropolitan, the center of social activities and the modern life and so on. However, after the initiative is researched, the first thing that can be seen is that, it doesn't have any relation with being "the big"; this initiative has another aims than showing how "big" is the selected city.

So, what is at the background then? What does make the difference on understanding? The answer is quite simple: the imagination.

Here, it is beter to look at on the meaning of "imagination"; what is the imagination? Imagination, also called the faculty of imagining, is the ability of forming mental

images, sensations and concepts, in a moment when they are not perceived through the sight, hearing or other senses. Imagination helps provide meaning to experience and understanding to knowledge; it is a fundamental facility through which people make sense of the world, and it also plays a key role in the learning process. A basic training for imagination is the listening to story telling (narrative), in which the exactness of the chosen words is the fundamental factor to "evoke worlds".

Imagination is the faculty through which we encounter everything. The things that we touch, see and hear coalesce into a "picture" via our imagination.

It is accepted as the innate ability and process to invent partial or complete personal realms within the mind from elements derived from sense perceptions of the shared world. The term is technically used in psychology for the process of reviving in the mind, percepts of objects formerly given in sense perception. Since then, this use of the term conflicts with that of ordinary language, some psychologists have preferred to describe this process as "imaging" or "imagery" or to speak of it as "reproductive" as opposed to "productive" or "constructive" imagination. Imagined images are seen with the "mind's eye".

Imagination can also be expressed through stories such as fairy tales or fantasies. Most famous inventions or entertainment products were created from the inspiration of one's imagination. One hypothesis for the evolution of human imagination is that it allowed conscious beings to solve problems (and hence increase an individual's fitness) by use of mental simulation.

The common use of the term is for the process of forming in the mind new images which have not been previously experienced, or at least only partially or in different combinations. So what are images then?

There are some different definitions of image: An image (from Latin *imago*) is an artifact, or has to do with a two-dimensional (a picture), that has a similar appearance to some subject—usually a physical object or a person; the thing which is created by the mind and which is missing; the dream; illusion; impression.

Images may be two-dimensional, such as a photograph, screen display, and as well as a three-dimensional, such as a statue. They may be captured by optical devices— such as cameras, mirrors, lenses, telescopes, microscopes, etc. and natural objects and phenomena, such as the human eye or water surfaces.

The word image is also used in the broader sense of any two-dimensional figure such as a map, a graph, a pie chart, or an abstract painting. In this wider sense, images can also be rendered manually, such as by drawing, painting, carving, rendered automatically by printing or computer graphics technology, or developed by a combination of methods, especially in a pseudo-photograph. According to most classical phychologists, the image is a material trace, and thus, affected with a certain inertia. Webber is asking some, general questions to understand the image: what is imagination? What are we actually doing when we imagine? What are we aware of and what kind of awareness do we have of it? According to the concept of imagination, an image is central to variety of debates, principally in Webber's thought,

aesthetics and philosophy of mind (Sartre, 2007, xiii). Briefly this adresses to imagine (Sartre, 2007, xiii).

Image belonged to the area pyschology, which is "positive science of psychic fact and the laws governing them", expressly ruling out any immediately practical or aesthetic point of view, any ontological or normative concern" (Sartre, 2007, vii). Webber referrers Sarter's thought, as the most sustained and detailed account of the nature of imagination in Western philosophical literature. According to Sartre's, thought the concept "imagination" stands stil the concept of "the certain". He outlines a phenomenological description of mental image with this concept of the certain. Here, his aim is to provide an inventory and an articulation, mostly based on his own experience, of all that immediate reflection can reveal of the fact (or rather, the event) of having an image (Sartre, 2007, x).

According to Arlette Elkaim-Satre, Jean Paul Satre's "imagination is a broad field. It is not restricted to the mental image, the subjective evocation of an absent object, which is the most difficult form of imagination to describe, particularly because it occurs without sensory support. It seemed necessary to Satre to take a detour through other examples of "the image family", more easily described since their sensible matter is present. He, therefore, considers the role of imagining consciousness in our dealings with portraits, caricatures, imitations, schematic drawings, etc., to try to discern, in each case, the interplay of the real (the perceived) and the irreal by which consciousness will aim at its object" (Sartre, 2007, x).

The second concept which is related with mental image properly is "the probable" on Sarter's thought. If the mental image is almost inaccessible to reflection as long as the person has an image –he is guided by no present sensory impression- visual, auditory, or otherwise. Here it is also needed to remind this is why for some psychologists, the mental image does not exist.

However for Sartre, there is indeed a sensible content, for example though, it does not need a present perception as in the case of an imaging consciousness confronted by a performer's imitation of a celebrity (Sartre, 2007, xi). According to Elkaiim-Sartre, Jean Paul Sartre "tries to demonstrate the manner in which knowledge, affectivity, and minute bodily movements come into play in the creation of the sensible matter of mental image, which is to say the analogical representation of the real object of the imaging intention, and how the object aimed at and the analogue can enter into conflict". Also again according to Elkaiim- Sartre, the Sartre's image is the product of an act of consciousness, and Sartre's conception of the relation between image and thought can only be different. Shortly, it can be said that, the mental image is already on the side of thought.

COCLUSION

Thus, what do re-creating of the image of Istanbul mean then? To Turkish citizens this initiative is a reason of prouding not only with Istanbul, but also with the history of Ottoman Empire and Turkish Republic, as well. It is a way to show Turkish traditions and hospitality to international guests. To Turkish politicians this initiative is definitely a legitimizing way just like their international colleques. However, the thing that they

want to legitimize is a little bit different then their European colleques. This initiative can be a gate to European Community for them and therefore a new opportunity to take more votes out of it.

Re-creating the image of the city should not be the solution of enforcement and hegemonic attempts, and related with political power and ideologies, but should be related with the realities of the city. Developing of a city is something must be searched for all of the citizens and the politicians within the same time. And thus, it should not be forgottable that the European Capital of Culture initiative is a hopeful platform for having a more social and developing Istanbul.

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BETWEEN THE MODERN AND THE OTTOMAN: PROBLEMS WITH IDEOLOGY OF URBAN REGENERATION PROCESSES - CASE OF SULUKULE ROMAN DISTRICT REGENERATION PROJECT

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ABSTRACT

As the abstract cases of the effects of globalization on societies and cultures, cities strive to develop under conditions of continuous competition where the will to become a "world city" prevails the global circumstances. Many cities aim at such titles as "world cities" in order to register and certificate their existence in an international level. The fact that the definition of genuine identity and locality concepts are regarded as the leading essences of "the global cities" has encouraged the cities to be reconstructed in an understanding that they would protect their own historical values. On the other hand, the reflections of these global circumstances upon the Istanbul case has emerged as an "ideology construction" accompanied by rapid urban regeneration processes initiated for provision of more prestigious and high quality urban environments. Within the scope of this paper, the attempts to create the image of the city in a "pseudo-historical" manner emulating the Ottoman history by cleaning the historical slums are considered on basis of the Sulukule case where the main idea shall be to approach Sulukule in a contemporary attitude with new suggestions being offered.

Keywords: Globalization, Urban regeneration, Sulukule, Romans, Ottoman revival

GLOBALIZING CULTURE AND CITY

We come face to face with the concept of globalization as if it was the slogan of the present century. New life styles, new identities and new relations… globalization, which we meet everywhere in the form of rapid construction of the changes by becoming integrated with the each "new" phenomenon, has made us own it by sneaking into our lives each moment and even led us give meanings to our lives with it.

Together with the intensification with the communication network and easy access opportunities that downsize the scale of the world, international dynamics has started to be effective socially, culturally and economically. People and nations has felt the global values in local practices and even in their daily lives. The new form of integrations and relations going beyond the limit of nation-state concept changed

their space and time understandings, by accelerating the process of sharing and accumulating it also paved ground for the creation of global values which would be dominant on the social life in the society..

An aesthetic "new" world

Globalization includes the understanding of shaping a common language, expression and a common accord in the world. The main reason of this process is to create a homogenous mass-crowd- culture and a unique world dominated by the western capitalist way of life, styles and sense of consumption. Thus, the children of such culture sharing the same way of pleasures and tastes will consume the same things and form the basis of the same capital. In this sense, the consumption culture that serves to capitalism will expand its market through the globally defined relation networks and with the "more consumption" understanding of the global policies; it will be shaped in a form that would lead the lives and choices of societies and will make the people and societies look the same by taking the support of the global music, cinema, fashion and entertainment industries. (Adam, 2008).

When the goods presented to the international market are consumed by the mass culture which was made addicted to "purchase" their needs from the global market and in the end of this process of similarization a generation emerged: "everybody looking like every other people and things in every different parts of the world". Among the consumption practices, we just saw "the daily life" as a "meta" only the aesthetic side of which was emphasized and just existed in order to be consumed more.

The Objects of Culture Industry: Cities

That the free movement of the capital was made possible through removing the boundaries among countries led the capitalization be effective in a global scale and in the homogenous world stage, it brought continuity and speed to the consumption of the standardilized brands.

In the primarily stops of the capital flow in circulation, there lie "cities" that purport to be the market place for the capital. The cities are in a big competition in order to find a place in the global market, attract capital to the city and enable the tourist flow to the city by creating a center of attention. Therefore, they started to get structured as the elements bringing the changeover and transformation in the inner construction of the city as well, where finance and service sectors are in the ascendant and besides that the developments in communication, transportation and production not only changed the balance between cities but also the inner interactions among them.

What is more, cities try to be prominent centers not only with their culture production lines that host mass culture industries such as popular culture and tourism but also by making themselves regarded as an "art object", exhibiting the cultural heritage and putting the high art first so as to be centers of attention (Featherstone,1991).

On the other hand, the consumption culture which was sharpened under the global competition conditions, in a sense, starts to instrumentalize the cultural richness and value that belong to the city and in this view, the local and cultural richness regarding the city depicted by the concept of consumption culture prognosticate that the cultural look of the cities, the places lived on, historical architectural buildings are cultural capitals that could be commoditized and put up for sale also they are the triangulation points of the city that carry a symbolically "art treasure" trait.

As Harvey stated (1998), cities must mobilize the culture in order to be able to become a bait to attract capital. The architecture, history, cultural pattern, park, nature, street and fountain that compose the city itself are handled with an aesthetic perception and arranged; a window-dressing of the city is prepared and embroidered with cultural objects. In Benjamin's statement, this operation is a strategic beautification in the city. "The city is almost recreated as an image of the historic development myth and as a monument of the role played by the state." From then on, cities are the most important power that the state has and are fully ready to accomplish the mission of creating a "world city" in the competition environment.

City governments appeal to support their beautification attempts in the competition of becoming a world city. Each fact regarding the individual's life aims to enrich the visual experience more than being something that facilitates the individual's life. The competition among the capitals of culture competing for image and public opinion so as to attract more tourists intensifies the presence of new ways of consumptions. (Zukin,1998). The places like restaurant, café-bar, boutique hotels and art galleries become attractive for real estate and entertainment sector which increase in value. Hence, public spaces get into others'-private groups'- control as they digress from their role of unifying everybody together.

The competition of being "a global city" or "a capital of tourism and culture" to create a financial centers naturally result in changes in the city. While the concept of creating a global city is something applied in metropolitans and big cities, the regeneration on the basis of tourism and culture is something even applied in very small towns. To form the cultural consumption and urban tourism as indissoluble is a new economic area. Big libraries, exhibition halls, congress centers and festivals are all dealt in this context together.

Global capitalism that keeps the city in a continuous change in such a manner that increases the fund of the capital, makes alternations peculiar to cities by means of the definitions it created like new life spaces, rural regeneration spaces in order to increase the profitability. As a result, the capital intensifies in some specific parts of the city which leads to new rural settlements and economy based new geographic spaces. Capitalism, by taking advantage of the regional inequalities and increasing this inequality, makes the space its own object in the end.

Interferences regarding the City

Globalization is more complicated than just being a spread of western culture and in this view the spread of goods, cultures and styles on a world scale. That the city centers came to a state of serving different options to the residents with the fast

development in service sector for the last 20 years has also led an increase in land and estate prices on the slums in city centers. This situation, on the other hand, let the investments made in the city center be more lucrative and urban regeneration practices were started in these areas.

Urban regeneration projects which aim to develop and recover with social, economic and physical dimensions as a whole has been resulting in a regeneration to a character consisting of people with high income owing to the fact that poor are wished to be alienated and wiped out from the regions by gentrification practices, which would change the social fabric although the discourse of these projects were to protect the natural and social fabric in unity at the beginning.

This process developed on purpose brings about the poor's being wiped out from the region ,who are regarded as "the other" who have no place in this "new urban image". What aimed here with "familiar and trustworthy, rich and attractive urban image" is to create projects in these regions that would attract public attention in the global market by terminating the marginalized city centers-downtowns- where the poor and old tenement districts are hosted.

In order to legalize the declaration of those urban slums in city centers as the regeneration areas which are about to be demolished, those areas are reflected as the cradle of crime and terror and any kind of possible danger for the society. By not allowing any repairment works earlier, today the necessity of renovation works are emphasized in those deserted and slummed regions which are doomed to get lost on purpose. After the necessity and legitimacy are set forth, with legal regulations these regeneration projects are put into practice.

Urban regeneration is the projection of neo-liberal point of view on the district. Cities have been continuously dividing into pieces and the paradoxes are becoming deeper in these habitats. While the neo-liberalism is creating new poor people, on the other hand it tries to detach some of them from the society by turning their habitats into a "meta". As a result, with its that side, urban regeneration projects might be claimed to prepare the infrastructure of showing the city more attractive for the global capital.

AN "URBAN REGENERATION" EXAMPLE IN ISTANBUL

The globalization wave engulfed Istanbul with its economic dimension operating on urban bargains and with the similar recent developments, it started to be effective on city center. Besides, since the globalization feeds the local actors and among these the local and central governments have the utmost important places, we see the regeneration project in Istanbul are based on the concepts gentrification, displacement, exclusion, specialization and alienation. The indirect relations of architecture with ideology and policy instrumantalized the gentrification process held by the state itself and in order to build the identity and ideology which make the symbolic capital visible, an attempt to demolish the old by constructing the new was started.

Istanbul: The Market Place of Culture

There are two important aspects that need to be understood in this part:

- The construction of a new cultural identity.

- The commoditizing and marketing process of culture.

When the debated city is Istanbul, the dimension of the discussion occurs in different aspects and different ways. With its being a multilayered city where the" orient and occident" is in binary, the westernization and modernization solutions are held together and the Islamic localization searches are experienced, Istanbul can be depicted as a controversial city on this issue. "Who and what is local" discussions have always been on effect, which resulted in a setback in the marketing of the global capitals of the city and in the definition of the local to-be-protected distinctive characteristics... Also, what should be demolished and what should be possessed are two different discussion areas, which show the paradoxes of the city (Bartu, 1999).

The juxtaposition: The Occident and the Orient in Istanbul

Together with the new world order brought by globalization, people and societies have been of the opinion that the expression of the self is hidden in a common. As for the culture, it was not discussed on the same ground what is more; it was regarded as the unity of world value judgments. Identities were calculated with the heritages that were the extensions of histories and more than being an element in the determination of the society, it depicted the way of expression of the society or city in the outer world.

Although Istanbul came to world stage earlier than many other cities because of its geopolitics position, it is new that it was embedded to the capitalist mechanism of the world that determines the cultural heritage concepts. In the post-1980s Turkey, the importance and necessity of globalization were emphasized and believed to be a stimulator in the development of the country, which resulted in a fast regeneration and change process in the end.

There are still expressions of a sense of belonging policy that could be more than just a collide of the concepts "East and West". In its long westernization and secularization process, the issue under debate today is not what belongs to these territories more but what is being formulized locally (Yaşın, 1999).

The processes of homogenization brought with the wave of nation-state perception and localization of the global by interiorizing have always been a battlefield for the opposites such as East-West, Muslim-Christian and Local-Global since those participating in these processes were almost non-Muslims (Keyder, 1999). The experimental, cultural and denominational diversity of the fast growing urban population led the local cultural elements increase in value in the global market and demolishment of the culture being tried to be formed. The local values that gain meanings via concepts "culture" and "identity" that are regarded as the absolute

necessity in the depiction and study of the "global city" have always been the important concepts that need to be formulized in the marketing of Istanbul to the outer world.

In this point, the attributed image that would indicate the status of Istanbul in the world and turn it into a city that would be able to compete with its rivals by attracting attention in the global market was that; different from the West, in an Oriental tone, having a cultural richness that could be marketed in the global market and a bridge between the East and the West. That image, to some extent, helped the natives of Istanbul concrete what belonged to the city and what was local and cultural also what was peculiar to their culture. In this respect, it enabled to form the concepts of urban identity, city culture and civic together with defining the policies to be followed in Istanbul's becoming a world city process.

Changing Modes of Urban Reflexivity in ISTANBUL

According to the ideological definition which wishes to show itself through alluring urban designing practices, aiming to create a visual attraction, architectural practices in the period of modernization and westernization degenerated the identity of the city and were claimed to cause its beauty to get lost.

With the rising ambition of 1980 towards globalization and the motto to make Istanbul a world city were applied in accordance with the goal of re-creating and resuscitating the capital city of three big empires of the history and the city which is proud of its past. The efforts to bring Istanbul to a position similar to that of in Ottoman Empire times got the shape of governors' policy in the construction of the city centers.

With this aimed ideology, a new approach to aesthetic shape of the city were formed and economical increase in the value of the city center through prestigious urban projects were realized and the bargains of this new urban image were held over this rent -unearned income-. Shanties turned into multi-floored structures in connection with the aim to get a share from that economy which was in close relation with this unearned income. The poor were tried to be excluded from the developing parts of the city for fear that those territories could lose value and as a result they were stuck in suburbs and back streets of the "civilization". When there was a problem, it was tried to be solved by gentrification, which most of the time worked.

When we go deeper in the urban regeneration project practices which we hear a lot recently, we just see that they are the projects that could not go beyond being just some parts of the politic ideology and which just work the profit of the parties. In this aspect, we just see some buildings and structures being built or demolished with the commercial investment purposes in order to prove the legality of the projects, the limits of which are just decided by two parties to earn money on those projects.

The Ottoman Hegemony in "SURİÇİ" (Inner City Walls)

The historical peninsula allowed immigrations from Anatolia many times and historically valuable buildings accommodated more people than their capacities.

Today, since they do not have enough economic power to protect the historical tone, those buildings turned into slums. It is obvious that there is a need for the attempt to protect and renew for Istanbul which does not deserve this bitter picture of it. Being aware of this fact, Istanbul Metropolitan Municipality started large scale urban renewal activities in order to keep historical values of culture alive and carry them to future, save the parts within the city walls from their booth situation, make investments that will revive tourism and provide it with a new image with traditional materials.

That the settlements within the city walls are among important heritages of Istanbul's history led to the fact that the investment made in these parts were focused on projects which emphasize historical visuality. Within the scope of the project called "Museum-City", work is carried out in order to restore especially the examples of the Ottoman architecture and other structures and bring them into society's service as activity areas in the historical peninsula (the part consisting of settlements like Fatih-Eminönü-Sirkeci-Sultanahmet-Süleymaniye-Zeyrek).

However, when the path which has been covered by the "Istanbul Museum- City" project is examined, it is understood that behind the favorable slogan lies the idea of creating made up historical neighborhoods aiming at reviving the Ottoman history only and the opinion of building an amusement area like "miniaturk park". What is discusses is demolishing 2000 buildings which have earthquake hazard risk and are damaged in the settlement area within the walls and erecting villa like old Ottoman buildings that will serve for tourists in the place of them (Kuban, 2005). While the aim of the project is introduced to be creating new districts of old flavor where "the rich, middle and love incomers would live together" in the historical peninsula with their old and new owners; that it would end up with the displacement of the poor who can not live in the buildings and lands that increase in value when transformed is obviously clear.

Municipality authorities who aim at composing "Turkish- Ottoman neighborhoods" are misinterpreting the architecture of the Ottoman. What they are doing here is just to create fake identified districts with the buildings the Ottoman style of which are not known by pulling down the old historical buildings. During the Ottoman times, not only the Turks and Muslims but also several other religions and peoples survived. The parts within the city walls are naturally the most significant focus of the Ottoman and most of the heritage is kept here. However, the Ottomans were able to reflect its long history, pluralist inclinations in its civil architecture. In the same neighborhood within the city walls, it is possible to find a texture ranging from Empiric style, Art nouveau style, Ottoman wooden style or ordinary 2 storey houses (Kuban, 2006). The environmental character and historical texture that is to be protected is this variety actually. While, what is intended to do is only creating a "pseudo-historical" texture.

Having every single memory in its mind destroyed; today Istanbul is transformed into a theatre reminding of a play in which the past is pictured. The contextless and meaningless face of globalization and capitalism has changed the city into a used object by emptying it.

A NEW SULUKULE : "NEO – SULUKULE"

With its under and over ground historical heritage dating back to the times of Romans, Byzantine and Ottomans (underground water canals, city walls, approved houses in the district and other structures, streets etc) and socio-cultural structure defined with the Romans; Sulukule has been accepted as a protected and archeological area. Sulukule settlement is as old as the history of the Ottoman Empire; with the aim of reviving evacuated areas that are about to collapse upon the conquest of Istanbul; Fatih Sultan Mehmet invited those living in different areas to the peninsula and Romans came and settled into Ayvansaray and Sulukule. According to some resources; before the Ottoman existence on the peninsula in 1504, Romans had come and settled down here.

Sulukule – A Different Life-

Romans lived in this district for years; and created a socio-cultural texture with the values peculiar to them and experiences they had collected. "Sulukule" has been the description of a self standing image; they created their distinctive identity with their traditional music, lively and energetic dances- dancers, alive and inviting blowout and fidgety rhythms which are pictured in minds when someone says Sulukule; they appropriated it and gave it its meaning.

In other words; Sulukule is an important example reflecting the multi-cultured and diverse structure of the Ottoman times. Romans see themselves as the children of the Ottomans and stake their claims on Istanbul. They accept Sulukule as a permanent trace on the physical, social and cultural texture of Istanbul. Roman musical culture lives and arouses from here, Romans assimilate their music with Spanish tango and are proud of their existence which they always refer to as the envoys of a cultural wealth. They never hesitate to consider themselves as originally being from Istanbul. Their belongings are consolidated in the meaning of Sulukule; if Istanbul is the mainland, Sulukule is home. The feelings of solidarity and togetherness that connect them to each other are the projection of this family image on the place.

Sulukule –Between Time and Place–

Sulukule, which has managed to maintain the socio-cultural unity for centuries and has shared and transformed the city of Istanbul with its local identity and architectural characteristics, is today going through a process of obsolescence due to the lack of economic potentials, historical damage and the ignorance of the authorities. In the recent years Sulukule has shown itself as a district of poverty, urban crime, illegal acts and danger; and this situation has legitimized the need for restructuring it. As a result, Sulukule was declared as the "restoring area" with the Decree of the Council of Ministers and the law numbered 5366 in 2006. With the cooperation of the municipality and TOKİ an "Urban Regeneration Project" on protecting the historical and cultural texture and increasing the quality of life in this area was set up and put into effect. The project, which came along with good intentions like improving the development of the area, is too far from being a social regeneration activity with which the subjective properties, social and cultural values, economic and financial needs of Romans, who are the inheritors of Istanbul's a hundred year old history, would be taken into consideration and improved.   Roman people were made to leave their homes; lands evacuated were taken over with rental speculations.

"Sulukule Urban regeneration Project" devoid of any holistic planning approach and with an approach that does not observe the public benefits, carries out its activities as the legal framework of a mechanism based on interests of specific parties involved on behalf of some circles only with its speculations on land and rent oriented physical break downs. Entertainment, sounds of taborines, colorful houses, clothing, lively dances in the image of "Roman" which is immediately reminded of by the word Sulukule were completely disregarded and its meaning was emptied; they were drawn away from where they belonged to and were dispersed.

Since the existing cultural and social motives could not be given due importance in a rather standardized way of modern planning and regeneration processes, now Sulukule has lost many things from its colorful life, rich history and long years with which it lived within the walls. Today's image of Roman streets, reminds of a bathetic and dreary oil color painting lacking all its colors and paint which hasn't been able to get over the meaningless of intermingled colors and symbols. The image imposed after regeneration fails to represent the real meaning of the Roman culture once living there The project to be carried out, on the other hand, is an understanding which compares the city site to an untouched canvas and puts the Ottoman image onto a white ground; without considering the texture of the streets, old structure plots and block relations, a new order, an artificial texture was offered as if it were to be built on a vacant land. While the Ottoman identity is tried to be revived in the district as a kind of trade investment, it has maintained its existence evolving in time; all local values in the district have been thrown out like over worn clothes.

Reading Sulukule

The rich texture dominating Istanbul is like the feast of a cuisine which was formed through centuries (Kuban, 2000). The identity of this thousand-year-old city is determined in the historical process with the forms developed in long periods and under different conditions. City develops and maturates in time. The city is hidden behind everything that exists with it. In its people, soil, water, roads, function, fountain, square etc. it holds a heavy time load. It maintains the civilization data of Greek colonies, the Byzantine, Rome and Ottoman. These old existences keep themselves on every hidden corner of the city, bequeath their own traces, memories to Istanbul. It has always been the case for centuries. In some parts the memories themselves are still alive; such as Çemberlitaş, Surla. In some parts, however, merely their places stand. At square, Beyazıd square, Divanyolu. The Ottomans protected the maintenance of these values during the time of invasion, changed them, and gave them life making them a part of life with its representational traces. (Kuban, 2000). This attitude, adopted by the Ottomans centuries ago, can not be discovered or understood by the politicians of the day. The mentality which is dreaming to gift the city a historical Ottoman revival with the thesis of the same ideology, is not aware of the fact that it is demolishing the Ottoman, while destroying the historical values of the city. Sulukule is the latest example of this insensitivity.

With its authentic identity, culture and life which can not be considered independent of its history, culture, people, environment, Sulukule; represents a sample of the Ottoman city life, multicultural and inlay that is composed of diverse peoples in today's Istanbul and enriches the city center. In this respect, it can be seen that the long history, architectural heritage of Sulukule add some values to the district as physical image, life value and a symbol and that the continuity of this can be ensured with a modern understanding of preservation that would be implemented in the area. However, a main problem in Sulukule today results from putting together the historical, local, experiential and fictional concepts which have no relation with one another in the projects and implementations that are put forward as solutions to the problems. The biggest problem created in Sulukule is the understanding of architecture which has developed as the expression of a rental interest and centralist ideology which does not include sociality.

Romans constituted the middle and upper classes of the Ottomans who managed develop and maintain the local identity and texture with its inner dynamics, and crowning the prestigious ceremonies of the palace with their melodies, they gained a high respect. However, the concept of "being from Sulukule" with which the Romans, who were described as "the other" in local culture, labeled; has been an object of lower culture, Roman people have been insulted and excluded. As a result, it has not been understood why Sulukule needs to protected; a social project, restoring and protecting activities which were supposed to be for the benefit of the residents were reduced to a historical attitude; a rent oriented understanding that is concerned about prestige and which focuses on merely one time period and one societal culture among an enriched diversity of urban strata emerged. While even the semiologic

meaning of the Ottoman districts that are attempted to be created has an understanding of solidarity, integrity and unity,   it must be discussed where the "pseudo historical" Ottoman revival, which envisages the displacement of the urban elites with a society that is destroyed by demolishing its past and tradition, stand in the understanding of the multiculturalism of the Ottomans.

UNDERSTANDING OF MODERN PRESERVATION APPROACHES AND SULUKULE

Preservation, in the modern idea of design, is not a statical period which aims at existence values with their authentic forms. On the contrary, it must be taken as a form of revitalization. Therefore, the idea and implementation of preservation is not only an architectural problem, but also a period that opens into several different fields with stepping in of socio-cultural factors and hence the man and the society. Preservation of a work of architecture or an urban protected area is in the aggregate with the life of its user. Correspondingly, it is inevitable that restoring and preservation should be dealt within the framework of sustainability and be supplemented by social, psychological, cultural etc contexts. As it has been observed in many successful modern practices, preservation is in the creative field of modern contemporary architecture.

The Qualities of Preservation

Preservation of cultural assets that are the remains of a part of the history, means protecting the historical and aesthetical criteria which are at the same time intercultural values; and accordingly they should be protected for the whole world culture. The importance of the historical environment that constitutes a bridge between the past and the future is not only the result of providing a functional effectiveness or protecting the general images which arouse admiration; but it is also because of the "identity" they present besides all these. Today's cultural values that were formed by the superimposition of cultural strata of different cultures bear light to the formation of new culture syntheses and give us the opportunity to evaluate and know our day better. The city heritage to be protected is a part of city's memory. It is a debatable issue in the aspect of contemporary preservation understanding that the preservation only frames the physical environment, changes its function and user. Today, the necessity for the preservation of the city's identity and memory, revival of the urban texture, dealing with and planning social, economic and spatial alightments holistically establishes the framework or modern understanding of preservation

How Should Sulukule be Protected? … What Should Be Done?

In order for the architectural structures to be assessed as protectable following definitions should be applied to. If Sulukule is considered within this framework, it will be better understood why it should be protected:

• DOCUMENTARY VALUE: In the discourse of universal preservation it is defined as "… the whole of values which reflect the social, cultural, economic life of the

environment it exists and therefore convey correct and direct information to the next generations   ...” Sulukule, in terms of being the settlement of the Romans for thousands of years, has a structural texture that will give the exact reflection of their authentic life styles. The environmental setup and authentic texture of their houses with inner courts and that make it possible for them to live several families, are the documents showing the picture of their way of living. Destroying this texture of document value will mean deleting the history in the city image.

• IDENTITY VALUE: Cities live with the memories of people and societies which they house; people's living and their products (structures, roads, squares etc.) form the memory of the city. Their structures dating back to the old days ensure the maintenance of the city's memory and are the regenerators of it with its distinctive character. Sulukule as well is the transponder of Istanbul city's memory. Roman districts are the parts of the city with an identity and destruction of them mean chopping the values that build up the city's memory. It is obvious that destroying the areas with an identity in a society whose conscious of city has not been developed enough, will make the formation of abandoned cities continuous by increasing the level of unawareness.

• HISTORICAL VALUE: Historical and cultural assets are the concrete documents of a society. Istanbul keeps the remains of 1000-year-old Byzantine and 500 year-old Ottoman both under and over the ground. It has been the cradle of different religions, peoples and cultures; and a different history is seen in each and every street of it. Sulukule is one of these streets. It is a place where Istanbul's heavy load of heritage can be read. It is a historical settlement whose past dates back to the Ottomans. With the local meanings which aggregate with its name Sulukule, where Romans have lived for years, is a settlement which will not be wiped away from the area historically although it is physically.

• SYMBOL VALUE: Istanbul can be defined as a symbolic city in the world history. History has been stratified under and over the lands of Istanbul. The remains of every period have reached today as the values symbolizing those days. With its epic history, Istanbul has soils that are history and culture rich full of memories which house the qualities of al times. Today Istanbul has a symbolic value with its remembered qualities, not those seen. Remembering can not be done only by reading through history books, but it should be provided with the concrete examples of cultural accumulations and monumental structures belonging to that day. In this respect Sulukule is one of the most significant examples of cultural heritage. It is an important place where world famous music is kept alive, music is blended with culture by integrating with place. The symbolic values it possesses can only be maintained if they are protected.

• REPRESENTATION VALUE: Historical environment and historical structures are also the representations social, cultural and architectural qualities of the period in which they were built. Romans, who have sustained their existence in the area since the Ottoman times, can be assessed as the representatives of Ottoman multiculturism today. Within the cosmopolitan structure of the Ottomans in which different nations, different religions different people lived together, Romans could live for hundreds of years. The idea that multicuturism inherited from the Ottomans which is supposed to be protected in Istanbul today could be sustained by deleting different

peoples from the map actually includes the understanding of serving different purposes in its bases.

• FUNCTIONAL AND ECONOMIC VALUE: It is today purposed that the historical ruinous areas in the city center of Istanbul would be cleansed of their owners and functions; and will be provided with a new face, a new function. The urban identity of these areas, which are brought down and reconstructed in order to attract tourists and invest in tourism, is also mis-considered as based on deceptive representations. The values which long years added to the city's image in the natural process are disregarded; fake historical neighborhoods are created with the theme of an artificial scenery by ignoring the fact that core and main history and its remains can as well attract tourists. However, instead of an artificial historical revival, the identity and culture of the city can be protected by healing the damaged structures; the expenses of collapsing and reconstruction can be made on social projects enabling them to live with their people rather than destroying the history and culture that are to be protected.

• REFERENCE VALUE: Practices of "Gentrification", which can be defined as making the lower class move away from the city centers and by renewing the area, allocating it to new rich owners; are carried out in other cities as well as Istanbul. If what is aimed at can be realized in Sulukule; projects of same understanding will find the grounds of legitimacy for themselves and by accelerating, this wrong practice will repeat itself in a different part of a different city. The idea that "Sulukule Urban Regeneration Project" which is rather emphasized by the public can be a reference for following practices, points out the need for a better prepared project that will be remembered with the right reference value.

There are some alternative due studies prepared by non-governmental organizations handling the situation with its social, economic and cultural dimensions, the goal of which are to protect the disappearing abstract and non-abstract cultural heritage. In these studies, an observation and preservation approaches that take the needs, characteristics and social lives of the people living on the area as a whole and an understanding that points out; the only way to solve the problem in Sulukule is to protect its non-abstract rich cultural heritage together with the people in it have been prepared diligently. Those studies also suggest that an approach that does not ignore the needs and social lives of the Sulukule people might be developed. However, these suggestions and studies were not taken into consideration by the administrations, which resulted in the resumption of the demolishment activities as they were started before.

CONCLUSION

The neo-liberal policies that have been tried to put into effect with the aim to get embedded to the globalizing world is one of the most import setbacks of a world city like Istanbul. Today, Istanbul owns its reputation of being a world city to the values it collected through the history. However, studies show that there was not a capital of culture that was created instead as if they were with the purpose of creating a capital of tourism; they decorated the city thoroughly in a theme park style. Also, it was seen that there were no specific future plans for the preservation of city history. Just in the

middle of this flawless image, there stand those people whose living spaces were captured with gentrification projects. These living spaces were beautified and added to the beautiful urban image. With the new cities and districts that are aimed to get constructed with an Ottoman theme, we are promised closed sites that are far from being familiar to us and our culture. Needless to say, day by day; we just watch the transformation of the city into a shanty with rent seeking projects that do not care about the cultural or historical element of the city. Here, that the city is being pirated is not those projects' circle of interest. As we learned in the Sulukula example; maybe we can not interfere but by raising our voices, we can revolt against these issues because neither our culture nor presence is concerned in the understanding that capitalism brings, the real residents of the city are those excluded and named as "the other" by this understanding.

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SOCIAL X PROBLEM, SPATIAL + QUESTION, IDEAL / ANSWER = [TESTING] SOCIAL EXPERIENCES THROUGH ARCHITECTURAL EXPERIMENTS

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ABSTRACT

In the part of the 20th century when social change expectations were most intense, a sudden increase occurred in the number of architectural social projects. Between 1950 and 1970 when the modern industrial society reached the fastest development rate, debates about social issues and a search for new societies away from these issues reflected on architecture as well.

Architects, who started new interdisciplinary debates by designing projects that had never been seen until then, created a new laboratory environment to conduct new experiments. It was in this laboratory environment formed initially by the leading journals of the time and then through exhibitions of these projects that new social and architectural searches were initiated and different architectural experiments were made: Suggestions inspired by the problems of daily life but not directly offering solutions to these problems (as they could not be implemented immediately/easily in the conditions of the time) were put forward.

The architectural issues trying to be resolved through these experiments included the random expansion of cities towards rural areas due to the rapid growth of the world population, the resulting loss of the balanced/consistent architectural character of cities which had evolved over time, rapidly increasing inner-city traffic problems and elimination the destruction of the nature. The method followed while seeking solutions had similarities to experimental methods peculiar to laboratories: Problems were being torn apart from their contexts and transported to "ideal" environments, and different designs were being developed in the "ideal conditions" of these insulated environments.

The starting point, study field, method and aim of this study is hidden in the following question: "Which problems, questions and answers about today's social and architectural issues can be seen upon a close look at the unity/interaction of the "social constructs" and "physical constructions" of the imaginary projects, which offered an architectural perspective on the search for an ideal society and thus created different spatial expansions to alternative society suggestions with the "optimistic sensitivities" of these projects?"

Keywords: Social experiences, Ideal society, Architectural laboratory, Imaginary projects, Experiments

SOCIAL X PROBLEM, SPATIAL + QUESTION, IDEAL / ANSWER =
[TESTING] SOCIAL EXPERIENCES
THROUGH ARCHITECTURAL EXPERIMENTS

A careful examination of the hidden semantic blueprints of every architectural project reveals hidden social envisions offered to users by designers. As far as utopian architectural projects are concerned, the importance attached to these blueprints which have social content exceeds the importance attached to drawing blueprints. The reason for the existence of utopian architectural tradition – namely "to design an ideal living space before anything else as a way of reaching an ideal social vision" – ensures that the resulting architectural projects are at the same time social projects.

In the liveliest part of the 20th century when social change expectations were most intense, a sudden increase occurred in the number of the utopian architectural projects. Between 1950 and 1970 when the modern industrial society reached the fastest development rate, debates about social issues and a search for new societies away from these issues reflected on architecture as well. Architects, who started new interdisciplinary debates by designing projects that had never been seen until then, created a new laboratory environment to conduct new experiments. It was in this laboratory environment formed initially by the leading journals of the time and then through exhibitions of these projects that new social and architectural searches were initiated and different architectural experiments were made: Suggestions inspired by the problems of daily life but not directly offering solutions to these problems (as they could not be implemented immediately/easily in the conditions of the time) were put forward [1].

The utopian architectural project grew by influencing each other as much as being influenced by the period they were designed. Till 1960s the main characteristics of these projects can be reviewed under seven categories: Isolation, *sociality*, functionality, stability, fundamentalism, order and dictatorship. The utopist approach re-appeared in 1960s are questioned and examined by the projects which were undertaken with those characteristics in different ways. When we look at the imaginary projects of this era, we cannot see such big evolution in the approaches towards the concepts of *sociality* and order, but instead, we see the concepts of isolation, functionality, stability, fundamentalism and dictatorship were intended to be underestimated. The designs of the projects were based on the concepts such as open planning, flexibility, mobile space approach, comprehension, incompleteness, structural diversity (Sevinç & Yürekli, 2006: 144-145). Due to these, it may be better to call the imaginary projects of this era "sketches of utopia" rather than "utopias".

A close look at the laboratory environment of the 60s when sketches of utopia were designed one after the other reveals the following flow scheme: The major issues of social life (problems, anxieties, poisons, dilemmas, etc.) are uprooted from their context, eliminated and transported to a sterile environment which has ideal conditions. The issues are then multiplied and magnified in this sterile environment by using different assumptions about daily life and, consequently, become difficult to cope with. Then, these clusters of "disaster scenarios" are injected with architectural searches, discoveries, excitements or basic concepts in order to seek alternative solutions. Sometimes, the rich utopian tradition comes into play at this point instead

of architectural accumulation. It is usually around this time that the very idea at the heart and core of the project appears. This idea is merged firstly with the eliminated problems and then with what is left outside: Thus the project develop gradually. As it develops and becomes less obscure, more and more problems are overcome and mere architectural solutions are left behind. Step by step, the architectural project becomes complete.

Seen from up close (from the inside, even) this laboratory environment shows that any component of the scheme (as in any creative design) may be dislocated, the order of steps may be changed, and flow schemes may be followed: An unlikely idea may be suggested initially, followed by issues about this idea to act as an antidote or solution. Hereafter, "disaster scenarios" may be included in the process, or else, issues may destroy one another. What is important is to overcome gigantic crises and create small worlds, even though this may be done in an ideal environment.

If we used "deconstruction" in a laboratory to take apart the imaginary projects created after World War II when the social side of things were emphasized and then subjected them to various flow schemes via "reconstruction", it would be possible to group the results under two headings:

Deconstruction <
"Existing" social constructs in the "ideal" physical constructions:

Even though these projects mostly expressed their problems and excitements through drawings, when the written texts expressing the projects are taken as a social proposal rather than these drawings, it may be possible to divide the outcomes about "social constructs" and "physical constructions" in two groups: the existing and the ideal. Having been adopted frequently by utopian projects since the emergence of Thomas More's *Utopia*, this dual approach forms double-sided contexts, thus enabling us to align reality/problems and dreams/solutions in different ways.

A quick overview of sketches of utopia, which we take as social models or assessment rather than architectural projects, gives one single positive outcome about the lifestyle of societies: Emphasizing the cultural vitality of cities and the importance of the marginal lives which create this vitality, the members of Archigram, Peter Cook, Ron Herron and Dennis Crompton (Cook, Herron & Crompton, 1969: 82), (Drew, 1972: 102) maintained that this feature of the city should be transferred to rural areas and ultimately to the entire society [2]. In all other project proposals, the problems of societies concerning urban life were listed and the adverse effects of cities on the moods of humans were frequently mentioned. In order to see together the different layers of the "social constructs" in these projects, social sections that pass through the very heart of these projects may be drawn:

Sketches of sections that pass through psychological problems:

When the social interpretations made by architects who act as sociologists (which can be best understood when seen from the inside of imaginary projects) are listed one after the other, it can be seen that these projects speak for each other, thus making their content more easily understood:

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In the post-World War II era, Paolo Soleri (Soleri, 1968: 71,80), (Soleri, 1972: 178) clearly stated that humans were being "dragged into physical, cultural and moral dilemmas": He primarily blamed cities and the monotonous lifestyle they offered as the reasons underlying this negative situation [3]. According to M.C. Valadares and J.P. Benoit (Valadares & Benoit, 1969: 95), on the other hand, the change-resistant structures of existing cities caused "the suppression of the passions of societies and their abnormalization", a phenomenon that designers summarized by referring to Wilheim Reich: "The entirety of societies seem to be pathetic. As their passions are suppressed, their reactions become more and more abnormal. They lose faith with their own capabilities" [4]. Manfred Schiedheim (Schiedhelm, 1969: 86) pointed out that cities had distinct borders and strict rules, and therefore people failed to play the role of participant in their shaping: He argued that these borders and rules lay behind the psychological problems of urban people [5]. Resembling the labyrinthlike structure of big cities to Brazilian jungles, Walter Jonas (Jonas 1972: 150).advocated that big cities had been designed without balance: He also emphasized that such an urbanization approach created more living spaces far away from an environment conducive to maintaining urban dwellers' mental health [6].

Sketches of Sections that Pass through Family Problems

In this era, in addition to the city- and architecture-related psychological problems of societies, family problems also featured frequently in imaginary projects:

Tetsuya Akiyama (Akiyama, 1972: 80) was of the opinion that "undone family ties" were one of the main sources of social unrest: He claimed that social problems could not be fixed unless architectural solutions were developed to re-unite relatives [7]. Considering family life to be a concept ruined by changing life conditions, Günther Domenig and Eilfried Huth (Domenig & Huth, 1972: 104), (Achleitner, 1967:82) directed attention to the need for protecting family life through architectural methods despite the changing lifestyle of the era: In their projects, they gave priority to the unproblematic sustenance of family life by using developed construction systems [8]. Having developed an imaginary project because of the negative effects of changing work conditions on family life, Yoichiro Hosaka (Hosaka, 1972: 98) found the solution to social problems in spending more time with the family: If the conflicts between "work life" and "family life" were eliminated, people's wellbeing would increase naturally [9].

Sketches of Sections that Pass through Traffic Problems

The number of designers who viewed traffic problems as a reason for urban problems and included details in their imaginary projects was not small:

Lionel Mirabaud and Claude Parent (Mirabaud & Parent, 1962: 62), (Mirabaud & Parent, 1972: 144) mentioned the "unnecessary traffic noise" in growing cities as a serious issue: In their projects, making cities places where pedestrians could walk around freely was considered an approach which would enhance the happiness level of societies [10]. Seeing that a serious deficiency of cities was allocating 60% of urban areas to roads, parking lots and service areas for motor vehicles, Paolo Soleri (Soleri, 1968: 71,80), (Soleri, 1972: 178) developed an approach similar to Mirabaud and Parent's and suggested the exclusion of all vehicles from cities: His top design

criterion was increasing the life standards in a city by having all living, working and public areas within walking distance from each other [11].

Reconstruction >
"Ideal" social constructs in the "ideal" physical constructions

Rapid changes seen in all areas of life after World War II formed the major design criteria of the utopia sketches designed in this era. Complaints that cities fall behind social changes and cause societies to stay behind "where they should have been" are voiced sometimes (as in the examples mentioned above). However, many more projects list the characteristics which societies should have "soon" or "from now on", along with architectural approaches which feed and breed these characteristics. When these projects which act as "physical constructions" are seen from a bird's eye view and the general opinions of the era about "social constructs" are listed, plan schemes may be drawn about the general approaches of the projects:

Plan schemes for a dynamic society

The zest for social change and high expectations of the 1960's stand out as the most prominent design motive in these projects:

A group led by Kenzo Tange and Arata Isozaki (Tange, 1962: 50), (Tange, K. & Isozaki, A., 1972) emphasized that the most important characteristic of the "modern society" was "mobility": When cities were designed in line with this concept, they would adapt to the mobile structure of the society and become lively [12]. Yona Friedman (Friedman, 1960: XLVIII), (Friedman, 1972: 197) summarized a similar proposal as an extension of the "search for an architecture and urban planning for a mobile and dynamic society": He stated that building- and urban-scale designs could only meet the needs of the society if they stood- at a place consistent with the dynamism of the society [13]. Kenzo Tange (Tange, 1962: 59)coined the concept of "super human" in a project designed for Tokyo together with a group of Massachusetts Institute of Technology architecture students: According to Tange, the main feature that a city should offer was to enable the "super human" to use new technological tools easily and effectively [14]. Similarly, Ron Herron (Herron, 1972: 114) clearly stated that the source of inspiration for his design, one of the weirdest projects in the utopian history, was the technological developments of the era. Designed by starting from the "peak point of the 20th century humanity in science and technology", the project was based on the technology-related premises about the society of the future [15].

Plan schemes for life in space

The initial excitements created in the social arena by the thought that future societies would live in outer space – on another planet than the earth – were reflected in various architectural utopia projects. The joy created by seeking alternative lives outside the earth for the first time in history is reflected in the projects of this era as "space age architecture":

Paul Maymont and Renée Sarger (Maymont, 1972: 128), (Gaillard, 1964: 30-34) were the first architects to contend that societies would establish colonies in space in

the future: With the excitement of designing a place without gravity, they brought a fresh breath of air to the debates about life outside the earth with the sketch they published in 1962 [16]. The same year, David Greene (Greene, 1972: 110) transformed the idea of life in space, which set the social agenda and was looked forward to by people, into a project: Starting from the concept of "space travel", he developed a design to be used only in space conditions [17].

Plan schemes for new daily life

When the expectations created by industrialization, technological developments and accompanying new ways of work were coupled by the demands in the streets, the daily life that people dream about materialized in imaginary projects:

Jean-Claude Bernard (Bernard, 1964: 44) argued that in the near future ¾ of workers' labor would be fulfilled by machines and that a new social order would appear where machines would do the work and the only employees would be designers and engineers: According to Bernard, automation in work areas as a result of industrialization would increase people's leisure time, and was the most noteworthy aspect of the societies of the future [18]. Similarly, Pascal Hauserman (Hausermann, 1962: L-LII), (Isozaki, 1962: 62) believed that the time people spent working would decrease gradually in industrial societies. While describing his project based on the new/possible social shaping, he voiced his beliefs about the societies of the future: "The post-industrial structure of intellectual and cultural leisure time society" [19]. Offering a new meaning to the concept of leisure time intellectual society, Chanéac (Chanéac, 1964: 42), (Chanéac, 1972: 152) argued that one of the main functions of an ideal city should be to help people improve their cognitive skills: The main aim of the most important area of the project, the "Industrial Park", was to enable people to do ample mental practice in their leisure time [20]. Engelbert Zobl (Zobl & Schulitz & Dashiel, 1972: 103) underlined the most prominent feature of dwellings for the "post-industrial society" as: Recreation areas to offer people a good time, most needed units for the "post-industrial society" [21]. The no-work lifestyle that concerned people most and was supported by street rallies was advocated by Guy Rottier's (Rottier, 1964: 62) society model which he designed for "people who were sick and tired of long wars": Using buses as caravans and bringing humans together at different times, in different places and ways, the project would also enable humans to participate in leisure time activities as they wished [22]. The most popularly discussed concepts of the 1960's, "gamelike living" and "sexual freedom", were chosen as the cornerstones of the societies of the future by M.C. Valadares and J.P. Benoit (Valadares & Benoit, 1969: 95): The project prioritized architectural spaces where people could experience sexuality freely and which would serve a gamelike life [23].

Plan schemes for an education-focused society

While projects were being proposed for the societies of the future by predicting their lifestyles, there were many designers who were dreaming about a life built upon a continuous education approach:

In a 1967 design (5 years prior to the official birth of the Internet), Peter Cook (Cook, 1968: 59), a founder of Archigram, predicted that the educational system of the future

would be based on the Internet which would enable people to have continuous interaction: Built on the idea of a travelling campus, the project enabled people to easily transmit their knowledge and experiences to each other, and all architectural solutions were detailed by starting from this idea [24]. One year after this project, Peter Cook worked with the other members of Archigram, Ron Herron and Dennis Crompton (Cook, Herron & Crompton, 1969: 82), (Drew, 1972: 102) and dreamed a society where knowledge and emotions that they saw as "the fuel of civilization" would be mobilized: The main concern of their project was a new social enlightenment, and a travelling and temporary structure that defines itself as "provocative" [25]. While developing a sketch on the idea that philosophy and religion would be important for the societies of the future, Paolo Soleri (Soleri, 1963: 72)focused on the need for sharing different thoughts and beliefs: Detailed carefully at the center of the project was units called "Religious and Philosophical Higher Education Centers" [26]. Roger Anger (Anger, Braslavsky & Heymann, 1965: -) designed a project based on his spiritual leader Sri Aurobindo's thought that an educated society was a good alternative for the lifestyle of future societies, and materialized his project in 1968: In our day, while a similar ideal social order is still maintained, urban projects are also developed and constructed [27].

The following is seen when we compare (even if only quantitatively) the realities based on **"existing" social constructs** (which focus on problem identification) about what societies are and the dreams based on **"ideal" social constructs** (fed by "elements of excitement") about what societies should be: It is easy to see that these examples of utopian architecture emphasize alternatives to change the existing conditions rather than merely complain about them. Due to the nature of utopias which positions them closer to solutions than problems, their mantra could be: Producing solutions rather than complaints.

These imaginary projects would be lifeless shells if they were devoid of their social content and the stories they belonged to, and viewed purely as architectural projects. When the projects of designers who were after ideal architectural spaces while searching for ideal social models are evaluated, this social content should be used as a catalyzer (or dope, extra power, additive, vitamin, energy drink, sweet, etc.) in order to reveal the effects of laboratory-grown projects more easily (and perhaps more openly).

With the same approach, it may be possible to draw a comparison between the concerns mentioned in the utopia sketches of approximately 50 years ago and those discussed in the current realm of architecture (which worry us for both their social approach and the gap between them and utopias): With the "solid and void" blueprints which will naturally emerge at the end of this comparison, preparations may start for the design of new (imaginary or real) projects needed by today's society.

ENDNOTES

[1] When the "social experiment" characteristics of the projects mentioned in this paper were considered, Bent Hamer's 2003 comedy drama film *Kitchen Stories* became a guide with its laboratory environment and discoveries. A salute to the film is in order for inspiring this manuscript with both its topic, period and the criticism it made against modernism: (Synopsis) "Kitchen Stories is based on the real-life social experiments conducted in Sweden during the 1950s. In the years following World War II, a research institute sets out to modernize the home kitchen by observing a handful of rural Norwegian bachelors…" (By Andrea LeVasseur)

[2] **Instant City (Une imagerie de vie urbaine a la champagne):** The project bares resemblance to Ideas Circus (see endnote [24]) in both its designers and the suggested lifestyle, and defines itself as a "provocative" structure which will lead to social enlightenment. It has been claimed that the architectural environment created through this project will trigger different knowledge and feelings by emulating a circus and taking marginal city lives to outside of them. (Designed by Archigram (Peter Cook, Ron Herron and Dennis Crompton) / 1968)

[3] **Arcosanti**: Sketched for the first time in 1964 and projected to be materialized with the contribution of the Cosanti Foundation, this project was designed for 1,500 people and is the 30th of the cities in Paolo Soleri's project called Arcology.) It is an ideal city whose population is largely made of students and apprentices. The designer uses the term "school city" to define the project which does not gather under one single roof areas for work, education, life and play. (Designed by Paolo Soleri / 1969)

[4] **Saghor, Ludic City:** A city on the sea, elevated from the sea level with the help of giant legs. The project offers provision for different spaces where people can gather for different activities, such as large squares for pedestrian meetings, "tower of knowledge" or "workshops". This city offers various architectural solutions so that people can have a life free from limitations and enriched with different activities. (Designed by M.C. Valadares and J.P. Benoit / 1969)

[5] **Anachitecture** A linear structure defined by concepts such as "Architecture of Freedom" and "Do it Yourself Architecture"; one which consists of hollow spaces to be "filled" by inhabitants. It is a design inspired by Rosa Luxemburg's motto "Real freedom is the freedom of different ideas". Away from impositions and giving equal rights to its inhabitants, this project offers an infrastructure that has minimal fixed arrangements, and maximum freedom. Far from predeterminations, the architectural approach of the project is based on participation and perpetual mobility: (Designed by Manfred Schiedheim / 1969)

[6] **Intrapolis (Funnel Town):** The project is envisioned to be built on the outskirts of the city and offer necessary functions. According to Jonas, a city can only have a balanced nature if it has "introverted" buildings, away from traffic, in touch with the sky and its neighbors. In this new design, transportation problems have been solved and public places are of paramount importance. The cities we live in and different readings of the lives we live in these cities present different solutions for ideal dwellings: While Intrapolis (Funnel Town), designed with the idea that the untidy structure of existing cities affect people's psychological health negatively, claims to offer a city model appropriate for urban people (Designed by Walter Jonas / 1960)

[7] **Urban Residences and their Connective Systems:** Consisting of residential towers, which look more like oil refineries than apartment buildings that are composed of residential sections stacked one above the other, the project is designed by the concept of preventing the loosening of family ties, which has become such a marked feature of the industrial civilization. (Designed by Tetsuya Akiyama, Iwao Kawakami, Norio Sato, Yuji Shiraishi and Yoshiaki Koyama /1966)

[8] **Project for Ragnitz-Graz** (**Überbauung Ragnitz**): As one of the outstanding megastructure projects, the project customized living units and transportation lines can be integrated into a, 'secondary system' serving the double purpose of creating a basic spatial structure and hosting the supply network. Parking for automobiles, which were considered a necessary evil, was planned for within the basement of the structure as a concession to contemporary reality. (Designed by Günther Domenig and Eilfried Huth /1966-1969)

[9] **Proposed framework for urban living**: The projects aims to bring together work and life spaces on top of one another by using a huge cable structure in order to prevent the total separation of these spaces in post-industrial societies. The urban utopia designs accommodation and work areas in two different layers, one at the bottom and one on top. In order to eliminate the conflict between family and work life in the post-industrial society, the project is based on a new understanding of accommodation-work relationship and focuses on gathering all communication, production and distribution functions under one roof. (Designed by Yoichiro Hosaka / 1965)

[10] **High Density Residential Units (Ètude d'architecture saptiale á forte concentration):** The imaginary project is hollowed into three parts, the three remaining volumes in steps to accommodate 5700 people. (Designed by Lionel Mirabaud and Claude Parent / 1963)

[11] **Arcology (Architecture + Ecology):** The "Arcology" concept proposes a highly integrated and compact three-dimensional urban form that is the opposite of urban sprawl with its inherently wasteful consumption of land, energy and time, tending to isolate people from each other and the community. (Designed by Paolo Soleri / 1960-69)

[12] **Plan for Tokyo:** The design inspired by the developments after the Second World War, protrudes from the city center over the sea to the Bay of Tokyo and hosts 5 million people. In order to make sure that the new part of the city and the center of Tokyo are connected well and retain their liveliness, a structure called "Naval Cord" is suggested to arrange the traffic. Designed in response to the developments in Tokyo after World War II, this imaginary project built on the sea was designed to accommodate 5 million people. (Designed by Kenzo Tange, Arata Isozaki, Koji Kamiya, Heiki Koh, Noriaki Kurokawa and Sadao Watanabe / 1960)

[13] **Paris Spatial:** Designed to prevent the destruction of Paris city center to meet new needs, the project uses giant feet to enable elevated layers and thus create the spaces that the city needs. (Designed by Yona Friedman / 1962)

[14] **City Design for 25,000 People Over the Boston Bay:** During his visiting professorship at the Massachusetts Institute of Technology in 1959, Kenzo Tange worked for four months with a fifth-year design studio on an urban design scheme that would accommodate housing for 25,000 people over the Boston Bay. (Designed by Kenzo Tange / 1960)

[15] **Walking Cities**: This project consists of mobile urban units on interlocking legs which can be connected to one another with portable corridors. It also entails containers big enough to house an entire city. Traveling is treated as the mobilization of an entire city in the project. With the help of wheels at the bottom of interlocking legs, the city moves in parts and the residents travel with the city (Designed by Archigram (Ron Herron) / 1964)

[16] **Sketches for a Space City:** A space city project which is developed on the idea that life in space will be possible in the future and which offers a model for non-gravitational places. (Designed by Paul Maymont and Renée Sarger / 1962)

[17] **Living Pod:** Self-sufficient in terms of energy and capable of processing its own waste, this cell-like project is made of mobile units in which different functions can be performed with different machines. The designer of the project admits that the era's exciting concept of "space travel" and space shuttles have inspired his project. (Designed by Archigram (David Greene) / 1966)

[18] **Total City:** Inspired by a labyrinth, this city can house up to 600,000 people and draws its principles on traditional villages. The concept is based on the idea of living in a mysterious labyrinth and making people feel that life is a constant adventure. The project assumes that people will spare more time for play in the future. (Designed by Jean-Claude Bernard / 1964)

[19] **Habitation', (Implement 'Dwelling'):** The design is based on the problem that the horizontal expansion of cities decreased the efficiency to use the land. (Designed by Pascal Häusermann / 1962)

[20] **Crater City**: Initiated in 1963 as a research project and finalized in 1968, this project suggests a three-dimensional frame system around the old/existing city and offers to patch this system with different space alternatives which can be produced quickly "like cars". The architectural elements called "Spiders of Space" weave a cob-web known as "trenches" around the old city. This web protects the city from destruction and offers new living spaces to new residents. The architectural units of the web which are added to one

another in different ways both connect different parts of the city and form its suspension system. (Designed by Chanéac / 1963-68)

[21] **Mojave Desert (Caravan Park in a spatial grid)**: The project offers people to spend their free times for enjoying and leisure and looks like an amusement park and all spaces are moving: Theatres, cines, sports grounds, vivaries which are suitable to walk around in, circuses, casinos. (Designed by Engelbert Zobl, Helmut C. Schulitz and Dale Dashiel / 1967)

[22] **Bus City:** The basic idea behind the project is a life based on traveling and enabling people to spend their leisure times wherever they want and in whatever way they wish. (Designed by Guy Rottier / 1966)

[23] See endnote [4]

[24] **Ideas Circus:** Aiming to create a traveling campus, the project is based on the education system of the future. The main aim of the project is to enable the sharing of different knowledge by different people with the use of different technological systems. The project also aims to make technology more widespread and allow people to stay in continuous contact. It thus forms a small-scale internet network and enables people in the visited places to establish contact with one another. (Designed by Archigram / 1967)

[25] See endnote [2]

[26] **Mesa City" Ideal City Project:** A line-like 10 km wide and 30 km long urban project located on the banks of a river and housing a total of 2 million inhabitants. The project consists of various cities and 34 villages, each of which houses 3,000 people. The design is largely made of centers for teaching different religions. Secondary education institutions placed around these centers in a way raise students for them. Although each religion has found its place in this project, a Taoist approach to religion has mainly been adopted. (Designed by Paolo Soleri / 1958-67)

[27] **Project for the Auroville City:** A partially materialized project designed for people following Sri Aurobindo's philosophy and living in a commune a few kilometers north of Pondicherry in India for their spiritual development. (Designed by Roger Anger, Pierre Braslavky, Mario Heymann / 1968 -)

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WHAT TO DO ABOUT THE 'LOSS OF PLACE' IN THE AGE OF LATE CAPITALISM?

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ABSTRACT

The 'loss of place' is a dominant phenomenon in contemporary architectural environments. Taking the global late capitalism as the prominent actor in the 'loss of place', this paper will discuss the possible approaches that can be employed by today's architecture in order to deal with it in favor of the people.

Keywords: Loss of place, Non-place, Time-space compression, Deterritorialization, Late capitalism

INTRODUCTION: 'LOSS OF PLACE'

In December 2008, we have learned from the news that Hugo Chavez, President of Venezuela ordered the expropriation of a shopping mall construction in Caracas. During his Sunday television and radio program *Hello President*, Chavez told the public, heading through downtown Caracas he was shocked by the sight of a huge, nearly-finished mall. The words he has chosen to express his thoughts about what he had seen were: "They had already built a monster there. I passed by there just recently and said 'What is this? My God!'" (Figure 1) As he explained, the site which was at the heart of the capital city was not only too valuable to be left to the private property, but also existence of such a shopping mall there would be contradictory with the politics of their socialist government that tried to avoid excessive consumption (Dallen, 2009; 'Outraged Chávez Puts Stop to Near-Complete Shopping Mall', 2008).

Instead of trying to find an aesthetic or political explanation to President's reaction to the shopping mall, the question we should ask at this point is, why we -as architects and as common people- no more react to the 'monsters' that increase in number around us day by day. It would be meaningful to start by thinking on why Chavez has chosen the word 'monster' in order to define what he had come across. Here are some adjectives that are used to define the word 'monster'; huge, abnormal, unusual, deformed, inhuman, cruel, wicked (Webster's Online Dictionary, 2009). Apparently,

Chavez tries to express an inharmonious (and even violent) relationship of the newly-built shopping mall with its context – that is, the city, in other words the nature and culture of the inhabitants of Caracas.

Figure 1. Sambil Shopping Mall, Caracas, Venezuela (Dallen, 2009).

This kind of inharmonious relationship of an architectural environment with its context is generally put in words as 'loss of place'. By the word 'context' we do not mean just a specifically characterized urban pattern; but the natural context including the human body as a part of it, as well as the the cultural context that was formed through history, and the urban context with its multi-dimensional aspects. In this sense, a 'place' is defined as a particular space that has permanence through time and intimate reciprocal relations with its location, which gives to that space its distinct character; thus allowing people to have meaningful relations with each other and their environment as well as flourishing of personal/social identities and social constructs.

In his book *Non-Places: Introduction to an Anthropology of Supermodernity*, written in 1995, anthropologist Marc Augé introduces the term 'non-place' in order to define the stage that 'loss of place' has reached in today's world. As he puts forward, the spaces of circulation, communication and consumption in today's global world that are regulated by the contemporary condition, which he prefers to call 'supermodernity', are non-places (Augé, 1995). Inspired by Augé's definition of non-places, in the thesis that I submitted to Middle East Technical University in 2002 for taking Master's degree in architecture, I tried to investigate the contemporary form of the 'loss of place' from an architectural point of view (Sozer, 2002).

NON-PLACES IN THE AGE OF LATE CAPITALISM

According to Augé, all the air, rail and motorway routes, including the mobile cabins (aircrafts, trains and road vehicles) and their service stations (airports, railway stations, parking lots, service stations on the highway, etc.), hotel chains, leisure parks, large retail outlets (supermarkets, shopping malls), and rather virtual spaces created by today's advanced communication technologies (telephone, radio, television, electronic banking system, etc.) are non-places (Augé, 1995). As he writes, in contrast to 'anthropological place' which is characterized by stability and permanence, and therefore defined as relational, historical and concerned with identity (Augé, 1995: 77-78), non-places grow out of temporality and constant change. In this sense, instead of allowing people meaningful relations with each other and with the place they are in, non-places work with a kind of 'solitary conractuality' of the users with the space (Augé,1995 :94); instead of creating distinctive, individual identities that would form an organic society, they are only able to give way to the similitude of atomized individuals possessing temporal identities of passangers, customers, drivers, etc. (Augé, 1995: 103); and what we experience in non-places is a kind of a universal space/time with little or false references to the past and the future (Augé, 1995: 104-105) instead of historical belonging to a place and time.

Working on my thesis, before looking closely to the architectural formation of non-places, it was important for me to understand what has given way to the emergence of today's condition that Augé calls 'supermodernity'. As he explains, 'supermodernity' is characterized by the acceleration of three types of excess that belong to modernity: the 'excess of time' that is created by the 'overabundance of events', the 'excess of space' that results in the 'spatial overabundance' and the 'excess of the individual' that leads to the 'individualization of references'; which all together end up with a radical transformation in the status of the individual and his/her perception of space/time (Augé, 1995). In this sense, while on the one hand past and future dissapear from sight by leaving their place to a kind of 'perpetual present' overloaded by events, on the other hand the sense of unfamiliarity of distant places perish by leaving its place to a sense of 'shrinking of the planet' and a 'false familiarity' of so-called places of the world (Augé, 1995: 103). Consequently, today's individual who is under the bombardment of instantaneous, overabundant information belonging to different times and spaces, experiences not a single culture that belongs to his/her territory, but a collage of cultural elements brought to him/her from all over the world (Augé, 1995: 37). We see that Augé's analysis of 'supermodernity' comes close to David Harvey's explanation of the 'condition of postmodernity' characterized by an intense phase of 'time-space compression' (Harvey, 1990).

In Augé's analysis, two keywords come forward in the way to understand the reasons behind the emergence of 'supermodernity'; acceleration and accumulation. Acceleration and speed have been the key terms used by Paul Virilio in his analysis of the contemporary condition. Parallel with Augé and Harvey, Virilio claims that, in the last decades of modern age, there have been radical changes in the senses of time and space. For him, this is mainly related to a mutation that has happened in the 'law of proximity' caused by the increase of speed in our lives as a result of the use of advanced transportation and telecommunication technologies (Virilio, 1997; Virilio, 1991). Virilio may be right in his analysis of technology's role in creating the

contemporary condition, but what is the reason of the demand for more and more speed? As he explains, what has given rise to the developments in technology in its entire history has been militarism that has always desired higher speed in order to reach superiority by controlling more space in less time (Virilio, 1986). As Virilio reminds us, it is true that Internet was first launched by Pentagon (Virilio, 1997: 76), but what has made it very effective on our lives is something else. If we like it or not, almost everthing, any kind of positive and negative changes in our lives in the contemporary condition, stem from the dynamics of late global capitalism that govern today's world. The products of technology are only some tools at its hand, which can be used either this or that way.

In fact, acceleration and accumulation stay at the heart of the essential logic -or we should say 'lack of logic'- of late capitalism. As Harvey explains, 'time-space compression' as a situation has accompanied capitalism since its emergence, as it stems from the basic characteristics of capitalism. As it needs a constantly expanding market peculiar to its nature, capitalism necessarily target two things: "the breaking of spatial barriers and the acceleration of turnover time as fundamental to its agenda of relentless capital accumulation" (Harvey, 1997: 411). As Harvey explains, different overaccumulation crises in the history of capitalism were overcome by the realization of these two, which have necessiated the employment of new organizational systems and new technologies that inevitably has led to transformations in the pre-existing perceptions of time and space. As he claims, the last great overaccumulation crisis in 1973, was overcome by the acceleration supplied through a transition from Fordism to flexible accumulation, causing an intense phase of 'time-space compression' that has given way to the emergence of what he calls the 'condition of postmodernity'. In this sense, postmodernity is no more than a late phase of modernity (Harvey, 1990).

But, how is the emergence of non-places related to all these? As Harvey explains,

> Capitalism is under the impulsion to eliminate all spatial barriers, but it can do so only through the production of a fixed space. Capitalism thereby produces a geographical landscape (of space relations, of territorial organization and of systems of places linked in a 'global' division of labor and functions) appropriate to its own dynamic of accumulation at a particular moment of its history, only to have to destroy and rebuild that geographical landscape to accommodate accumulation at a later date (Harvey, 1997: 412).

In this sense, in order to transform the geographical landscape into a territory appropriate to the rules of accelerated capital flow, capitalism tends towards the production of territorial organization which is a process that "makes territorialization, de-territorialization and re-territorialization a continuous feature in the historical geography of capitalism" (Harvey, 1997: 412). To say in other words, capitalism tends to install its own 'space' to different places of the world in order to transform the territory according to its own aims. This is why non-places arise everywhere at a great pace in today's world as cruel 'monsters', and try to turn all the places of the world into a network of non-places, which will house only one kind of empty life that obeys the inhuman regulations of capital accumulation and nothing else.

IS IT STILL POSSIBLE TO DESIGN 'PLACE'S IN TODAY'S WORLD?

It was interesting to hear that a shopping mall designed by Tadao Ando, called Omotesando Hills, was opened in 2006 in Tokyo (Omotesando Hills, 2006a). Was it possible for an architect like him, who is said to be a 'poet of place', to design a shopping mall – in other words, a typical non-place? When we look at Ando's works, we see that he always cares a lot about natural, cultural and urban contexts and tries to allow the inhabitants of his buildings not only a corporal, but also a spiritual connection with the location. In his award-winning 1976 project, Azuma House (Figure 2), he invites us to feel the natural context in its full sense by the use of a central open courtyard. He goes too far that the inhabitants of the house cannot go from one room to another without passing from the courtyard, in which they will feel all daily and seasonal changes like sunlight, wind, rain, snow, etc (ed. Dal Co, 1995: 56-61). This is an architectural understanding which is totally contrasting to the usual tendency of the architecture of non-places that try to protect its users to be effected by natural changes, in the way to create a universally comfortable space - that is, a 25° degree, artificially lighted interior at all times and places of the world.
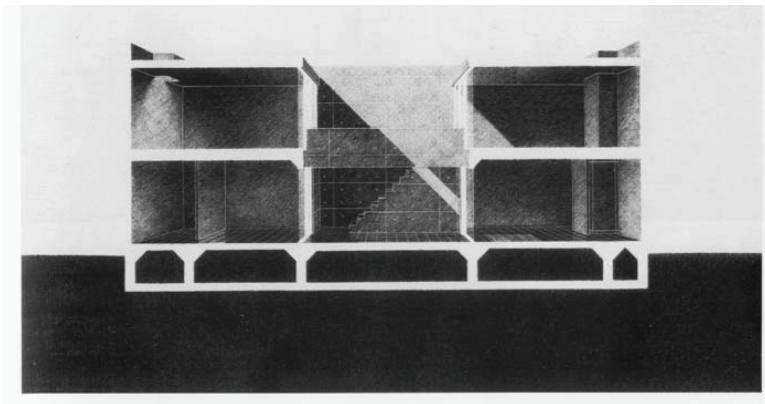
Figure 2. Azuma House by Tadao Ando, Osaka, Japan (Ed. Acar, 1995: 10).

Ando is also known by his design of a small shopping building called Times Gallery (Figure 3), which is located in the heart of Kyoto next to a historically illustrious river. In this building, he was inspired from the river's history and its connection with the traditional urban culture. So, he has tried to create an intimate connection between the spaces of the gallery and the river, in the way to put people back in touch with the water (ed. Dal Co, 1995: 210-213).

On the other hand, in his Rokko Housing project (Figure 4) located on a very high slope in Kobe, the design concept is based on the architect's wish to revitalize the traditional neighborhood that tends to extinct in modern Japanese city life. So, the central circulation space which steps up the slope to connect independent units, is intentionally designed with gaps that create in-between common spaces (ed. Dal Co, 1995: 134-141).
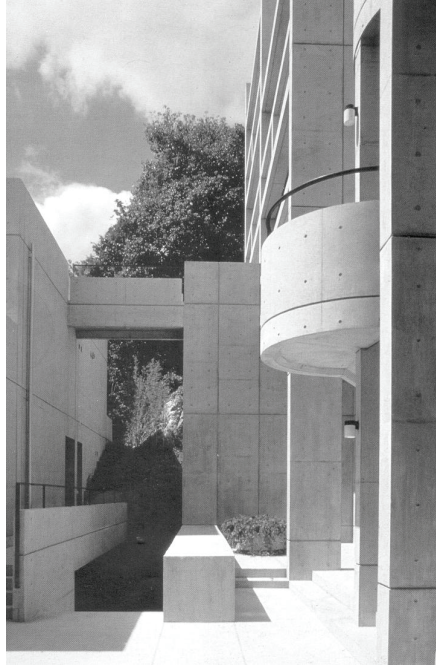
Figure 3. Times Gallery I by Tadao Ando, Kyoto, Japan (Tadao Ando, 2009)

Figure 4. Rokko Housing I by Tadao Ando, Kobe, Japan (Ed. Acar, 1995: 11)

Ando's Omotesando Hills, which is composed of luxurious shops and apartments, is located at a very prestigious shopping and residential street at the heart of Tokyo called Omotesando. It was built in place of a well-known modern style apartment complex that was built in 1927 (About Omotesando Hills, 2006). Due to the cultural importance of the apartment complex, there has been a lot of controversy about the demolition of it in order to build a shopping mall. Regarding to this discussion, architect Ando says that,

> It is not Tadao Ando as an architect who has decided to rebuild and make shops, it was the owners themselves who wanted it to be new housing and to get some value with shops below. My task was how to do it in the best way (Tadao Ando Interview, 2006).

From his words, we think that he has already admitted the superiority of the wishes of the private capital on the formation of the spaces that we live in. But, is it still possible for the architects to design 'places' in today's world? Is it possible to design a shopping mall which will not act as a non-place? If there is an architect who could do this, it must have been Tadao Ando. We see that Omotesando Hills introduces itself by referring to the historical and cultural importance of the area. The aim of building the mall is explained as creating a new, appealing space that will house a new

lifestyle, out of the unique characteristics of Omotesando Street. In this sense, we see that the created space is defined as a 'place' having close connection with its location:

> In the 80 years since the Dojunkai Aoyama Apartment complex was completed in 1927, Omotesando, together with Harajuku and Aoyama, has been an attraction to everyone who has lived, visited or worked in the area, and it continues to be a cultural center today. In 2006, the area was invigorated with a new dynamism. Omotesando is a place where all aspects of cutting-edge intelligence reside, be it fashion, culture or art, and it is home to people of ageless creative minds who continue to express their message and creativity to Japan and the world. It is from these people - the people who love Omotesando - that a new town is created. We are here to propose a new world-class stage, where people can network, make new discoveries and find happiness surrounded by the greenery of Omotesando. The historical steps Omotesando has taken and the innovative and creative culture of the town: these two elements have helped us establish the spirit of <WA> and "WA." While preserving the beautiful culture of Japan, we provide harmony between the 'hard' and the 'soft', and create a place that lives up to the full potential of the town. This is our <WA>. "WA" is also about <Walking> = a place that can bring happiness by just walking through it, <Watching> = a place that can inspire through the simple act of watching the life in the area, <Waking> = a place where one can discover themselves, <Way> = and a place where one can pursue a new lifestyle. We hope that you will find your own "WA" here at the new Omotesando stage (About Omotesando Hills, 2006).

But, what has been done to achieve this? Architect Ando tells that the memory of the demolished apartments and the specific characteristics of Omotesando Street have been starting points for him, for deciding the design concept. As he explains,

> The Dojunkai Apartments were created as a part of the Great Kanto Earthquake reform plans and they were not only important cooperative housing units but also reflected the visions of the people living there and visiting the area. How to save this vision was one of the main subjects I had to contend with in this reconstruction plan. Although restoration of the original building was physically and economically impossible, I was careful to incorporate the following two subjects so that the memory of the Dojunkai Apartments would not be forgotten. First, I was careful to make sure the height of the complex was close to that of the row of Japanese zelkova trees adjacent to the complex by constructing half the complex space underground. The second was to use the slope of Omotesando Street as part of the public space of the development. The facade continues for 250 meters following the slope of Omotesando Street. Each floor is created on the gradual Omotesando slope, creating an innovative public city space. Furthermore, the rooftop is covered with greenery that integrates with the zelkova trees. What I aimed for was a 're-birth' of the Dojunkai Apartments (From the Architect, 2006).

We can say that with Ando's design decisions that make the building tune with the street, the mall is not acting as a 'monster' in the city (Figure 5). But, one cannot say that it is very different from a typical shopping mall, which tends to have an introverted space usually with minimum contact with outside so that the so-called 'discomfort' and 'dangers' of the nature (sunlight, wind, rain, snow, etc.) and the city (chaos, pollution, crime, etc.) were kept outside. As usual to a mall, you enter the building through controlled entrance points; when you are inside, you are constantly being spied on by security cameras; from inside, you are rarely be able to see outside; what you come across with is the typical lining up of stores that belong to national/international chains. From the photographs of the building, we are able to understand that Omotesando Hills is an Ando design from the naked concrete and some eccentric use of water and greenery.

Figure 5. Omotesando Hills by T. Ando, Tokyo, Japan (Omotesando Hills, 2006b).

But if you visit the building, you may get surprised. Because, inside there is a spatial experience that cannot be created by conventional elements of architecture. In the main space that is formed by ramps placed around an atrium, we see that the silhouettes of Japanese Zelkova trees, which are the icon of Omotesando Street, are projected onto the floor together with the images of people walking under the trees on the walls. You can even hear the sounds of trees weaving in the wind and birds singing (Figure 6). All these are realized by the utilization of latest audio-visual technologies that are able to create a perfect simulation of nature inside (Figure 7).

Figure 6. Omotesando Hills by T. Ando, Tokyo, Japan (Omotesando Hills, 2006b).

Figure 7. Omotesando Hills by T. Ando, Tokyo, Japan (Omotesando Hills, 2006b).

This pseudo experience of nature even tunes with seasonal changes. In spring you are able to hear the sound of a spring stream together with the birds; in summer you are able to listen to the sounds of dolphins, whales, ocean waves, gondolas of Venice, etc.; in autumn you can hear the breeze blowing through bamboo forests,

festive music, etc. while you are experiencing the light of a autumn night; in winter the sounds of sun performed by ancient musical instruments together with sunlight in a forest on a winter morning can be experienced (Figure 6). This is the concept of '+Notion Organize Project':

> With "MEDIA SHIP" as the basic concept, we create distinct images in an inspiring space by optimizing the characteristics of the architecture and its location. The definition of the +NOP is to embody the totality of "notions" in each project. The "Omotesando Hills Notion Organize Project" is a project with a fresh, new approach absolutely unique in the commercial architecture industry. Through the combination of the state-of-art technologies of sound, lighting and visual images, as well as the nation's top-class technological expertise, we transform the realm of the senses, such as the feel of the air and the overall space into a true work of art (Space Design at Omotesando Hills, 2006).

We see that Omotesando Hills is one of the most excellent pseudo-places that have been created in the last decade. In addition to a universal space-time experience that an ordinary non-place promises to its users, the customers of Omotesando Hills are appeased with the opportunity to experience beautiful features of different times and spaces brought to them in a sterile environment at the heart of Tokyo.

From our point of view, it seems hard to comment on Ando's design. Does it come out of a conformism with the dominance of late capitalism in the creation of today's spaces, or is it a kind of muted protest against it? Did he do his best in designing a shopping mall in today's world? In fact, Ando's response to the problem - that is creating an artificial oasis in a shopping street- do not mean a lot and even very discouraging, if we aim to resist against the dominance of non-places in the contemporary world. As architects, how will we react to the 'loss of place'? What kind of approaches can be employed by today's architecture in order to deal with it in favor of the people? If we do not want to admit the triumph of non-places, we can talk about two possible ways of resistance which deserve to be discussed on:

- To create 'places' that would exist as alternatives to non-places
- To deconstruct non-places, in order to ratten them and transform the life that they dictate.

CONCLUSION: THE NEED OF CHANGE IN APPROACH

First of all, it is important to understand that this is not an aesthetic or stylistic question. For creating both forms of resistance, what we need is not employing an architectural style or theory like Critical Regionalism or Deconstructivism. Instead, we need a radical change in our relation with the capital itself. Because, it is the dominant element in the creation of the spaces that we live in.

If we choose the first way -that is, to create 'places'- we inevitably need to be broken off from the regulations of capital flow. Because, without it the result will be the creation of pseudo-places. Non of the place-based architectural theories can prevent this. At the first sight, this approach may be criticized for being very radical and

almost impossible to realize. But, maybe it would be the last big mistake in the history of civilization to underestimate the fatal effects of late capitalism in an age consisting of unstoppable global warming, threats of famine and drought, boom in diseases, and the excess in the use of cancerogenic goods in our daily life. If this is not the time to act more radically, when will it be?

On the other hand, if we choose the second way -that is, to deconstruct non-places- we need to understand the mechanism of capital accumulation very well. Because, what should be deconstructed not the products of it, but this mechanism itself. Non-places, which are the architectural (by)products of this mechanism, may only carry the clues needed for this deconstruction.

To say in other words, if we choose to resist non-places either in this or that way, we have to know the logic of late capitalism very well in order to find the ways to protect ourselves from the effects of inhuman incentives of capital accumulation. It is also important to be very careful, in order not to loose our weapons, as they may easily be turned into new tools used for the aims of capital flow. Our attempts to create local, organic food bazaars may find a place in shopping malls as 'special, but a little bit expensive' ecologic store chains. Because, the system works by assimilating its alternatives according to its own profit. In all senses, as architects and as inhabitants of today's world, our job is hard.

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THE DISTORTION OF THE INTERIOR DESIGN STYLES (STRUCTURE)

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ABSTRACT

Today, we face a picture in which, like in many other areas and scales of design, there are various styles and patterns simultaneously in the designs of buildings, space, and furniture. As a result of the intercultural interactions, global world, free individual thought and the search for authenticity, it has become difficult to define interior spaces and furniture styles as well as naming them. The aim of the study is to question the definability, readability, authenticity and appreciation of the styles in an atmosphere that was created by interior design styles.

Keywords: Interior space, Style, Distortion

INTRODUCTION

The concept of style confronts us in many spheres of life such as talk, action, life style, the way we dress, fashion, and architecture…etc (Tavşan, 2003). In the encyclopedia of architecture dictionary Hasol (1993) defines the concept of style as ;

> "…a typical artistic style of an artist or an art or artistic period or a common point that brings together various properties of art that were born out of different needs and conditions"

Turani (1993) on the other hand presents two definitions for art in the Dictionary of Art Terms as following:

A joint expression of an artist in his works and the way it forms itself.

The elements to be seen in all the works of art of all times, and the way they are expressed.

Other than the individial styles, a concept of style that determines the soul of the periods will be highlighted in the study. Based on these periods the development of architectural and interior space concepts are handled in terms of pre-modern, modern and post-modern periods as is the case in the architecture tradition.

THE LANGUAGE OF FORM IN PRE-MODERN STYLES

The artistic and architectural productions to have been made in the past (belonging pre-modern times) can be defined in terms of dependency to the certain formal and expressive rules (Tanyeli, 1998).

In pre-modern period there are many interior space and furniture styles marked by Egyptian, Greek, Roman, Gothic, Renaissance, Baroque, Rococo, Eclectic periods for a long time with the famous names such as Tudor, Jacobean, Louis IV...etc. In these styles, space and furniture reflect the soul and time of their own periods and carry the basic qualities of their original styles.

A piece of art in the pre-modern agricultural societies and the form in the popular architectural trends and styles is determined in terms of the unconformity of the natural language, and of the certainty that is compulsory and well beyond the individual. A Medieval artist does not have the freedom to create "forms" arbitrarily. His creativity is limited to his ability to use the existing language. For example, The Gothic master who formed the Charles Cathedral can not go beyond the boundaries of Gothic style. From drawing to dancing all arts must conform to the rules of a compulsory language. With the closing of this natural language era that is marked by art historians as the "periods of genres", a period of great confusion started (Köksal, 2002). In this period many eclectic designs in compliance with the Indian, China, Egyptian, Islam, Tirol and Jacobean genres and the various combinations were made based on the factors such as the development in the perception of history, the availability of the transportation and journey, and appearance of a group of customers who wanted change (Botton, 2007). Eclectism is the understanding of bringing different genres of different periods together (Roth, 2000).

Picture 1. Dolmabahçe Palace, Pink Hall, Garabet Balyan, Nikoğos Balyan, 1856

Since the boundaries and frame of aesthetical values were determined in the pre-modern architecture, "style" did not create a sense of confusion. After the efforts of freedom started, and the individual freedoms were felt deeply, it was seen that there was a confusion in styles a natural result of the freedom in choice.

Botton (2007) exemplifies the confusion that is a natural result of freedom of choice as following; in the mid 18. Century an aristocrat and his spouse wanted to build a house for themselves. Vicont and his wife could not reach an agreement about which style they would use to build their house. Vicont likes classical forms, but his wife liked Gothic very much. The architect of the house built the front in classical form and the back in Gothic form. Harsh critics were shocked to see this building and set out to reach a visual agreement and to determine new criterion. Augustus Pugin was complaining as if they were in architectural carnival in 1836. Individual judgments come before everything and every architect come up with a new idea.

Picture 2. Ward Castle, Strangford Lake, 1767

Eclectic movement seen in 18.century affected architectural, interior space and furniture styles as well. Here, what is interesting in the confusion as to the style selection is that style was created again in the existing languages and not a new or different form of language has been built yet. (Picture 1.,2.)

FORM OF LANGUAGE IN THE STYLES OF MODERNISM PERIOD

Modernism in 18th century chose criticism as a philosophical method for itself. Later, it turned into, an avant-garde, artistic method. This led to a radical breakout from the cultural tradition (Paz, 1992).

While modernism is creating its own formal structure through the strict rules, it also accuses all behaviors outside its own formal structure according to the Adolf Loos. In the transformation from the agricultural society into industrial society the common language that determined the soul of the area is lost, and instead, it is replaced by unreal, arbitrary and individual language. In the industrial society the language that was used by agricultural society was ruined and it was replaced by individual languages seeking for more freedom (Köksal, 2002). For this reason, modernity is the greatest breakaway in the history of mankind. Understanding and interpreting the human conduct is not an easy task as it was once more due to the modern revolutions and its consequences. Traditional codes were disintegrated, broken away, and became more independent (Gür, 1996).While the modern architecture is evaluating the truths in the history, it rejects the geometry of local and regional elements that revitalized the concept of identity in the traditional architecture, but at

the same time it adopted its own rules through a new geometry that can be read through such concepts as unity, integrity, order, efficacy, and purity (Gür, 1998a, 1998b).

Modern architects adopted a mission for themselves as to shape the society and social life. In Bauhaus, as a design school, everything from the simplest instrument to the house are redesigned due to the mission of redesigning the modern life (İnceoğlu and İnceoğlu, .2004).

In his article Gropius (1926) summarizes the "'Bauhaus Production Principles" as following: "There is a need for modern person who got rid of the past and who dressed in modern cloths a modern house that is equipped with all the necessary daily instruments. For all daily use items there must be a standard, which is a social need. In general, the necessities of life are the same for most people. A house and decoration belong to the mass consumer goods and their design is a matter of intellect rather than passion. Bauhaus workshops are the laboratories where the first examples of many modern products that are open the mass production are developed with care and improved continuously" (Conrads, 1991).

The new language of Bauhaus and modern designs is created by the natural functions and relations of the object (Gropius, 1926). By rejecting the decoration, this language is established on such principles as standardization and rationalism and modernism created its own aesthetical values and make up the soul of the period with its readable geometry. (Figure 3)

Figure 3. The New estethic of Modernism, Bauhaus, Walter Gropius, Weimar, 1923; Tugendhat House, Mies van der Rohe, 1928; Villa Savoye, Lecorbusier, Fransa, 1928-1931

THE FORM OF LANGUAGE IN STYLES IN POST-MODERN PERIOD

The fundamental aspect of modern architecture and design world is the richness of intellectual and formal approaches. Today, as was in the beginning of modern period, universal design and planning principles can not be spoken and the end designs are free of certain ideologies and patterns (İnceoğlu and İnceoğlu, 2004). The new vision of our age is to be able to digest simultaneously the various cultures that are overlapped, the ones we live with. At the end of 20.century simultaneous forms in art

appeared all of a sudden. On the one hand we can talk about neo-expressionism and on the other hand we can talk about minimalism. Both modern and neo-classic patterns are used together (Paz, 1992).

When the popular decoration and interior space magazines belonging to the years of 2000 in the post-modern period are analyzed it can be seen that there are many styles among the interior space and furniture ones. It is interesting that many movements that are on the opposite ends exist simultaneously, and these being Provincial, Country, Minimalism, Ethno-Minimalism, Maximalist, Modern, Neo-baroque, Modern-Classic, Neo-gothic, High-Tech, Art Deco, Retro, Deconstructivism, and Eclecticism

Today it is important to note that definition of interior space and furniture styles and the naming of the styles is a difficult task. Especially after the 1980 styles became more independent in the interior space and all the opposites were used together either in harmony or in disorder. In this pluralist picture, antiques as well as the high-tech furniture, minimalist modern furniture as well as ethnic decorative elements are used together. Today the traditional structure of design is turned upside down as if it were to change the genes of design object. In an effort to be different and authentic, design questions the nature of every object in terms of conventions, meaning, form-function, structure and material, and thus it seeks for new expansions.

SEMANTIC CHANGES AND DISTORTIONS

Meaning is the thought which an expression or a word conveys (Hançerlioğlu, 1996). Gür (1996) explains that "the concept of meaning does not change in architecture and language". As it is the case in language, turning the values which form the meaning upside down through the conventional and traditional use of space and furniture cause semantic distortions. Designers derive new meanings by questioning the way, place and form of conventional use of every kind of objects and the components which constitute the architecture and interior space, as well as by semantic distortions. When the components of interior space such as wall, door, stair, curtain, and chandelier are not used properly in their usual way and form, they draw attention. It is thought-provoking that the conventional meaning of an object is questioned and undergone a semantic change. (Figure 4)

Figure 4. Parkrand, MVRDV, Amsterdam, 2007; Curtain Wall House, Shigeru Ban, Tokyo, 1995; Google Office, Camenzind Evolution, Zurich

FORMAL CHANGES AND DISTORTIONS

Today's designs involve a variety of forms that cannot be explained by the word "form". Techniques and opportunities of the modern age present the production of forms in bevel improving the store of forms. Sedate forms of Pre-modern and modern period have been replaced by unidentified forms. Inability to identify the form of object and space makes functional identification difficult. Eclectic designs cause distortions of pure styles and formal changes. For example, it is an eclectic way to wrap an armchair in a Baroque frame with a pop art fabric and polish with patina. Similarly, recalling the fashionable and classical crystal chandeliers, chandeliers on which hang different materials like crystal stones are also an example of formal distortions. (Figure 5)
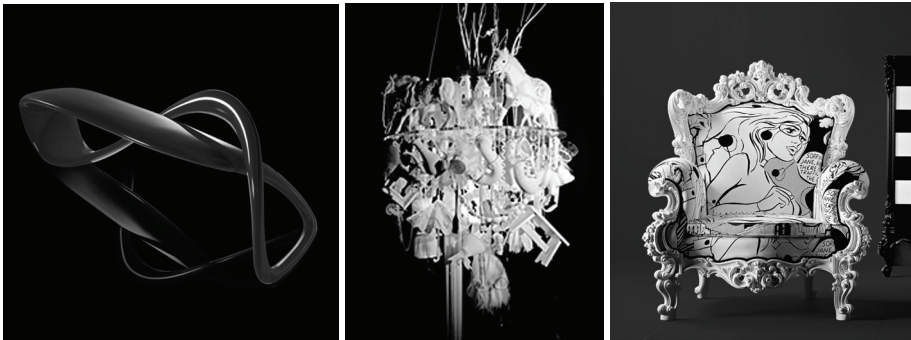
Figure 5. e-Turn, Brodie Neill; White Chandelier, Winnie Lui; Giacomo for Creazioni

CHANGES AND DISTORTIONS OF FUNCTION-FORM RELATION

In dictionaries, function is defined as the action or the operation which a person or an object is expected to carry out and also a given task, action or a special profession or a role. Function in design is described as the work an object does and actions an object is expected desired and assigned to fulfill. Function in architecture and design means the fulfillment and realization of needs and objectives in their relations with the object (Bayazıt, 2008).

Change in distortions of form-function relation does not come to mean that they do not carry out the expected function. According to the purpose of use of space and object in time, differentiation of the form it corresponds to and the form which distinguishes it from other spaces and objects make its function uncertain.

It is desired that new language of modern designs in Bauhaus are created with natural functions and relations of the object (Gropius, 1926). While modernism reestablishes the form-function relation by breaking its relations with the history, Post-modern form-function relation is in a more striking and radical change.

Today furniture and equipment aimed at defining the function of space and the forms of any kind of design object differentiate so much that it has become difficult to define the function of space and furniture. For example, AQ bathroom collection designed by Jaime Hayon for ArtQuitect are beyond familiar vitrified components and different from the usual image of bathroom. Hayon expresses that he has designed this collection considering the bathroom products as furniture that can be used in other parts of the house and changing white, ordinary, and private content of bathroom.

Lorenzo Damian's design for Campeggisrl firm, used as either pouf or vacuum cleaner and named airpouf, was formed in three perforated spheres wrapped by removable fabric. Holes on the pouf function as a hose of vacuum cleaner, ventilation, and on off button.   Pou-vacuum cleaner is a good example which shows the questioning of form-function relation and how this relation undergoes a change. (Figure 6)
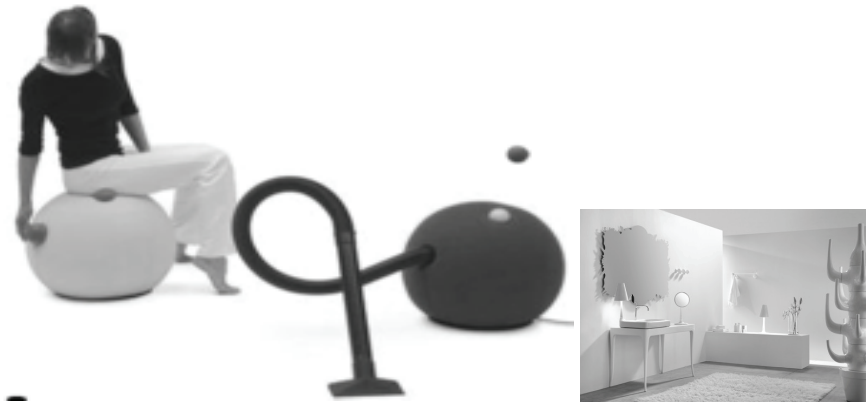
Figure 6.. Airpuf, Lorenzo Damiani, 2005; AQ Bath, Jaime Hayon

STRUCTURAL DISTORTIONS

Structure is what preserves the components which restrict the form and space. The natural material opportunities have limited the traditional structure plans to a great extent (Kuban, 1992).

Existing conventional structures cause space to gain a different and original identity by being questioned through critical thinking and with the increase of material opportunities. As an example, stairs, only function of which is to provide the perpendicular circulation or walls which are dividing sections create bewilderment and illusions in space by structural changes. (Figure 7)
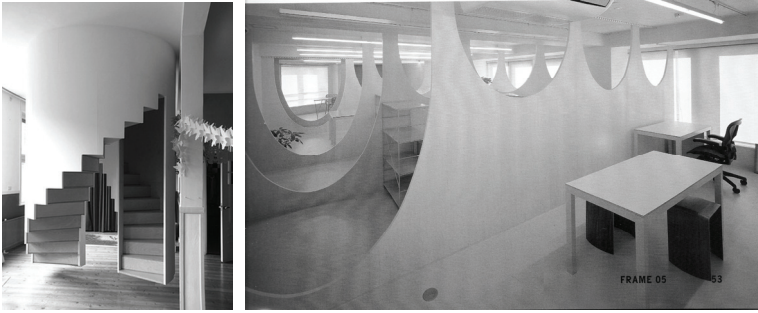
Figure 7. Didden Village, MVRDV, Rotterdam, 2007; Nendo Office, Oki, Sato, Japan

Change and Distortion of Nature of Material

New materials and technology contribute designs, spaces, and forms which have never been tried and experienced before to design world. Freedom as an outcome of these materials increases the form repertoire of design world considerably and pushes the limits of design. With the use of technology traditional materials can also be used except in forms that their nature allows (Canbakal Ataoğlu, 2007). Glass furnishings in spite of their fragile image, chairs and tripods which are designed by hardening the laces with polymer spray, fluid-like wooden coatings are formations beyond the nature of materials. (Figure 8)

Figure 8. Educatorıum, Rem Koolhas, Netherlands, Utrecht, 1997; Cardiff National Assembly, Richard Rogers PArtnership, Wales, 2005; Crochet Chair, Marcel Wanders, 2006

In each scale of design, meanings, forms, and structures which are derived from the distortion and change in nature of materials, meaning, structure, and form-function attract attention. All these changes make it difficult to name and recognize styles. In the light of these observations, a pilot study was carried out to test the preference and identifiability of popular styles.

METHODS AND TECHNIQUES OF THE STUDY

This pilot study was carried out with the participation of interior architecture students of KTU in Trabzon, using the questionnaire technique.

SAMPLE SIZE

Selecting a sample from a group which represents the whole is sampling. Sampling is the group which consists of a small number of people or objects chosen out of a larger group. It can be achieved through random, systematic, and group selection or categorization (Kaptan,   1993). Sampling method used in the study is random selection. To determine the sample size, the formula below was used (Baş, 2006).

> N: Total capacity of Interior architecture
> Z: Level of Reliability
> P: Probability of the case
> Q: Improbability of the case
> D: Estimated standard deviation
> n: Sample size

After determining the sample size, sample size of students who will participate in the questionnaire is displayed in Table 1.

Table 1. Sample size

Total Student	Respondents	Standard deviation	Reliability coefficiency
148	58	10	95

At the end of this formula, according to 95 reliability coefficiency, number of respondents is 58.   In case some questionnaires are not completed, 60 were accepted as total number. At the end of the study, 60 questionnaires were evaluated as all of them were completed properly.

SAMPLE GROUP

Sampling group of the study includes the students in the Department of Interior Architecture of KTU. Subjects are 60 students from 2nd, 3rd, and 4th classes. 1st class students are not included in the study as they have not adequate knowledge about the subject. 2nd class students are selected as they are thought to have the knowledge of style in their workshop courses. 3rd class students take the course "Furniture Styles" in fall semester and 4th class students take "Styles in Interior Space" as an optional course in spring semester.

Table 2. Student numbers of classes

Total number of students	2nd class		3rd class		4th class	
	Öğrenci Sayı	%	Öğrenci Sayı	%	Öğrenci Sayı	%
60	22	36,7	21	35,0	17	28,3

Selection of Interior space samples

In this study, interior space samples design of which date back to late 2000s were chosen from interior architecture periodicals. Totally 58 (27 with identified styles+ 27 with unidentified styles) samples of which interior space styles are easily defined and undefined and with different functions were determined. Academician group of 7 people were asked whether these interior space samples define a style or not and the preference of these styles. At the end of evaluation, 12 samples which took the highest points were chosen.

Since naming the style of chosen interior samples can confuse students, styles have been categorized as Tavşan(2003) stated: classical, classic-modern,classic.(Table 3)

The sixth of the chosen interior samples are classic modern; five of them are modern and the last one is classic. First, second, third, fourth, fifth, sixth of the sample photographs are classic modern; seventh, ninth, tenth, eleventh, twelfth are modern; and eight is classic style.

Table 3. Style Classification

Style classification	Style	
Classic	**Historical Styles**	Neoclassic, Early Georgian, Regency, Gothic, Baroque, Rococo, Renaissance, Empire, Louis XV, Queen Anne, Romanesque, Victorian
	Epoch Styles	Baroque, Renaissance, Rococo, Middle Ages, Revival, English Gothic, Early English, Georgian and Regency, Victorian , Arts And Crafts, Art Deco, İnternational Modern
	Revival Styles	19.Century, Grek Revival, American Craft Revival
	Country Styles	American Country, English Country, English Cottage, French Province, Traditional American, Swiss Country, Arts & Crafts and The Mission Style, American Colonial, Lodge, Rustic and Southwestern, Shaker
	Etnic	China, Japanese, African, Arabian, Indian, Egypt, Sudan, Crypus, Tropical, Colonial, Oriental, American Cowboy
Modern	**Modern Etno-Modern Minimal Late- Modern Ultra-Modern**	
Classic-Modern	**Post-Modern Eklektic**	Victorian, Classic- Modern, Louis XV

Table 4. Sample photographs from the experiment

1. Classic- Modern	2. Classic- Modern	3. Classic- Modern	4. Classic- Modern
1. Bilboa Stua, Furniture Shop, Jon Gasca, Spain, 2003	2. Tad Conscept Store, Milan, 2005	3. Attelia Shine Hotel, Eren Yorulmazer, Belek, Antalya, 2008	4. Byblos Art Hotel, Atelier Mendini, Italy, 2005, (BOB 08)
5. Classic- Modern	**6. Classic- Modern**	**7. Modern**	**8. Classic**
5. Kruisheren Hotel, Maupertuss, H.vos, Holland, 2005	6. Loft, KA Mimarlık, İstanbul, 2008	7. Cultural Center, um&Partners, Seul, 2006.	8. Villa, Hakan Helvacıoğlu, 2000
9. Modern	**10. Modern**	**11. Modern**	**12. Modern**
9. House, Paik Sun Design Studio, Kore, 2004	10. Naos Nova, Vinery House, Jeon's Assciates, Seul, 2004	11. Culturel Center, Keiichiro Sako, Chabgchun, 2007	12. Cumberland Hotel, Real Studios, Londra, 2004

PREPARATION AND APPLICATION OF THE QUESTIONNAIRE

In questionnaires, it is aimed at finding out
  1. whether the sample interior space has been liked
  2. information about in which style the sample interior space can be

In the application of the experiment, 'questionnaire' is found suitable as a inquiry technique. Together with open- ended and closed- ended questions, the questionnaire is composed of semantic differentiation schedule. Questionnaires have been applied in the classes of department of Interior Architecture at KTU at

appropriate time period of each class. By showing the samples one by one, it is asked students to fill the gaps in the questionnaire by required information.

THE ANALYSIS OF THE FINDINGS

The acquired information has been transferred to spps programmer, frequency rates have been computed, and graphics have been drawn. Taking the most frequent samples into account, evaluation has been done.
According to the preferences;

- Students liked very much (38%) 7 numbered, (33%) 10 numbered and (40%) 6 numbered sample.
- Students liked (48%) 5 numbered, (41%) 9 numbered sample.
- Students found (47%) 1 numbered (37%) 4 numbered, (35%) 12 numbered, (31%) 2 numbered samples on equal level.
- Students did not like (37%) 8 numbered sample. They disliked (33%) 3 numbered sample.

As data stated, the most liked samples are 7, 10, and 6 numbered ones. 5 and 9 numbered samples are liked ones.

1, 11,4,12 and 2 numbered samples have equal appreciation level. 8 numbered sample was not liked, and 3 numbered sample was disliked.

According to style definition;

- 47 percent of the students could not define 1 numbered sample as style and 35 percent of them defined it as modern style. 23 percent of the students who could not define the style are sophomore.
- 47 percent of the students could not define the style of 2 numbered sample, 27 percent of them defined it as classical. 32 percent of the students who could not define the style are sophomore.
- 45 percent of the students could not define the style of 3 numbered sample, 35 percent of them defined it as classical. 22 percent of the students who could not define the style are sophomore.
- 55 percent of the students could not define the style of 4 numbered sample, 31 percent of them defined it as classic- modern style. 28 percent of the students who could not define the style are sophomore.
- 67 percent of the students could not define the style of 5 numbered sample, 23 percent of them defined it as modern style.35 percent of the students who could not define the style are sophomore.
- 55 percent of the students defined the style of 6 numbered sample as modern, 37 percent of them could not define it. 22 percent of the students who could not define the style are sophomore.
- 53 percent of the students defined the style of 7 numbered sample as modern, 47 percent of them could not define it. 32 percent of the students who could not define the style are sophomore.

- 50 percent of the students defined the style of 8 numbered sample as classical, 42 percent of them could not define it.22 percent of the students who could not define the style are sophomore.
- 62 percent of the students defined the style of 9 numbered sample as modern, 37 percent of them defined it as modern. 18 percent of the students who could not define the style are sophomore.
- 51 percent of the students could not define the style of 10 numbered sample, 43 percent of them defined it as modern. 32 percent of the students who could not define the style are sophomore.
- 58 percent of the students could not define the style of 11 numbered sample, 42 percent of them defined it as modern. 33 percent of the students who could not define the style are sophomore.
- 57 percent of the students could not define the style of 12 numbered sample, 40 percent of them defined it as modern.33 percent of the students who could not define the style are sophomore.

Most of the students could not give specific names to 1, 2, 3, 4, 5, 10, 11, 12 numbered samples.

6, 7, and 9 numbered samples were defined as modern style. 8 numbered sample was directly defined as classical style.

1, 5, 10, 11, and 12 numbered samples defined by junior and senior students were described as modern style.

2 and 3 numbered samples defined by junior and senior students were described as modern style.

4 numbered sample defined by junior and senior students were described as classic-modern style.

1, 5 and 6 numbered samples were described as modern instead of classical-modern; 2 and 3 numbered samples were defined as classic instead of modern. Only 4 numbered interior space sample was described correctly.

CONCLUSION

In the end of the obtained data, most of the students could not define pure styles (modern or classic). Since Neo- classic, neo- modern and eclectic styles which dominated the interior styles in 2000s cannot bear the characteristics of an exact style, students cannot put them into correct category. In the sample study, the most liked interiors by students are interior space samples which have exact sample styles. On the other hand, classical and eclectic styles which are the imitation of the past were not liked.

To sum up, with the values agreed upon movements and styles, language unity is formed. Since pre- modern and modern styles were shaped by their own rules, it seems impossible to name these styles in these periods. As post- modern designers shape styles according to their own choices; conventional, semantic, form- function,

structure and nature of element of each object are exposed to change; the completeness of post- modern styles are distorted, and thus it becomes difficult to define and name styles. Davis stated that (1997) it was difficult to find the answer for theoretical question why the macro styles in every field of design have been replaced by single micro styles. Technology, the change in aesthetic understanding, movements like deconstructivism, desire for newness and difference, competition, speed in production – consumption, and the increasing demand for luxury compel design to new demands, comments, discovery of new sources of inspiration and new styles.

Critics such as Barthes, Baudrillard, Lyotard, and Jameson described the continuous desire of newness and difference as the trick of capitalist world (Davis, 1997).

In the aftermath of the World War II, capitalist economy made an advance and created a new type of person with its associations: shopping freak. In the basis of all these is man's desire of newness (Tunalı, 2009). In search of newness, structure defections in interior space, furniture, and design sometimes may change the traditional values of the shape and objects and give a new identity and recreate them by new values. Sometimes it may create short term products which appeal for tastes and fashion and do not suit any style.

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Figure 4. Parkrand; http://informa.tumblr.com/page/8, Curtain Wall House; www.fadwebsite.
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    2.Best of Best/İnterior Design No: 16

    3.Antik Dekor 109

    4.Best of Best/İnterior Design No: 08

    5.Best of Best/İnterior Design No: 15

    6.Best of Best/İnterior Design No: 18

    7.Best of Best/İnterior Design No: 22

    9.Best of Best/İnterior Design No: 02

    10.Best of Best/İnterior Design No: 03

    11.Frame No: 06

    12.Best of Best/İnterior Design No: 02

TRADITIONS

APPLICATION OF THE MODULE AND CONSTRUCTION PRINCIPLES IN THE TRADITIONAL ARCHITECTURE OF NORTHERN GREECE

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ABSTRACT

The paper presents the analysis of the design and construction of the traditional houses in northern Greece and also, the correlation with the use of the metric system of the architect's cubit (mimar arşin) and the existence of architectural tracing and proportions. The significance of the present study, in relation to previous ones that refer to the tracing of traditional structures, is the detection of certain metric models, which were widely applied in the urban centres of northern Greece during the 19th century.

The analysis is based on the application of the functional and constructional module on plans and facades of houses, in order to investigate its influence on the standardisation of the design of the spaces and their elements, as well as of the construction. The investigation of the constructional rationale and the analysis of the structural system, which is characterised by the use of wooden posts in the lightweight walls, are imperative because the standardisation of the construction allowed the easy application of designed models by the master builders with the use of basic geometric knowledge.

From the above-mentioned investigation, the design principles that characterise the traditional houses in the Ottoman Empire are derived, as well as the proportions of their parts. Furthermore, similarities and differences that exist between the various urban centres of northern Greece are pointed out. Another finding of the research involves the way in which the structural grid is applied to the design of the façades and to the placement of the structural elements and the openings of the timber-frame construction. As a result, conclusions are drawn concerning the role and the effect of the measuring system and the various metric models on the constructional rationale and on the development of the form of the traditional house.

Keywords: Traditional architecture, Northern Greece, Construction, Module, Architect's cubit

INTRODUCTION

The tracing and the proportions, which define the structure and the form of buildings from early on until today, have been the object of many previous studies. For the architecture of the Ottoman period and specifically in the area of the Balkan Peninsula, the studies that are related to this paper are summarised below.

N.K. Moutsopoulos analysed the existence of geometrical harmonic tracing in the facades and the interior spaces of large mansions in Kastoria with the use of circles and diagonals. The facades are subdivided into smaller zones and parts, from which smaller sizes and proportions occur. (see Moutsopoulos, 1988: 126-128) Furthermore, in his earlier studies (Moutsopoulos, 1956) he applies geometrical tracing in sections of Byzantine inscribed cross-shaped churches and shows that there exist constructional tracings, which define the proportions of their parts. (see Konstantinidis, 1961: 51-52) Similar studies concerning medieval churches in Bulgaria were presented by I. Popov (1955) and G. Kozukharov (1974). Popov investigates the proportions using diagonal tracing and squares (quadratura or ad quadratum), while Kozuharov uses equilateral and right-angled triangles in order to explore circular and arched tracing.

For Bulgaria, R. Anguelova (1993) and M. Cerasi (1988) cite the studies of P. Berbenliev, who investigated harmonic tracing following the principles of the golden section in the facades of 18th and 19th century houses. It is also mentioned that "the masters of Bratzigovo (…) traced their plans directly on the site, which would sometimes result in harmonic relation and even in golden rule proportions". (Cerasi, 1988: 93) [1]. Furthermore, Cerasi mentions that "the analysis of plans and elevations of buildings by Balkan masters has shown the existence of proportions and tracing inscribed in circles" [2], but stresses that "these are called up by the fundamentally empirical modular measurement systems as well as by the general rationality of Ottoman architectural practice". (Cerasi, 1988: 95) Furthermore, concerning constructional tracing and proportions, Stoichkov draws the plan of a 19th-century mansion in Koprivchititsa, Bulgaria overlaying a modular grid of 90 cm along with axes of symmetry and tracing. (Stoichkov, 1977: 58) Cerasi redraws the above-mentioned plan on an arşin grid (75.8 cm), which is based on the actual module used by master-masons during that period. (Cerasi, 1988: 99) All in all, Cerasi analyses the metric system of the period of the Turkish domination and its use by the builder guilds. He also presents plans of public baths and private houses of the 17th and 18th century from Topkapi, which are designed over a grid, and thus proves that the basic module in use is the architect's cubit (mimar arşin). (Cerasi, 1988: 93). Similar plans of public baths and religious buildings drawn in scale on an arşin grid are also presented by G. Necipoğlu-Kafadar (1986).

Apart from the above, B. Sisa analyses plans and sections of protestant wooden bell towers in the Carpathian basin using as a starting point the medieval theory of the constructional principles of the circle-square-triangle [3], which supports that carpenters did not use drawings but applied these principles directly during the construction stage. (Sisa, 1990: 327) Sisa's drawing analysis shows that these timber structures are based on a constructional grid with specified proportions. (Sisa, 1990: 338,347)

Based on the afore-mentioned bibliographical review, it can be seen that apart from the studies by Stoichkov and Cerasi, who apply a uniform constructional grid on house plans, and Necipoğlu-Kafadar, who presents original drawings, the rest of the studies do not use or present a certain module but apply tracing of circles and diagonals, which subdivide the facades or sections in smaller parts, without nevertheless mentioning the use of the module.

In relation to the above, the contribution of the present study mainly lies on the investigation of metric proportions and the use of the module on the design of traditional houses and the identification of specific metric models and building types (house with central hall - sofa) in combination with architectural tracing, which are largely applied in the urban centres of Northern Greece during the 18th and 19th century. It is shown that constructional tracing exist but only concerning the plan and its tracing on the ground, whereas the proportions of facades and heights derive from the consequent subdivisions and not from diagonal tracing.

METHODOLOGY

The starting point of this study is the main author's Ph.D. thesis (Oikonomou, 2007) and more recent work (Oikonomou, Dimitsantou-Kremezi, 2009), which involved the analysis of the typological, morphological, constructional and environmental characteristics of forty traditional houses in Florina, north-western Greece. An important part of this work was dedicated to the investigation of the application of the module in houses of the 19th century. [4]

The current paper is an extension of this approach to selected traditional houses in the wider area of Northern Greece. This investigation is based on the application of the functional and constructional module on plans and facades of selected typical houses. The aim of this analysis is to investigate the influence of the module on the standardisation of the design of the spaces and their elements, as well as on the construction.

In the present study, a total of eight houses from different towns and settlements in Northern Greece are selected and analysed. Four of them are situated in Florina and are presented due to their unique characteristics, whereas the rest of the examples are from Ano Kranionas in the Korestia area, Trikala, Oxia on Mount Vitsi and Kastoria. The selection is based on the fact that their plan design is derived from the same building type design, this of the house with the central sofa.

Figure 1. The selected examples from left to right: 1.Bochkaris Residence in Ano
Kranionas, Korestia, 2. Chatzitzotzas Mansion, Florina, 3. Anthopoulos
Mansion, Florina, 4. Golitsis Mansion, Oxia, Mount Vitsi, 5. House in
Asklipieion, Trikala, 6. Grouios Residence, Florina, 7. Fouzas Mansion,
Florina, 8. Mitousis Mansion, Kastoria and Papaterpos Mansion in Kastoria

INVESTIGATION OF THE APPLICATION OF THE MODULE IN THE TRADITIONAL ARCHITECTURE OF NORTHERN GREECE

The metric system of the architect's cubit

The measuring of plots and the construction of buildings in the Ottoman Empire was
based on the architect's cubit (mimar arşin), which is equal to 0.757738 m and is
divided into 24 fingers. The finger is divided into 12 lines and the line into 12 points.
The respective Turkish terms are parmak (finger 3.157 cm), hatt (line 0.263 cm) and
nokta (point 0.022 cm). (Cerasi, 1988: 92) The architect's cubit is also divided into
two parts of 37.8869 cm, which are called kadem. (Özdural, 1988: 113)

The Ottomans used the architect's cubit from the beginning of the 16th century. Alpay
Özdural mentions that the imperial measuring unit was equal to 72.1 cm on 1520,
73.4 cm during the last quarter of the 16th century (Özdural, 1988: 103), and 76.4 cm
during the third quarter of the 18th century. The architect's cubit of 75.8 cm was the
fourth and final version, which was assigned as the imperial measuring unit by Selim

III, during the years 1794-95, and remained in use until 1934, when it was replaced by the metre. (Özdural, 1988: 106)

The architect's cubit, similar to the old English yard, was both an instrument and a measuring unit (Cerasi, 1988: 92) It was usually made of ebony, wood, bronze, copper or bone and could be folded into two (kadem) or four parts. In the whole, it had 12 or 24 subdivisions. (Özdural, 1988: 113)

The module and the grid

From earlier studies (Oikonomou, 2007, 2009), it was seen that the rooms (oda) usually have a square plan with dimensions 5x5 or 6x6 cubits. The hall (sofa) has a rectangular plan with its small dimension (width) equal to 3, 4, or 5 cubits. When the hall results from symmetrical repetition, its width is equal to 7 or 8 cubits (2x3.5 or 2x4). The sizes of the oda and sofa are usually combined resulting in many different, possible variations. It should be noted that in houses with large odas with dimensions 6x6 cubits, the sofa's width is never smaller than 4 cubits. The same applies to four-room houses with an inner sofa, even when the odas are 5x5 cubits. In general, from the research presented in this paper, it can be seen that there is a tendency to use whole multiples of the cubit.

Concerning the placement of windows, it should be noted that the module is equal to the width of the openings. As a result, in an oda with dimensions 5x5 cubits, the windows are placed either in intervals of 1 cubit or in intervals of 1/2 a cubit. In the first case, two windows are placed on each façade, whereas in the second one, each façade has three windows. (Fig. 2)
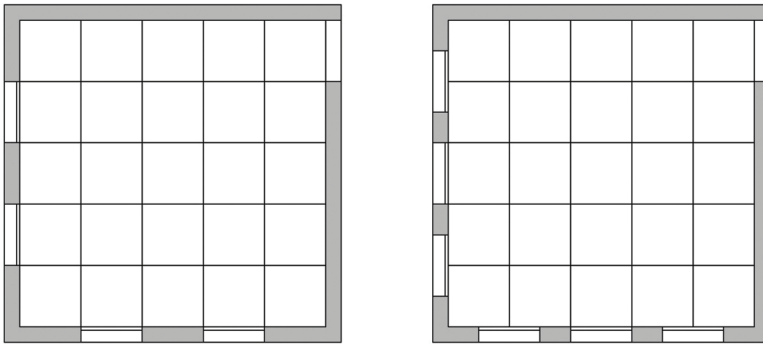
Figure 2. The placement of windows according to the constructional and functional module

The basic metric models

The metric models, which can be found in the architecture of northern Greece, as well as in the urban centres of the wider Balkan area, are possibly based on plans that existed in Istanbul. [5] These plans were drawn on a grid paper with a module based on the architect's cubit and at a scale of 1:48. (Cerasi, 1988: 93) The module is related to the dimensions of the spaces and to the spacing of the structural elements. In the earlier designs, the walls are depicted in great detail, while in the more recent ones, the walls are depicted with one single line and the decorative elements in great detail. (Cerasi, 1988: 93, pictures 1 and 2)

In the architecture of northern Greece, the two, most common metric models that are observed are:

  a) The house with odas of 5x5 cubits and sofa with a width of 3 cubits. (Fig. 3)
  b) The house with odas of 6x6 cubits and sofa with a width of 5 cubits. (Fig. 15-17, 20-24)

The first model is usually used in houses with two odas and a sofa, whereas the second one in houses with four odas and an inner sofa.

The following models are also commonly found:

  c) Houses with odas of 5x5 cubits and sofa with a width of 4 cubits. (Fig. 9-12)
  d) Houses with odas of 6x6 cubits and sofa with a width of 4 cubits.

The house model a-5/3/5 can be adjusted on the plot and the needs of the owner. With the subtraction of an oda, a non-symmetrical house with one oda of 5x5 cubits and a sofa of 3x5 cubits (model a1-5/3) with a total length of 9 cubits. Respectively, the doubling of the sofa leads to a house with two odas of 5x5 cubits and a twin sofa of 3x5 cubits (model a2-5/3/3/5). The total length in this case is 17 or 18 cubits, depending on the thickness of the external walls.
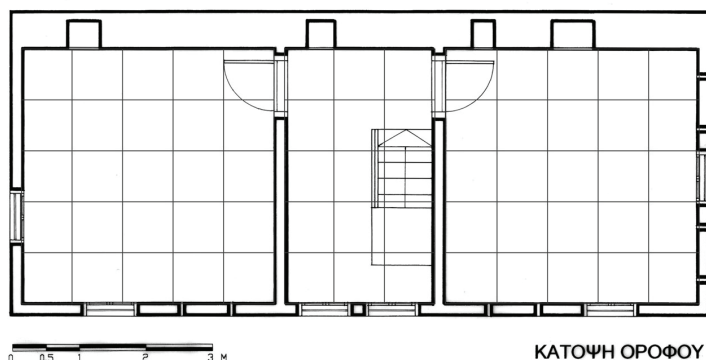
Figure 3. Plan of a house with rooms of 5x5 arşin and a sofa of 3x5 arşin

In the house model c-5/4/5, the doubling of the sofa can lead to a house with four - 5x5 cubit- odas and a twin sofa of 4x11 cubits (model c1-5/4/45). The total length in this case is 19 cubits and the width 12 cubits. (Fig. 13-14)

At this point, a standardisation concerning the total length of the building facades should be noted. Usually, the length of the house is: 14 cubits (model a-5/3/5 and c-5/4/5) or 17 cubits (model b-6/5/6). Furthermore, there are many houses with a length of 16 cubits (model c-5/4/5 and d-6/4/6). Finally, there are large mansions with a total length of 21 or 23 cubits (model f-6/8/6).

This standardisation is closely related to the standard thickness of the walls. For instance, a house with two odas of 5x5 cubits, a sofa 3-cubits wide and light-weight timber-frame walls of 19 cm (1/4 c.) has a total length of 14 cubits (5+3+5+1), whereas a house with two odas of 5x5 cubits, a 7-cubit wide hayat, thick exterior walls (57cm – 3/4 c.) and light-weight interior walls has a total length of 19 cubits (5+7+5+2). In conclusion, the choice between thick or light-weight walls defines the final dimensions (length and width) of the house. (Fig. 4)

ΚΑΤΟΨΗ ΟΡΟΦΟΥ
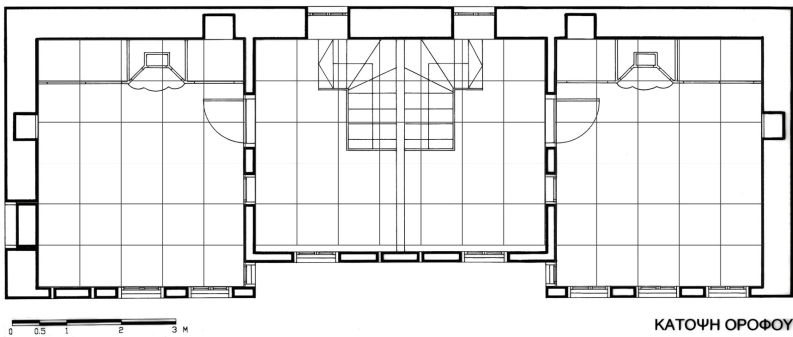
Figure 4. Plan of a house with rooms of 5x5 arşin and a hayat of 7x5 arşin

Finally, it should be noted that the metric system of the architect's cubit is also applied on the building facades, where, similar to the building plans, a standardisation of sizes is also observed. The total height of the houses, without the roof, is usually 7 cubits. Nevertheless, there are many houses with a height of 8 and 9 cubits, which have a raised ground floor. The upper storey height is 4 or 3.5 cubits, while the ground floor height is 3.5 or 3 cubits. These dimensions correspond to the exterior dimensions of the spaces, the dimensions of the structural elements and, consequently, to the dimensions of the facades. Finally, the upper storey windows have a sill height of 1 cubit and a clear height of 2 cubits, whereas in the ground floor, they have the same sill height, but a total height of 2 cubits including the cornice. In this way, the placement of the openings on the facades is characterised by a relationship of a-2a-a, where a, is equal to the window's width and the sill height, and 2a, to its height. (Fig. 5)

Figure 5. Façade of Chatzitzotzas Mansion in Florina. The upper floor height is 4 arşin and the ground floor height is 3,5 arşin

The use of triangular tracing

The metric models, which are analysed, help the standardisation of the construction of the traditional house. Most of the presented buildings have a fully rectangular plan. At the same time, the constructional and functional module is applied accurately, not only in the placement of the basic structural elements and the openings, but also in the dimensions of the spaces. All the above lead to the conclusion that before the construction of the house, certain basic architectural tracing, which assumes basic knowledge of geometry, took place.

For the tracing of the rectangular outline of the house and its basic walls, the Pythagorean Theorem with the basic right-angled triangles 3-4-5 and 5-12-13 [6] is applied. The 3-4-5 triangle can produce the triangles 6-8-10, 9-12-15 and 12-16-20 with the multiplication of its sides by two, three and four respectively, whereas the 5-12-13 triangle can be used as its half (2.5-6-6.5). Furthermore, the use of circular auxiliary tracing can not be ruled out, especially for houses with odas of 5 cubits and a sofa of 3 cubits. The numbers 5-3-5 are related to the subdivision of a line with a length of 13 into two parts with lengths of 8 and 5 (extreme and mean ratio) and the Fibonacci series. (Konstantinidis, 1961: 190-191)

The following diagrams include observations concerning the various metric models and their way of tracing. In this way, the relationship with the above-mentioned, characteristic right-angled triangles is investigated and conclusions concerning the possible tracing of the spaces of the houses and their design can be drawn. Finally,

the possible influence of the characteristic 3-4-5 triangle in the placement of the diagonal structural parts of the timber frame and in the form of the small pediment on the main facade is also investigated. The fact that the diagonal elements are in many cases placed at an angle of 53° and that the pediment often has a slope of 37° lead to the conclusion that this triangle [7] might have also been used in the construction of the facades, apart from the tracing of the plan. (Fig. 6)
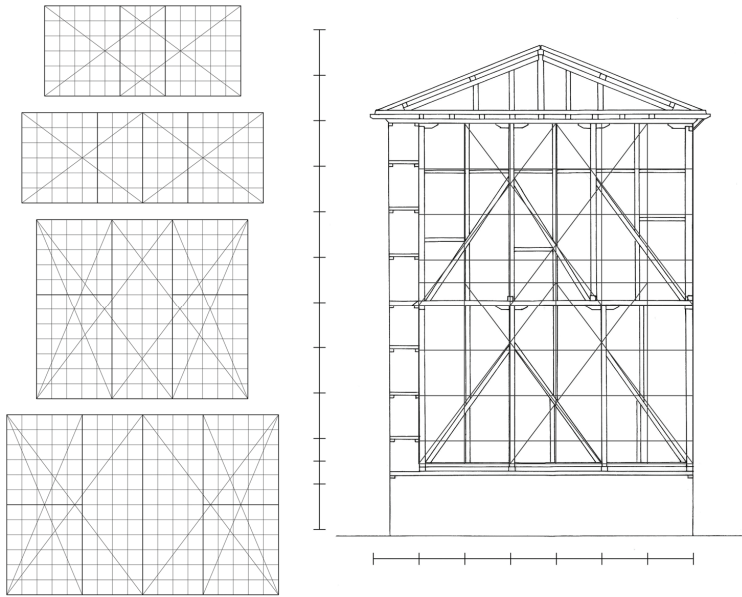
Figure 6. Use of the module and basic triangles 3-4-5, 6-8-10, 9-12-15 and 5-12-13 in the tracing of the basic model plans and in the construction of the timber-frame structure

Building typology

The house types that are found in urban centres differ significantly from those in rural settlements, not only in their development through time, but also in their basic structure. The development of urban types is parallel or later than this of rural types, while it is not always linear and can be more intricate. We could talk about a synthetic design process, which is dictated by economic or spatial reasons. The transition from simple to more complex types is achieved with the addition (multiplication) of spaces during the 18th and early 19th century. (see Kuban, 1995: 105) Nevertheless, during the second half of the 19th century, there are house plans, which derive from the reduction of the number of spaces, namely the subtraction of one oda, from a closed, complete type, such as this of the house with the central sofa.

The master-builder proposes the application of the building type, which is appropriate not only to the owner's economic situation and needs, but also to the size of the plot, which usually in the urban centres has a limited street front. These parameters lead to the adjustment of the basic model type with the subtraction of living spaces, and as a result variant types, which can be considered, for example, as the two thirds (2/3) of a complete and established type, occur. In other instances, the repetition of an element, such as the sofa, leads to larger, twin-type houses. (Fig. 7)
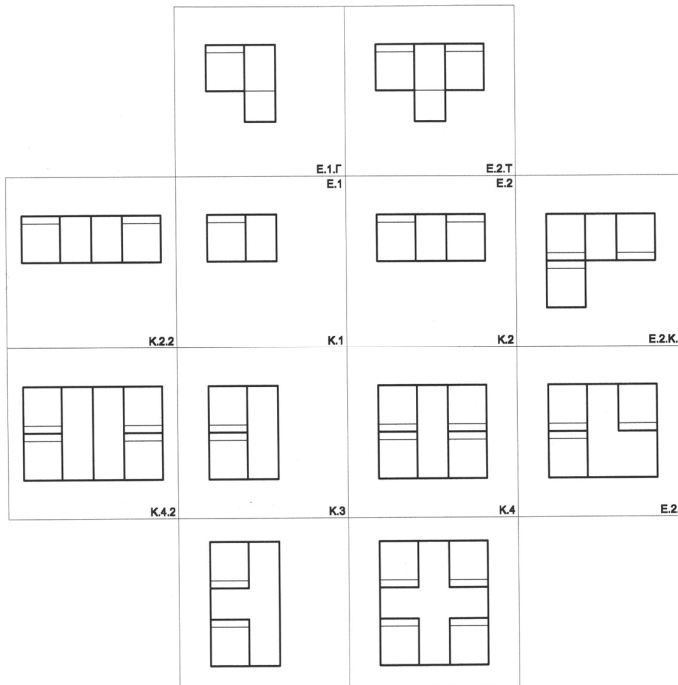
Figure 7. Typological considerations for the traditional houses of 19th century

Building construction

The light-weight walls of the upper storey (çatma) have a small thickness (19 cm) and are formed by a complex timber frame, which is filled with adobe bricks and, in some cases, small stones or fired-clay bricks. The basic, vertical structural elements (direk) are positioned in the corners of the spaces and between the openings, in regular intervals of about 150 cm (2 cubits). In between, horizontal elements are placed at heights of 75 and 225 cm (1 and 3 cubits). This leads to the creation of large and small frames. In the former, openings with a width of 75 cm (1 cubit) are placed in regular intervals relative to the dimensions of the interior space. In the latter, smaller vertical elements are placed over and under the window. Finally, in all the frames,

diagonal elements of triangulation are placed in order to increase the inflexibility of the structure.

The constructional grid of the main façade is directly related to the plan and presents a great interest. The basic structural elements are always placed at regular intervals, while the windows are placed symmetrically to the interior space. In this way, in the upper storey of a typical house with odas with an interior dimension of 5 cubits (379 cm) and an exterior of 5.5 cubits (417 cm), the four basic direk are placed at 1.75-cubit (133 cm) intervals, whereas the three openings are placed at 0.5 cubit (38 cm) intervals. Similarly, in a typical house with upper-storey odas of 6 cubits (455 cm) interior and 6.5 cubits (492 cm) exterior dimensions, the four basic direk are placed at 2-cubit (152 cm) intervals and the three openings at 0.75 cubit (57 cm) intervals. (Fig. 8)

The structural elements of the ground floor are usually thick walls made of local stone or adobe bricks. These walls are 57 to 75 cm thick (0.75 to 1 cubit) and have an average height of 265 to 300 cm (3.5 to 4 cubits) and comprise horizontal structural wooden elements (ties) at intervals of 75 cm (1 cubit). This construction is typical in most towns and rural settlements. Finally, it should be noted that in Florina, where a local structural system exists, the ground floor walls of increased thickness include vertical structural elements (direk) at regular intervals (4, 5 or 6 cubits) following the structural module and corresponding to the interior partition walls. On the upper storey, the direks are placed in the corners and the middle of every space (at 2, 2.5 or 3 cubit intervals). The main reason for the development of this system is the fact that the construction material (local river stone) is relatively weak and the underground is unstable because of the river bed.
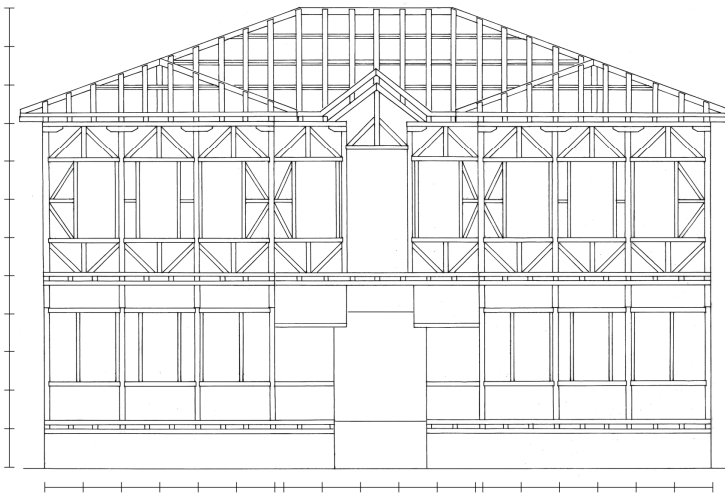
Figure 8. Typical construction of a house in Florina, Northern Greece

PRESENTATION OF THE CASE - STUDIES

The selected examples are houses that belong to two building types (house with an inner sofa and house with a hayat and eyvan). Nevertheless, the application of the module on the plans and the subsequent dimensions of the spaces (sofa, secondary rooms and eyvan) reveal that, the basic design and the tracing are influenced by the building type with a central sofa. For comparison reasons, the last example is a large mansion with a central sofa.

Bochkaris Residence in Ano Kranionas, Korestia

The Bochkaris residence is a three-storied house (two storeys and a mezzanine), built around 1910. Its building type is that with an inner sofa and two eyvans resulting in a T-shaped sofa. The dimensions of all the odas are 5x5 cubits, while the sofa and the eyvans have a width of 4 cubits. In all the above dimensions, the thickness of the walls is included. The tracing of the outline is based on the triangle 10.5-14-17.5 (transformation of the triangle 3-4-5). (Fig. 9-10)
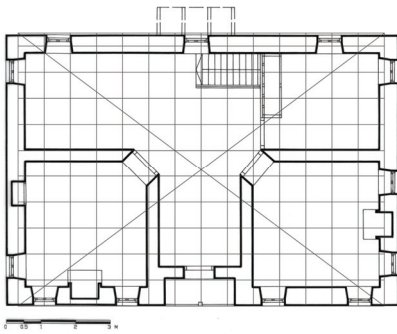
Figure 9. Upper storey plan of Bochkaris Residence in Ano Kranionas, Korestia
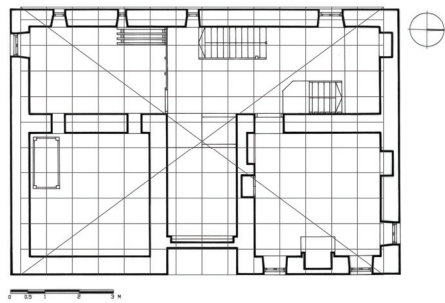
Figure 10. Ground floor plan of Bochkaris Residence in Ano Kranionas, Korestia

Chatzitzotzas Mansion, Florina

The Chatzitzotzas Mansion is a two-storied house with an inner sofa built around 1875. On the ground floor, the dimensions of the odas are 5x5 cubits and of the secondary rooms are 5x4 cubits. The sofa has a size of 4x10 cubits. It is noted that the width of the secondary rooms is equal to that of the sofa. The tracing of the ground floor is based on the triangle 10.5-14-17.5 (transformation of the triangle 3-4-5). On the plan of the upper storey, it can be seen that the tracing follows the triangles 5-12-13 and 9-12-15. (Fig. 11-12)

Figure 11. Upper storey plan of
      Chatzitzotzas Mansion
      in Florina
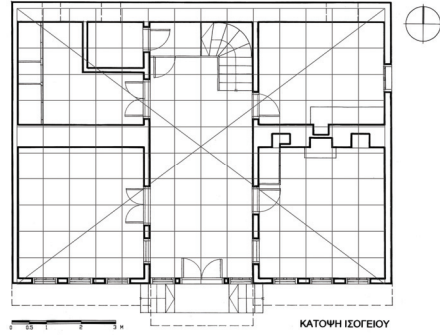
Figure 12. Ground floor plan of
      Chatzitzotzas Mansion
      in Florina

Anthopoulos Mansion, Florina

The Anthopoulos Mansion was a large, two-storied house with a twin inner sofa built during the last quarter of the 19th century, of which today, only the eastern half remains. On the ground floor, the dimensions of the odas are 5x4.5 cubits and of the secondary rooms 5x4 cubits. The sofa has a size of 4x10 cubits. It is noted that the width of the secondary rooms is equal to that of the sofa. On the upper storey the dimensions of the odas are 5x5 cubits, while the sofa has a size of 4x11 cubits. The tracing of the ground floor is based on the triangles 5-12-13 and 9-12-15. (Fig. 13-14)

Figure 13. Upper storey plan of
      Anthopoulos Mansion
      in Florina
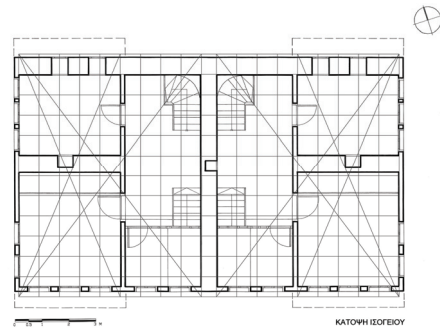
Figure 14. Ground floor plan of
      Anthopoulos Mansion
      in Florina

Golitsis Mansion, Oxia, Mount Vitsi

The Golitsis Mansion is a two-storied house, which was reconstructed on 1914 on the remains of an initial house built on 1873 that was destroyed by a fire at the beginning of the 20th century. The original house was symmetrical with four rooms and an inner sofa, while in the reconstruction, only the two thirds (two rooms and a sofa) of the initial plan were realised. On the ground floor, the odas have a size of 5x5 cubits and the secondary rooms a size of 6x5 cubits. The thickness of the exterior walls is 1 cubit. On the upper storey, the dimension of the oda are 5x5 cubits, of the room 6x5 cubits and of the sofa 5x12 cubits, including the walls. The tracing of the outline is based on the triangle 12-16-20 and the tracing of the sofa on the triangle 5-12-13. (Fig. 15-16)
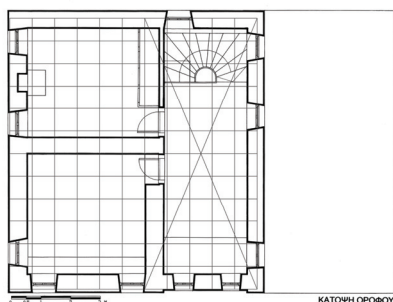
Figure 15. Upper storey plan of Golitsis Mansion in Oxia, Mount Vitsi
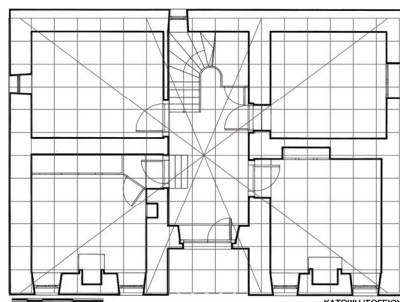
Figure 16. Ground floor plan of Golitsis Mansion in Oxia, Mount Vitsi

House in Asklipieion, Trikala

This house is two storeys high and was built in the second half of the 19th century. It has three rooms and an L-shaped hayat (a hayat with an eyvan). The two odas of the upper storey have a size of 6x6 cubits, whereas the width of the third room (6x5) is 5 cubits, equal to the width of the eyvan. In this way, the hayat has a size of 12x12x5 cubits. The tracing of the outline is based on the triangle 12.75-17-21.25 (transformation of the triangle 3-4-5) and the tracing of the sofa on the triangle 5-12-13. (Fig. 17)
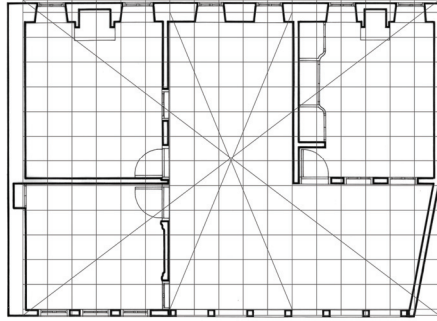
Figure 17. Upper storey plan of the house in Asklipieion, Trikala

Grouios Residence, Florina

The Grouios Residence was a large two-storied house, build in the second half of the 19th century, of which today, only the eastern half remains.The initial house had six rooms and a large, U-shaped hayat (hayat with two eyvans). The dimensions of the rooms are 6x6 cubits, while the dimensions of each half of the hayat are 12x12x5 cubits. It is noted that the width of the hayat is equal to that of the eyvans. The tracing of the outline on the ground floor is based on two triangles 13.5-18-22.5, while on the plan of the upper storey, it can be seen that the tracing of the odas is based on the triangle 6-8-10 and the tracing of the sofas on the triangle 5-12-13. (Fig. 18-19)
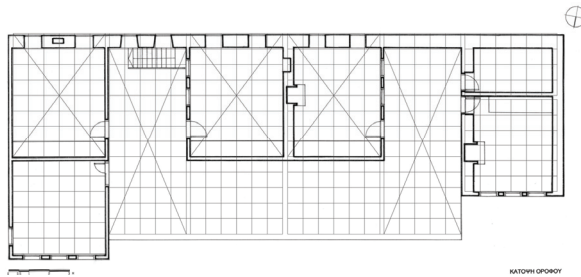
Figure 18. Upper storey plan of Grouios Residence in Florina
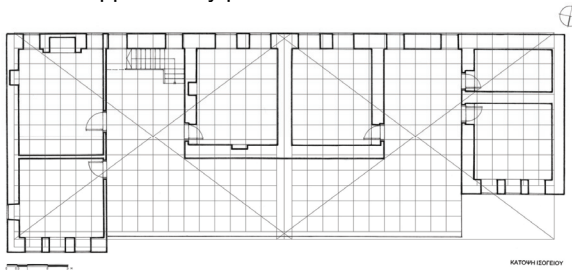
Figure 19. Ground floor plan of Grouios Residence in Florina

Fouzas Mansion, Florina

The Fouzas Mansion is a two-storied house with an inner sofa, built around 1875. On the ground floor, the dimensions of the odas are 5x5 cubits and the sofa has a size of 5x10 cubits. On the upper storey, the odas have a size of 5.5x5.5 cubits, the secondary rooms of 5.5x5 cubits, and the sofa of 5x10.5 cubits. It is noted that the width of the secondary rooms is equal to that of the sofa. The tracing of the ground floor is based on the triangle 10-10.5-14.5 (transformation of the triangle 20-21-29). On the plan of the upper storey, it can be seen that the tracing follows the triangles 5-12-13 and 12-16-20. (Fig. 20-21)
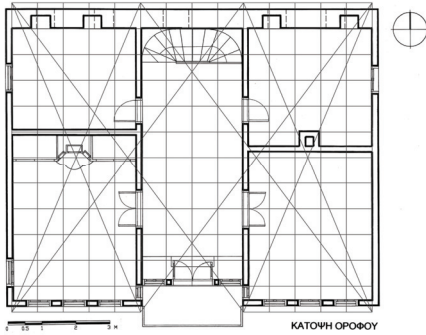
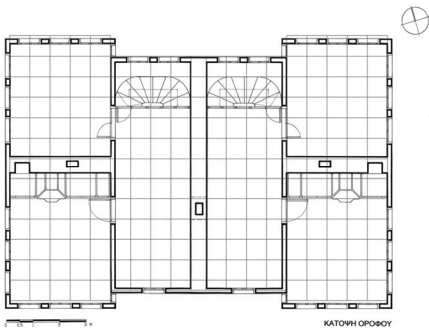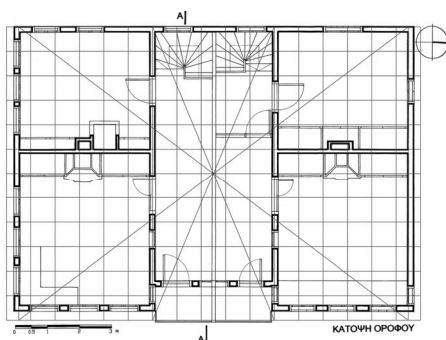

Figure 20. Upper storey plan of Fouzas Mansion in Florina
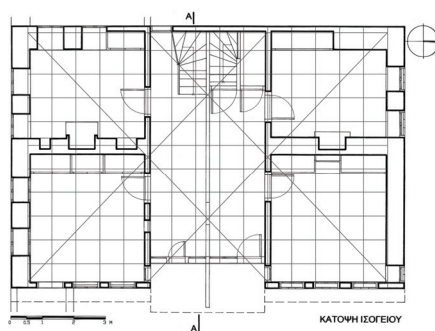
Figure 21. Ground floor plan of Fouzas Mansion in Florina

Mitousis Mansion, Kastoria

The Mitousis Mansion is a three-storied house built in the second half of the 19th century. Its building type is that of the house with a central sofa. On the upper storey, the main odas have a size of 5x7 cubits, while the dimensions of the other two odas are 6x6 cubits. The sofa has a width of 5 cubits and the eyvans, which form the cross, are 4 cubits wide. The outline of the mansion is basically a square with dimensions 17x17 cubits (model 6-5-6). The tracing of the basic walls is based on the triangles 5-12-13 and 12-16-20. (Fig. 22) The same tracing can be seen on the plan of Papaterpos mansion (model 6-5-6), while on the Vergoulas mansion (model 7-6-7) the tracing follows the triangles 6-8-10, 5-12-13 and 20-21-29. (Fig. 23-24)
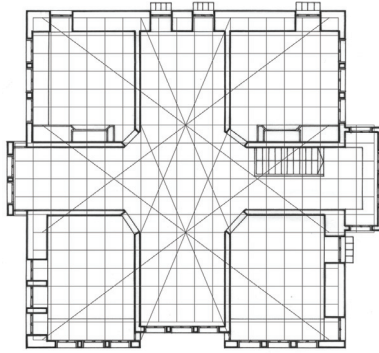
Figure 22. Upper storey plan of Mitousis Mansion in Kastoria Plan
redrawn from Papaioannou (2003: 151)
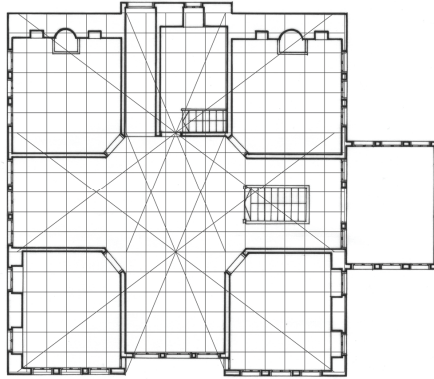
Figure 23. Upper storey plan of Papaterpos Mansion in Kastoria Plan
redrawn from Papaioannou (2003: 151)
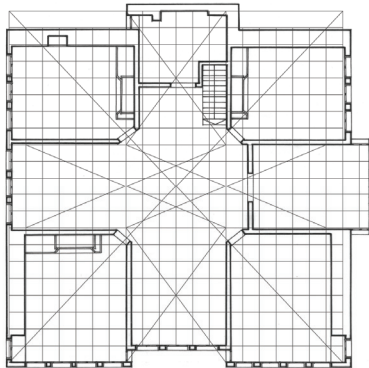
Figure 24. Upper storey plan of Vergoulas Mansion (1857) in Kastoria

CONCLUSION

In this paper, the application of metric proportions and tracing has been investigated in selected examples of 19th-century, traditional houses in Northern Greece. In this way, certain metric models and housing types that were commonly applied are identified. The basic house type with a central sofa is adjusted to the size of the plot and the demands of the owner resulting in smaller houses with two or four odas and an inner sofa with or without eyvan. The two basic metric models are the 5/4/5 and the 6/5/6.

Further research should include a larger number of houses, pertaining to different building types. In that way, the principles and the proportions of the traditional house of the Ottoman Period can be derived and similarities and differences between the different urban centres can be noticed. The on-going research showed that in the various towns of Northern Greece, certain metric models were largely applied and differed from town to town.

In Kastoria, during the 18th century, the building type with a hayat and eyvan, and the same plan (model 6/5/6 with an 8-cubit deep hayat) is applied to more than one cases (Sapountzi and Tsiatsapa Mansions [8]). During the 19th century, in Kastoria, the house type with the central sofa (Papaterpos, Mitoussis and Vergoulas Mansions) follows the model 6/5/6.

The same model and the model 5/4/5 are also found in Florina, Trikala, Eratyra, Veroia, Xanthi, while in towns, such as Siatista, there are mansions with an inner sofa of the second half of the 18th century (Nerantzopoulos, Manoussis and Poulkidis Mansions), which follow a completely different metric model (7/7/7). From the above, it is seen that the choice of certain basic models - prototypes is directly linked to the application of the predominant building types during the different periods and in the different areas (type with hayat and eyvan, type with an inner sofa and type with a central sofa) and largely affects the form and the proportions of the houses.

ENDNOTES

[1] Cerasi (1988) cites (Berbenliev, Partasev, 1963), as well as his personal communications with P. Berbenliev

[2] Cerasi (1988: 95) also notes that the use of long leather stripes for the measuring and tracing on the site encourages circular and diagonal tracing.

[3] See also Jouven (1961: 23, 24), for the council concerning the construction of the Milan Cathedral *ad quadratum* or *ad triangulum* (1391), as well as Jouven (1951: 25), for the principle "*circle-square-triangle*" by the Bauhutten building guild in Germany, according to Ghyka (1931), Le nombre d'Or.

[4] This investigation departs from the approach described by Cerasi (1988) and Stoichkov (1977).

[5] See also Eldem (1955: 223), who mentions that it is very likely that the initial designs on which the basic building types were based were designed by capable Turkish architects.

[6] See also Konstantinidis (1961: 22, 112) concerning the construction of right angles with the application of the Pythagorean Theorem in the Egyptian and Indian architecture, respectively.

[7] It is noted that $\tan 53^{o} = 4/3$ and that $\tan 37^{o} = 3/4$, approximately.

[8] These two mansions have a similar plan, which is applied in a symmetrically opposite way.

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STATUS OF TURKISH HOUSE IN CONTEMPORARY LIFE

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ABSTRACT

Having been formed according to the requirements of the past, the most problematic issue of Turkish house today is the fact that serving areas are located outside of the houses. Another issue is that electricity and heating infrastructure has to be fixed without damage to historic fabric of the house.

Today, traditional family has been replaced by nucleus family structure composed of mother, father and children. As a result of this, a controversy comes about between the resident and traditional Turkish house stemming from socio-cultural factors. As social life changed, home economics such as weaving has come to an end while preparing to winter, thereby stocking, usage of cellar and storage room has lost their importance. Woman gained their place into the social life as of 1930s in city life and from 1950s onwards on rural life which gave an end to the importance of strict separation (haremlik-selamlık) between women and men in social life.

Keywords: Traditional, Turkish House, Protection

INTRODUCTION

Being a special figure of our cultural life, the Turkish house was formed by Turkish life style, topographic composition of respective regions, natural resources, professions coming from regional fertility and by traditions. All in all, the Turkish house is the sum of these systems.

Protection of our cultural assets and transferring it to future generations is imperative for historical continuity. Turkish house has to be sustained for it reflects the technique and social life of the era it was constituted and that they are too few so far. Rooms have been multi-purpose in traditional Turkish house. Serving for cooking, dining and eating purposes during the day, these rooms have even turned out to be bedrooms when beds were pulled out of gardropes in the evenings. Stove is used for heating as well as cooking. In some cases, there are small sections within cellars, called "gusülhane", for taking shower and ablution.

DISCUSSION

One of the most evident features of Turkish domestic architecture is that houses are away from grandeur, unadorned, dimentionally corresponds to human use and functional. Houses are generally one or two storeys. When a residence is designed as one storey, this floor is ascended from basement so that life area is protected from humidity and noise. At the same time the needs for airing and lightening are eliminated. Generally basement floors, built with the use of stone, are deaf for the intimacy of private family life. Because of similar worries, the connection between the house and the street is tried to be cut with the walls of garden. Basement floors which are named as Taslık (Courtyard / Entrance Hall) as well, are used as stable, grain stores in some regions where agricultural production is intense. This part is generally service section and prevalenty used as kitchen. Basement floor which is separated for sections related to general services and upper floors allocated as life areas are not congruent. Upper floors where rooms and sofa take place open to outer world, in contrast to basement floor, with Windows, flanks and cantilevers.

Today, traditional family has been replaced by nucleus family structure composed of mother, father and children. As a result of this, a controversy comes about between the resident and traditional Turkish house stemming from socio-cultural factors. As social life changed, home economics such as weaving has come to an end while preparing to winter, thereby stocking, usage of cellar and storage room has lost their importance. Woman gained their place into the social life as of 1930s in city life and from 1950s onwards on rural life which gave an end to the importance of strict separation (haremlik-selamlık) between women and men in social life.

Having been formed according to the requirements of the past, the most problematic issue of Turkish house today is the fact that serving areas are located outside of the houses. Another issue is that electricity and heating infrastructure has to be fixed without damage to historic fabric of the house.

ROOMS

In domestic design of Turkish houses, rooms appear as the main sections. The most important component of Turkish house is 'room'. The basic principals taken into consideration in using square or rectangular plans close to square to form rooms are correspondence of human dimensions and functionality and to allocate sufficient space to the elements which are necessary for the life style (such as sedir, cupboards, built-in cupboards, ocak, gusülhane, shelves, etc.)[7]. It is interesting that until the settlement of European life style in Anatolia, there were no furniture in rooms and instead of that, mobile elements and cupboards in which these elements could be kept. This situation reflects the tradition of Migrant and Çadır as well as the reflection of the idea of using the same space for different purposes. The existence of this idea is determined on a border stretching from Anatolia to Japan. In styling of living room and especially in main room of Turkish houses it is possible to see the influences of Çadırs named 'Yurt' [8]. Migrant residence idea of the Turkish which becames concrete with the use of Çadır has been living, even withdrawing gradually, in open rooms and sofas on the shores of Mediterrane, in glass and covered sofas of North and Middle Anatolia [9]. The numbers of rooms in houses change according to

the size and financial structure of the family. One of the rooms of the house is bigger and more decorated. This room is called 'başoda' 'Main Room'. Projections to outside and windows provide aesthetical value to these houses, on the other hand the main purpose of them is the desire for function such as heating, lightening and airing.

Figure 1. Birgi Çakırağa House

Figure 2. Main Room

HEATING

Ocak is the most widely used heating system in a Turkish house. In each room there might not be an Ocak, then mangal or tandır were used. Apart from them, in houses which had stables down the breathing and manure of animals are benefited for heating, in later periods stoves were started to be used and especially the pipes of stoves coming out of windows destroyed historical Turkish houses visually and also physically.

Today, the use of natural gas has lessened the problem of heating and it is the advantage for a historical Turkish house that it does not need a depot. Airing system on ceilings should not been preferred since it deteriorates ceiling plating.

When a Turkish house is adapted to contemporary life, it should not lose its specifications. During restoration, wooden parts should be built as wooden again. It is not a solution to use cement and steel then covering them with wood. In lightening, precautions should be taken for fire and the cable used should be isolated. Besides, instead of ceiling lightening, the usage of wall lights or devices such as lights with legs give the historical structures less damage.

When a Turkish house is restored in order the materials can be life-long, material selection should be done consciously, contemporary protective materials should be used, these materials protect when applied on wood, stone and metal things and should protect it without entering any reaction with it, should not change its specifications such as colour, smell and tissue and afterwards, periodical maintainance should be done.

Figure 3. Birgi Çakırağa House Main Room   Figure 4. Stove (Ocak)

Figure 5. Fire alarm On the Ceiling   Figure 6. Ceiling Without Lighting Device
(Which is a Right Move to do in This Restoration)

DAMP SECTIONS (KITCHEN, BATHROOM, ETC)

Generally in Turkish houses the kitchen, the spaces such as lavatories, the washing cabinets, the bathrooms related to clean and dirty water have became important problems in designing. Because toilets are in the garden, they are uncomfortable. In the period when there were no contemporary installation equipments (pipes, taps, valves) and drinking water network, it was not possible to bring water to damp areas and to upper floors. In case the house has its own fountain, well or cistern, it was possible to use water from these sources.

In houses, in order to store daily water, big copper buckets and clay jugs which could be carried by hand were used.

Lavatories were uncomfortable since they were in the garden.
Dirty water installation was not such a big problem like clean water. Dirty waste water was connected to either contaminated hollows or a near water spring or city sewage system.

Figure 7. Daylight and Ceiling in The Divriği Ayanoğlu House

Figure 8. Current Use of The Room in The Divriği Yılankıran House

CONCLUSION

Thanks to technological developments, traditional Turkish house can be adapted to contemporary life today. Heating and infrastructures can be sorted out by demountable systems under floor covering. Service areas can be built without damage to house. While all these are done, continuation of cellar and dinner table system is against the biological system of today and leads to controversy between the material and the resident. On top of this, it would be misleading for the history. An architect has to take psychological, physiological and sociological requirements of today into consideration. Additionally, restored buildings should not be kept empty but should be run as estate, museum, and library as such. A building without resident is deemed to extinction.

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EVALUATION OF TRADITIONAL BODRUM HOUSES IN TERMS OF ADAPTABILITY FOR MODERN LIFE

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ABSTRACT

Today, Bodrum is a coastal settlement in Western Anatolia whose past extends to the Kar and Leleg civilizations of 5000 years ago. Life has continued in Bodrum until today although many different civilizations have settled in that region. Ruins of architectural buildings that are cultural riches of every historical period were met in Bodrum City that has become the capital city of Karias during the Antique Period and called as Halikarnassos. The civil architectural products especially constructed in the recent century are still alive in the present time. The ancient houses of the city officially registered as cultural riches in 1970s exhibit considerable differences with the ones of Central Anatolia in terms of space design of Anatolian House Culture. The Traditional Bodrum Houses qualified as cultural riches and considered in the wholeness of the urban site area present the space utilization of the residents depending on the climate, economy, culture etc. conditions of the region. The city center has been formed by Türkkuyusu Neighborhood established by the people of Zephyrion Island in 1600s which has an organic texture characterized with dead-end streets and Kumbahçe Neighborhood established by the immigrants from Adalar in the last periods of Ottomans who has resided as house-garden-house sequences to the streets perpendicular to the sea.

The Traditional Houses of these neighborhoods were investigated in three groups, Tower Houses, Mezzanine Houses and Khios Houses. Tower and Mezzanine Houses have been constructed with vertical and horizontal prism spaces without using more walls inside which have been connected to each other with stairs and horizontally divided with wooden at different elevations. The Tower Houses have been mostly designed for defense purposes. Khios Houses have been formed by constructing two floors each of which has the plan of two rooms and one hallway. The roof structures of the houses have been fringed tile roofs with corbelled profile. The Traditional Bodrum Houses of Poverty Period sustained up to 1970s. However, they had problems in adapting new life style of the region which became effective by the rapid development of the region in parallel to the developing indoor and outdoor tourism and the pressure due to new constructions after 1970s. Since the existing traditional houses were not sufficient enough in terms of space and structure, they lost their distinctive status due to not making any improvement on them or reconstructing them after demolishing. City planning studies could not provide the reliable transformation.

On the contrary, 350 of 773 registered houses were eliminated from registration, the vertical and horizontal construction density was increased without analyzing house characteristics, the traditional character and the texture property of the site were weakened by the artificial

construction type formed with built-in white cubes and untiled roofs. In the present time, the urban texture formed with Traditional Bodrum Houses goes into deterioration together with the distinctive lines of the houses. The transformation period of The Traditional Bodrum Houses existing inside the urban site area will be discussed with this paper that will be also supported with visual materials and include the findings of the studies in the context of Preservation Purposed Revision Public Works.

Keywords: Traditional Bodrum Houses, transformation, adaptability, reconstruction, deconstruction

INTRODUCTION

Historical environments must be preserved as a result of the speed change coming with urbanization because they have the quality of documents determining the urban and architectural style, construction type, economical, social and cultural lives of the societies in the times they were built. Therefore while the originality value, cultural and historical values of the areas to be preserved are thought. It is tried to be produced opportunities directed at increasing the economical income of these areas. Today we see that the historical textures lost their conceptual quality because of the conditions, the original qualities of old buildings architecture are demolished by changing, making additions, destroying and building new ones and as a result of unaesthetic buildings with poor quality the areas were turned to be debris areas. The conservation of historical environment is depended on keeping the past architectural and natural values of this environment alive.

The conservation of the main works reflecting the past cultural of the society built to meet the needs of the society during the civilization history and urbanization happens by giving a new function suitable to the present conditions to the building.

Especially in historical cities, serious changes occur in historical textures because of tourism. In time historical city textures are damaged almost disappeared because of the income pressures directed at tourism. The textures have problems like physical worn out and not meeting present needs, so the interventions against these problems should be the interferences directed at regaining the historical textures and restoration studies.

Bodrum peninsula showing important differences from other regions with its location, natural and cultural qualities, is a typical example including these determinations. Bodrum was changed for the last 30 years with tourism and it is an important settlement from this point. Because of the tourism pressure, the places in historical environment have been equipped with functions for tourism, original space concepts building-parcel-texture relations change with the additional buildings.

The aim of the study is to discuss the negative effects of the tourism movement started from 1970s on the original structure/texture of registered traditional Bodrum houses.

In the scope of discussion:

1) The quality of the changes and transformations of Traditional Bodrum city settlement texture and houses because of the tourism will be revised.
2)   The effect of planning studies applied in the frame of conservation applications on the subject will be examined.
3) The analyzes of the spatial effect of tourism on the buildings which have been remained standing by the means of the comparison between their past and present situations will be done.

DEVELOPMENT PROCESS AND SETTLEMENT PROPERTIES OF BODRUM CITY FROM PAST TO PRESENT

Bodrum is a coastal city located on the west of Muğla and has a permanent population of 32227 people according to GSI (Government Statistic Institute) data in 2000 (Figure 1) (1).
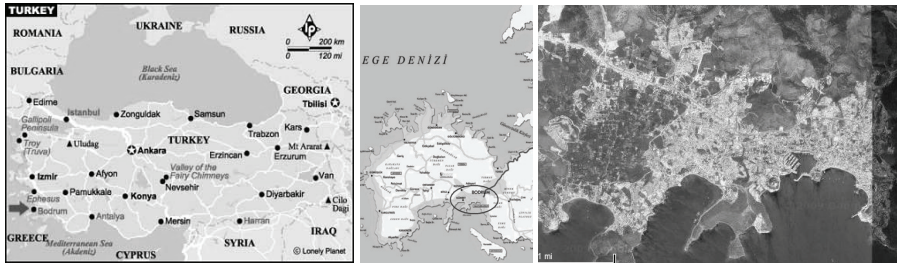
Figure 1. The Location Of Bodrum (Halikarnassos) City in Turkey And Its Region(2-3)

The past of Bodrum; namely Halikarnassos in ancient period, extends to Karya civilization of 5000 years ago. The most important development in the history of Halikarnassos city is that The King of Karya Mausolos moved the administration center from Mylasia (Milas of today) to Halikarnassos in 387 B.C.

With Halikarnassos being capital, Zephyrion was built in the island on the east, Salmakis castle and Mausoleion (monumental tomb) of King Mausolos were built in the peninsula on the west (Figure 2).

The city was governed by Rome Empire, Byzantine and Menteşe Seigniory between 395 – 129 B.C. Bodrum was governed by Rhodes Knights after 1300 A.C., the castle was repaired by these knights with the stones brought from Mousoleion in 15th century (Figure 3).
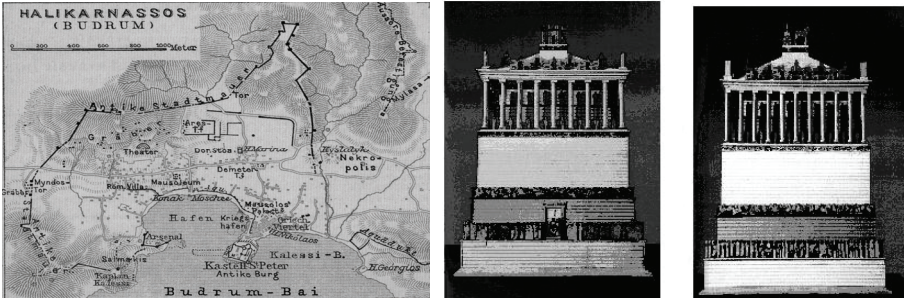
Figure 2, 3. Bodrum City (Halikarnassos) In Ancient Period Wagner And Debes Drawing (Çalışırlar, 1999) And The Restituted Mausoleion, Front And Side Elevation (Alpözen 2000)

The city was included to Ottoman boundaries in 1522 and its name was Petronium. The city stayed under the government of Ottomans until 1919 and it was occupied by Italians in 1919 – 1920. Crete Turks immigrated to the city after the Lausanne Agreement in 1921.

According to Evliya Çelebi there were only 100 houses of earth in the castle in 1600s. The first settlement outside the castle was in 18th century and there were 9 districts in 19th century. The map drawn by English Captain Spratt in 1847 was known to be valid until 1960s (Mansur and Güler 1999). According to this map the settlement was occurred as rare, free textured and with gardens around the ancient harbor (Figure 4).
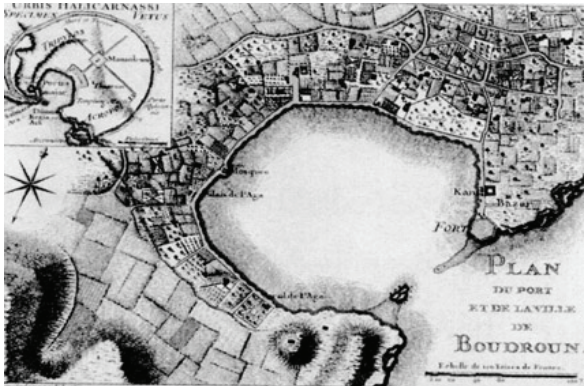
Figure 4. Bodrum Map Drawn By Captain Spratt In 1847 (Mansur And Güler 1999)

The city has an urban texture formed by rare textured houses in the gardens sheltered by tiled roofs with section eaves and Ottoman Mosques, small mosques with tiled roofs and cisterns with stone domes (Figure 5).
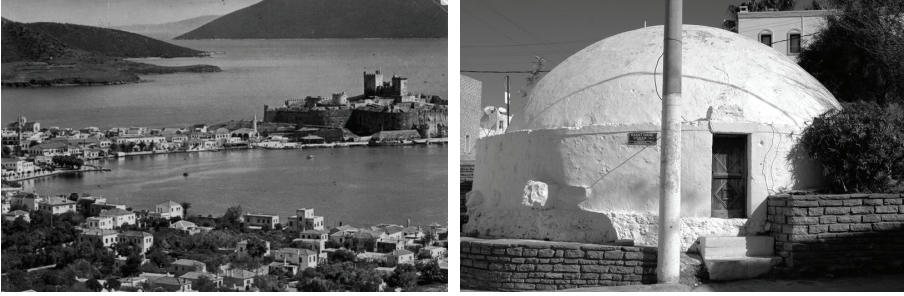
Figure 5. A Part Of Monumental Works of Ottoman Period In Bodrum Urban Site Area In 1970s And Cistern From Ottoman Period Surrounded By New Buildings. (Gündüz and Accom. 2001)

The city as a fisherman and sponger harbor with 1450 houses and 4290 people in the first years of Republic (1927) developed very slowly until 1960s (5047 people). The population of the city raised by the means of the tourism actions in 1965 to 6103 in 1970, 9799 in 1980, 20931 in 1990 (Güner 1996).

PLANNING STUDIES IN BODRUM AND RELATION WITH TRADITIONAL HOUSES

Bodrum had the municipality status in 1881. First Planning studies were started in 1940s. In this plan it was seen that because of the scattered texture of city Omurca, Kiliselik, Türkkuyusu, Kelerlik and Yeniköy were left outside of the development plan (Bodrumlu, 1946). It can be understood that the plan made by İller Bank in 1948 was not applied until 1970s as it can be seen in the traditional texture of the city in those years. If it was applied "**a new settlement texture**" formed according to "**grid island/road**" order would appear (Gündüz and accom. 2001) (Figure 6).
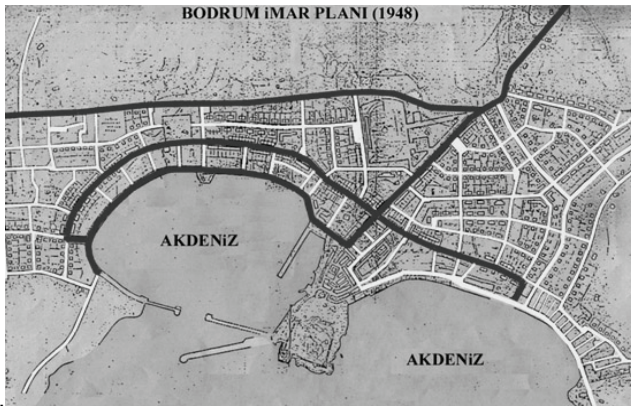
Figure 6. First Development Plan Of Bodrum (Gündüz and accom. 2001)

The environment and culture values of Bodrum which were not considered in 1948 plan were firstly considered in 1971 with the demand of İller Bank before the development plan. It can be seen in the determinations that especially the house settlement characteristics were clearly identified in urban settlement area. It was expressed that "Characteristic Bodrum Houses" were important with their texture properties (Akçura and Akçura 1971).

This plan with 1974 approval caused negative effects on urban texture as it gave permission to dense construction in tourism areas and multistory (3 storey – 9m) houses in existing 2 storey texture (Figure 7).
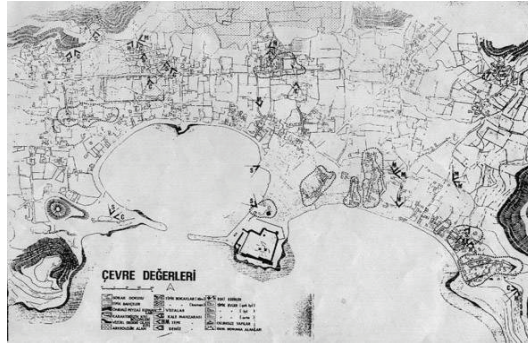
Figure 7. Bodrum Traditional City Texture In 1970s (Akçura And Akçura 1971)

1 six storey, 8 four storey and 372 three storey hotels built according to this plan negatively effects the silhouette of the city still in 2000s (Gündüz and accom. 2001). In this development although the city, which will have the population of 15000 in plan period, was planned to shelter the population of 22500 people in the area of 202 hectare, it can be seen that the pressure of this new situation on natural and cultural values was not considered sufficiently. Thus 1974 plan was cancelled by Conservation of Culture Nature Entities High Council because it brought over density and high construction to the city (Gündüz and accom. 2001) (Figure 8).

Figure 8. Bodrum 1974 İller Bank Plan, Diminished From Scale 1/5000 (B. Bardak Archive)

The first planning directed at the conservation of the cultural values formed by Bodrum city traditional house texture was done by Tourism Ministry in 1982. In this planning directed at decreasing the construction pressure inside the Ancient rampart, 240 hectare of urban site area including 773 number of civil architecture sample houses, 112 number of monumental buildings was determined within rampart and 270 hectare of area outside the rampart was opened to settlement. A part of registered buildings giving the urban site its character was unregistered in 1986, the number of civil architecture samples was decreased to 424 and the number of monumental buildings was decreased to 40 (Gündüz and accom. 2001). Thus the city lost most of its traditional character(Bakır İ. , Gündüz S. ,2007,Bakır İ. , 2008 a , Bakır İ. ,2008 b)

In the city, the tourism movement developed in 1970s and accelerated after 1980s could not be oriented by totalitarian plans. 13 additional plans were made until 2000s (Figure 9).
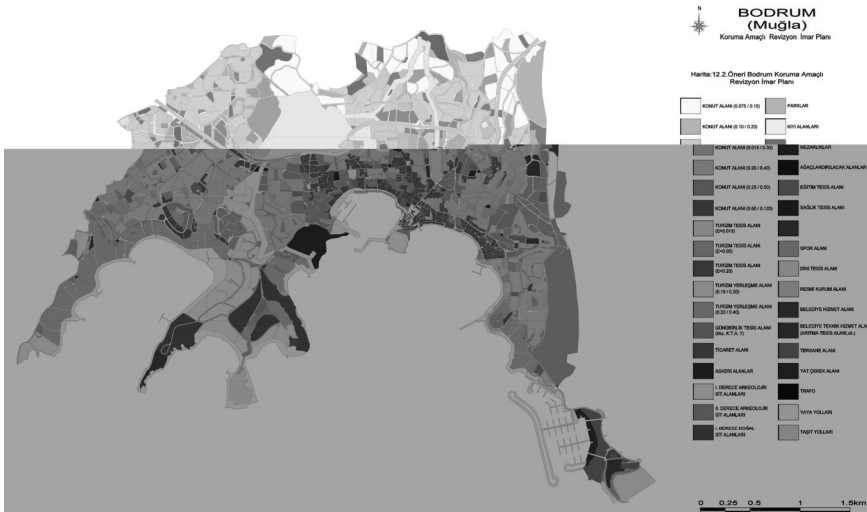
Figure 9. Preservation Purposed Revision Development Plan (Gündüz and accom. 2001)

The fastest growth in the city was observed between the years of 1982 – 2000. There was 5 – 40 % more construction then planned in parcel base construction in house and tourism areas (Gündüz and accom. 2001). The quality decreased by time in urban places and houses as a result of both the defects of the plans and the disorientation of the speedy developed tourism demands.

In an other study made in 2007, it was similarly seen that the density in existing plan of Kumbahçe and Çarşı districts was exceeded both on plot ratio and floor – space ratio levels, there was a balanced settlement in Yokuşbaşı District, the settlement was not completed in Omurca, Tepecik, Yeniköy, Türkkuyusu and Eskiçeşme

districts, and the construction was overdeveloped in Gümbet and Cevat Şakir districts (Anıl, 2007).

When the traditional plan typologies in 1970s were checked the districts in Bodrum showed differences from each other but the buildings had similarities in their sizes and qualities. These properties formed a continuity and completeness in the city. Even within this completeness it was determined that different districts of the city could be distinguished, the parts might have different textures and different characters (Akçura and Akçura 1972).

Today when the region forming the traditional texture (nuclei) of the city is examined, the Türkkuyusu settlement texture with its organic texture formed by amorphous dead-end streets and houses with gardens, The Kumbahçe house texture formed by house – garden – house sequences and the streets perpendicular to the sea and the central commerce center in between these two districts formed by lately developed decent rectangular islands can be read (Figure 10) (Gündüz and accom 2001).
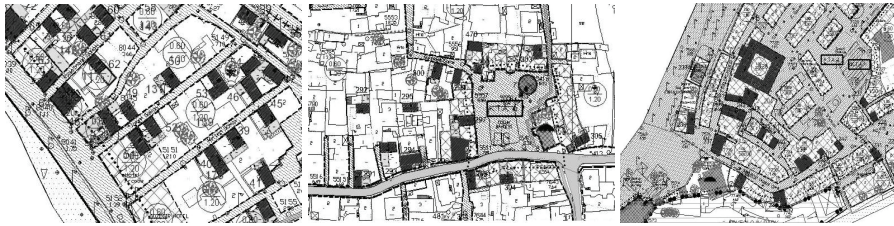
Figure 10. 2003 In KARIP, The Settlement Characters Of "Kumbahçe, Türkkuyusu and Central Commerce" In Urban Site Area (Gündüz and accom 2001).

There can be seen 3 different house types in Bodrum traditional city texture. These are Khios Houses, Mezzanine Houses and Tower Houses (Bektaş, 2004). Other types (Ottoman, Greek, etc) of houses can rarely be seen in the city (Akçura and Akçura 1972, Gündüz and accom. 2001, Anonim 2007).The distribution of the registered house types in Bodrum urban site area according to districts is given in Table 1.

Table 1. The Distribution Of Registered House Types In Bodrum Urban Site Area According To Districts

District name	Khios Houses	Mezzanine Houses	Tower houses	Other types(Otoman, Greek..)	Sum
Kumbahçe	88	0	1	14	103
Merkez	94	1	2	4	101
Türkkuyusu	108	30	17	25	180
Sum	290	31	20	43	384

Mezzanine Houses: These houses, defined as typical Bodrum house by Akçura, can densely be seen in west part namely Turk District (Figure 11 a-b) (see Table 1).

In this plan type the exterior dimensions with wall thicknesses are generally 5.00m x8.00m. Two variations can be applied according to the floor height in typical Bodrum House. According to this, first variation is one storey house with a rectangular scheme sometimes having a wooden partition for the kitchen. The two storey houses of the same type are formed by one rectangular place on both floors. In characteristic houses there is a "mezzanine" section of 1 m height in the second floorand a second balcony reached from there. The most typical property of these houses is the place used as lying place separated by mezzanine. There is a fireplace on the narrow face of these types. There is entrance door on one in three point of the rectangle. The entrance is generally on a level with the street. The name of the entrance is "lower-house". Here is used as cooking place and near the fire place there is a washing place namely "small bathroom" as buried in the wall. From the entrance it is stepped up to "living" area with 2-3 steps. Underneath of this area is used as a store. From there, it is stepped up to mezzanine with 2-3 steps. Here is the place where the beds, quilts are stored as a chest room. The ceiling height is generally 160 – 180 cm. there can be used also as lying place. Living area as the highest place has 3.00 m height, Mezzanine section has 1.60 – 1.80 m height and entrance has 2.60 – 2.80 m height (Akçura and Akçura 1972, Bektaş 1983, Gündüz and accom. 2001, Anıl 2007,).
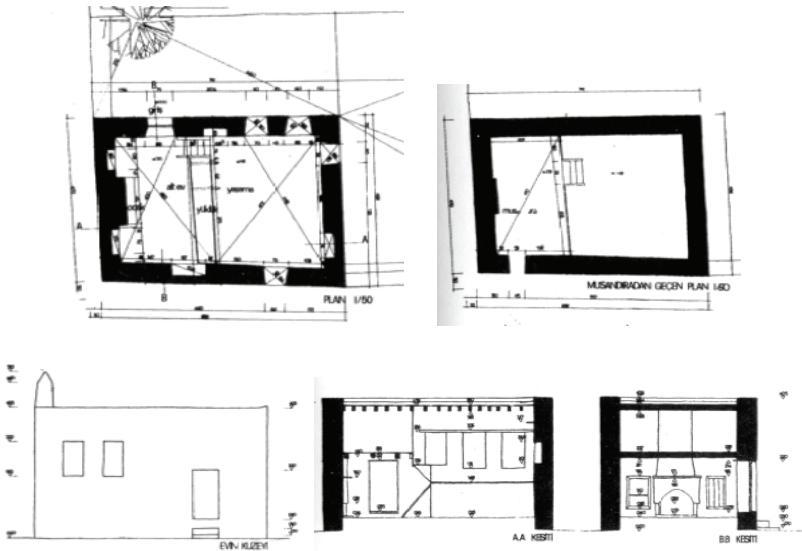
Figure 11 a. Mezzanine House (Bektaş 2004).

Figure 11 b. Mezzanina House (Gündüz and accom 2001).

Khios Houses: Akçura does not mention about Khios Houses. But they have an important place in Bodrum traditional house types (see Table 1). The exterior dimensions of these houses are similar to the ones of Mezzanine houses. Entrance is in the middle of the long side. There is a staircase on the wall against the entrance. There is one room on each two sides of the entrance. The plan arrangement is same in both floors (Figure 12). The height of the ground floor is less than the upper floor. The fireplace is on the ground floor. Some part of the rooms on the ground floor is used as cooking and eating place. In summer these are done outside. There are washing places namely "small bathroom" on both sides of the fireplace (Bektaş 1983). There can be different solutions without entrance in the middle. In this type the place is separated in to two without any entrance on the ground floor. Entrance is made from these two rooms and in the room there is staircase. The toilet is on the outside of the building in both Khios and Mezzanine Houses (Bektaş 1983).

Figure 12. Khios House (plan, section, elevation Bektaş 2004, picture Gündüz and accom. 2001)

Tower Houses: Tower Houses in Bodrum are the first building examples of Bodrum. The entrance is on the upper floor and reached by an outside staircase. In the past this staircase was built apart from the entrance and the connection was established by a bridge inside the house. On top of these houses there are teeth with sharp edges and loopholes like the ones in the castles. The sharp edged teeth and the entrance in the opposite direction to the sea shows that the plan came out because of the defensive reasons. The plan of the tower house has a shape of a square or it is near to square (4.00m,4.00mx5.00m,4.50mx4.50m) (figure13). Plan orders are like Mezzanine Houses and formed by half floors connected by wooden stairs. As there is no way to the garden the toilet is in the house (Bektaş 1983, Gündüz and accom. 2001)
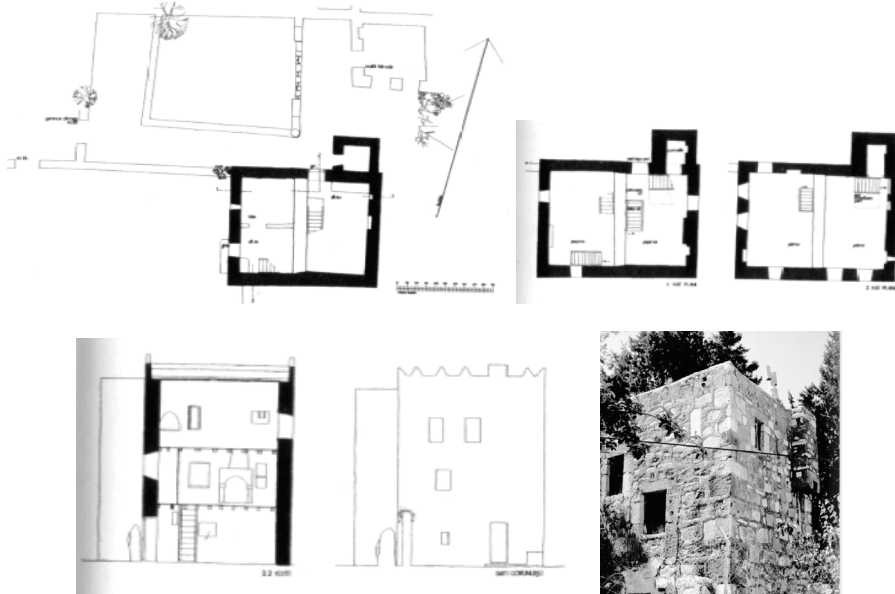
Figure 13. Tower House (plan,section,elevation Bektaş 2004, picture Gündüz and accom. 2001)

PRESENT SPATIAL AND STRUCTURAL SITUATION OF TRADITIONAL BODRUM HOUSES

There are changes in Traditional Bodrum Houses because of the economical, social and physical factors. Agriculture and fishing left their place to hotel management and tourism. The social structure is formed by the local people and the people who don't live in Bodrum but have second houses in Bodrum to come in summers. Depending on rapidly increasing international tourism the number of the bars, restaurants, hotels and pensions in the coastal area has increased. New buildings and inappropriate interferences to existing buildings increased as depending to these developments. Traditional texture has been damaged by new additions. As in new buildings the number and size of the windows in the old buildings increased. So The Traditional Houses in this historical texture began to be damaged by these spatial

transformations and changed by the addition of new places. This dense texture became denser by the construction of new buildings in the courtyards and gardens of the houses (sea figure 10) (Figure 14).
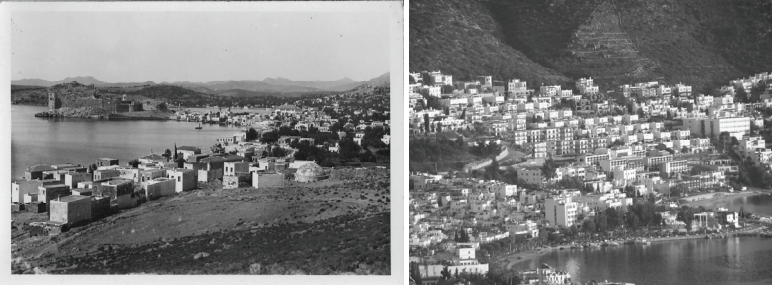
Figure 14. The Construction Levels of Bodrum Kumbahçe District In 1960s And 2000s (Gündüz and accom. 2001)

While the construction in Bodrum settlement area continued its traditional line until 1970s, after these years the developed tourism action and new comfort and place expectations were tried to be solved by constructing new buildings or making interferences to old ones.

The needed dwelling areas because of the tourism development were solved by development plans as density increase is existing settlement or forming new settlement areas.

It is written that there can not be any building larger than 120 m^2 and higher than two floors in all plans except the one in 1974, but illegal construction were seen as a result of unrestraint. The façade harmony (window, chimney, etc.) was expressed in all plans except the one in 2003. The kitchen, toilet, the bathroom were analyzed in new buildings but architectural facts providing visual and spatial sustainability were not sufficiently evaluated. There is monochrome (white), cubical and multistory monotonous dense construction in new development areas because the roofs of traditional houses were not considered until 2003 plans (Figure 15).

Figure 15. High Buildings Against The Regulations.

There is no harmonious construction with traditional environment from the points of mass, density, height, façade order and plan in new buildings in traditional environment (sea figure 10). The gardens of traditional buildings surrounded by new buildings and the traditional texture character were damaged.

The following data is obtained in a research done before 2003 about the buildings in the urban site area formed by Bodrum traditional houses:

When the buildings (registered 376 houses) are examined 48 (12.77%) toilets, 14 (3,72%) bathrooms, 30(7,98%) kitchens are placed outside (table 9.8). When the sufficiency levels of these units are examined in 50 (13,30%) buildings there is no kitchen, in 127 (33,78%) buildings there is no bathroom, in 76 (20,21%) buildings there is no toilet, in 273 (72,61%) buildings the kitchens, in 215 (57,18%) buildings the bathrooms and in 190 (50,53%) buildings the toilets are rebuilt as appropriate ones. The kitchen is not unique or sufficient in any of these buildings. There are 8 kitchens, 4 bathrooms, 0 toilets unique insufficient, 36 kitchens, 21 bathrooms, 101 toilets rebuilt insufficient, and generally the number of insufficiency in wet volumes is 170 .Also 18 buildings's kitchens, bathrooms and toilets are in ruined situation (Gündüz and accom 2001).

In this study the sum of 401 traditional buildings, 281 houses, 58 cafes, bars, restaurants, 32 shops, 18 offices, 8 pensions, 4 government buildings are interfered and the determined deficiencies are tried to be removed. When the plan of these buildings was examined, it was seen that 104 of them were not changed, 190 of them were changed a little and 87 of them were changed a lot. When the mass was examined 349 of them were not changed, 26 of them were changed a little and 7 of them were changed a lot. When the façades of registered traditional buildings were examined, 27 of them were not changed, 76 of them changed a little, and 35 of them were changed a lot. As a result of these interferences 336 buildings are in healthy situation. 39 buildings need superficial repair, 10 buildings need essential repair and 2 houses are in ruined situation (Gündüz and accom. 2001).

There are more changes in buildings in Central Commerce Region than the houses. In every tourism season the buildings are changed for different user and customer needs (like additional places like kitchen, toilet and store or new faces with extended windows and changed materials). As the sustainability of cultural environment is not considered these traditional buildings are also damaged.

CONCLUSION AND EVALUATION

The city of Halikarnassos in ancient period is Bodrum now and an important tourism city in Aegean coast of Anatolia. As a result of its location the city is chosen as a settlement area by different societies and has many cultural values. The tourism action was started in 1960s depending on nature and culture, and then it increased after 1980s and had negative effects on social and cultural values of the city (especially the end of traditional tradesmanship related to place and dense construction pressure).

Planning could be not used as tool to remove these negativenesses. Both the quality of plans and the insufficiency on the application of the plans effected these situations.

Tourism action depending on seeing all the buildings and natural beauties especially the different life cultures and traditional houses has left its concept and negatively affected these values. The cultural and natural values which make tourism to be born and developed in the past have been damaged by tourism today.

The effects of the tourism actions on Traditional Bodrum Houses in the study area:

- Parcel became economical gain tool (Figure 16)
- Densely use of the parcel (increase in building density, damage in open area/building balance and traditional texture) (Figure 17)
- Transformation in urban historical texture, negative affects on landscape.
- Negative effects on urban aesthetics (Figure 18)
- Until 2003 plan, the values were not considered in Preservation Purposed Revision Development Plans and the great part of these values were lost till the last rehabilitation plan

Figure 16   Figure 17   Figure 18

By the meanings of the study:

- The traditional Bodrum houses are came out as dwellings which have unique plan and texture characteristics and are made by spongers and fishermen in minimum situations.
- The tourism after 1960s and communication speed caused the increase in expectations and the additions made buildings loose their characteristics.

The Traditional Bodrum houses as culture entities for culture tourism should be preserved and made to live according to the regulations by giving consciousness to their users, rebuilding the ruined ones (reconstruction), restoration and refunctioning.

Today, tourism and cultural values in our coast should come together again. It should not be forgotten that tourism is only a tool in conservation of these values as human heritage.

Historical city places should be restored with its users and right functions should be given. By this way historical city parts will be completed with tourism and the city can be made a continuous attraction center. Preservation Purposed Revision Development Plans are important tools for these.

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FLEXIBILITY IN TRADITIONAL IRANIAN ARCHITECTURE: THE EXPERIENCE OF NEW FACULTIES IN OLD SETTINGS, IRAN

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ABSTRACT

The historical educational institutions of Islamic cities are prototypes of quality multifunctional constructions. The contemplation of historic Iranian buildings reveals that, they not only respond to functional requirements of their users in a specific time, but they also are able to accommodate new applications when they are needed. This paper by comparing educational functions in old residential environments will explore the principles of revitalizing old structures in residential spaces as new educational places with new multifunctional public spaces. The old combined houses of Iranian cities (Tabriz, Isfahan and Yazd) are examined to explore how Iranian historic architecture can accept new life with new functions. The results of the study show that Iranian residential textures and houses have a sense of unity in their structures, functions and aesthetics. The results indicate that these features can help to combine and use the one-by-one houses in a unique structure with new functions and new public spaces. The great positive socio-cultural and economical influences of art-architecture faculties in historic houses of neighborhoods in Tabriz, Isfahan and Yazd are of the successful experiential examples of such theoretical concept.

Keywords: Multifunctional structure, Educational space, Residential neighborhood, Architecture faculties

INTRODUCTION

Current educational system in Iran is intended to be taken place in the modern interior spaces, namely classroom and amphitheatre. However the architectural pattern of Iranian traditional schools indicates both interior and exterior spaces taking part in spatial organization of teaching and learning. Therefore, flexibility and adaptability is provided in theses schools. In flexible educational environments a progressive attitudes towards the education has led to the appearance of an active learning environment, which facilitates their experience, observation and interaction. These objectives can further be achieved through the architectural pattern presented by Iranian traditional schools, such as school of Chahar Bagh in Isfahan and school of Khan in Shiraz, Iran. The court in these schools plays a significant role in providing

an active and interactive learning environment. Converting buildings to keep them responsive to new uses to meet demands offered by changes in circumstances and situations has been an issue throughout the architectural history [1]. Nowadays, adaptive reuse can be argued as an effective way to attain sustainability in the broadest sense, including cultural and ecological aspects and a much complimented strategy in restoration and conservation of buildings of historical, cultural and social value.

This paper is to evaluate the functional and spatial flexibility of buildings adapted to be reused for new applications with a comparative look at their interactivity to the environmental and educational context. Focus of this study is on the former residential buildings that are now used as faculties of art and architecture in Iranian Universities. In these buildings historic residential spaces have been converted in such a way to be able to be used as integrated educational spaces. These buildings comprise almost all major characteristics of the traditional houses in Tabriz, Isfahan and Yazd in which a great attention was given to interactive and climatic design as a response to severe climate.. This paper by means of field survey and a comparative study will investigate how adaptive and effective environment can be created in old settings. This paper will further explore how transferring design and construction technology from historic buildings can help architects and designers in responding to new architectural and aesthetic requirements in this ever-changing world.

Figure1. The Ghadaki House, The Rasoolian House, The Towhidkhane building, the main courtyards as the multifunctional public open spaces of e architecture-art faculties. Tabriz Islamic Art University, Yazd Art & Architecture faculty, Isfahan Art University.

TRADITIONAL HOUSING AND NEW EDUCATIONAL SPACES

The historical educational institutions of Islamic cities are prototypes of quality multifunctional constructions. The pattern of Masque-Madrasa (mosque-school) in Iranian historic textures is one example of such structures. But, it seems that the multifunctional and structural flexibility is a unique feature in Iranian historic buildings. The first educational institutions in Islam were mosques and they are still performed that function in some places. In many Islamic societies, the basic religious educational function of teaching children to read and write is still carried on in mosques. The secondary educational function, transferring certain kinds of information, such as Islamic law, also went on and still goes on in mosques [2].

The experiences of revitalizing old structures in residential spaces as new educational places show that sustainable structures are adaptable with flexible functions. Exploring some physical characteristics of the faculties of art- architecture and urbanism in three historic-cultural quarters can reveal this hypothesis. The question is whether traditional Iranian housing performs in creating new functions. How is it possible for the contemporary educational functions to benefits from the advantages presented in the traditional houses? The contemplation of this type of architecture shows that with minimal changes, it can respond to new functions even with respecting to their historic values and identity. The examples of historic residential buildings in Tabriz, Isfahan and Yazd that are now used as educational institutions are examples that show the multi-functional characteristics of Iranian Architecture. All of these mean that certain historic Iranian buildings have many lessons to be learnt for the development of new responsive, flexible and sustainable buildings that can flexibly respond to ever-changing requirements of today.

Figure2. The Ghadaki House, The Behnam House, The Ganjeizadeh House, Architecture & Urbanism faculty, Tabriz Islamic Art University.

Founded in 1995, Faculty of Architecture in Tabriz Islamic Art University was to be constructed on a site located in a historical context at the center of the city. Buildings on the site were to be demolished so that new building replaces them. The site consisted of three traditional residential buildings which were built 150-200 years ago and used to belong to three reputable families of that period which the houses have been named after them as "Ghadaki, Ganjeizade, and "Behnam". The University Authorities in their investigations found the buildings valuable both from the historical point of view and their architecture. Considering these facts, they decided not to demolish them but to restore and repair the buildings with minor changes in order to adapt them to the new use as a faculty.

Founded in 1997, Isfahan Art University with four faculties: architecture and urbanism, restoration, painting and applied arts was to be constructed in two historic textures. The "Tohidkhaneh building" located in the west part of Imam square and some historic courtyard houses in the Jolfa neighborhood. The main traditional buildings of the university are "Tohid Khaneh Building"," The Marta Peters house", "The David house" and "the Sokias House". The Tohid Khaneh Building in the west part of the Imam Square, behind the Ali Ghapo building is used as the painting, architecture and handcraft classes. The Marta Peters house is uses as the official building of the university and the other houses located in the Jolfa and Tabriziha neighborhoods are uses as the other educational spaces.

ART-ARCHITECTURE FACULTIES: DESCRIPTION

Founded in 1991, Yazd Art & Architecture faculty was to be constructed in six historic houses. The "Haj Kazem Rasoulian House","The Haj Mohammad Taghi Rasoulian House","The Mortaz House","Ghazi Nasab House","The kermanian House"and"The Kasmaee House", are located in the historic-cultural texture of the Yazd city. The house does not constructed in the same time but has a unique style, detail and decoration. All of the buildings are   courtyard houses with single-story and densely clustered, side by side and back to back, along narrow streets which are flanked by high walls with few openings.

HYPOTHESIS AND METHODOLOGY

The courtyard houses in its various forms, has had a long history and a wide geographical distribution. Courtyard houses have figured prominently in academic discussion through journal articles and conference papers. Studies have pointed to the interplay of spatial, social and climatic consideration in shaping the courtyard house in Iran. Courtyard houses in Isfahan, Tabriz and Yazd are of the main examples that show that theses style of buildings has a potential to renovate as a multifunctional and flexible public buildings.

Due to the flexible spatial organization of traditional courtyard houses, It is possible to adapt their structures with new functions. Considering the physical sustainability in Iranian courtyard houses [3], it is possible to planning and designing new educational functions in order to achieve maximum flexibility, adaptability. A survey carried out to declare whether the aims considered in taking the reusing approach have been achieved or not. Some questions about the flexibility of the functions in the faculty interior and exterior spaces designed to be answered. After the data was collected, they categorized and analyzed with respect to functional properties. After data collection process, a comparative study verified in the houses spaces in terms of their adaptability and flexibility with the new educational functions.

Figure 3. Tabriz Islamic Art University. Courtyards , Architecture& Urbanism faculty

In taking such an approach, some very important points had been considered: those buildings comprised the significant characteristics of an architectural style in which a great attention to climatic design and interactive capability of the buildings for users was considered. An educational space can be provided to teach the future builders, designers and artists (students of architecture, urbanism and art) to respect the historical background of architecture, cultural and artistic context and direct their minds to think and consider flexibility and adaptability in their creative process. The other fact in taking such an approach was the buildings' efficiency from another point of view.

FLEXIBILITY AND ENVIRONMENTAL ADAPTATION

Now, mentioned buildings after being converted to the educational spaces are serving as a united building after the yards being connected and omitting the walls of yard boundaries between houses. According the fact that these buildings are working efficiently in their new application, some very significant goals have been achieved:

- In addition to the cultural aspects and influences -as an aim in the case of adaptive reuse-an impulse made to stimulate sustainable thought in minds of young builders through experiencing the traditional spaces of Iranian architecture which is so rich in terms of energy efficiency and environment-conscious design.
- In it's creating theoretical bases, ancient Iranian culture highly emphasized on considering environmental issues and natural settings by forbidding any form of wasting natural blessings and resources such as energy [3].
- It is the users of a building who ultimately make the building meaningful [4]. Specifically, when it comes to the users as the future builders and artists, the role of user-building interaction is more significant. The spatial perception of designers can be embodied as the concepts in their design and creations [5].Art and Architectural history is full of examples of great artists and architects whose concepts were inspired by visiting the art and architecture of an earlier time [6].

Thus, critical role of educational spaces as the place in which students of architecture and art are trained are inevitably influential; a fact that seems to be neglected broadly. Users will change as a consequence of defining new use to a building [7]. Now, crucial questions are to be answered: what can be the influences of adaptive reuse on the user-building interaction? Can it be a change for good? The focus of this investigation was to find the answers for these questions and evaluate the efficiency of buildings according to the aims considered in such an approach. Regarding the importance of the interaction of users with educational spaces in being conscious to the efficiency and substantiality issues in their broadest sense, investigation concentrated on buildings of the architecture faculty of Tabriz Islamic Art University as the cases for this purpose.

Figure 4. Thick walls provide a very good thermal protection

Figure 5. Ceramics and baked clay are used to cover floors as an efficient insulation

Figure 6. Colored glazing to moderate heat gain and loss by radiation

Figure 7. Balconies and porches allow passive solar gain in winter and sun protection in summer

Environmental-conscious design is one of the main principles of courtyard houses. Subordinate approach toward the cultural context and natural setting providing total responsiveness to the climate. Efficiency of energy, materials and other resources were used in many aspects of the buildings. For example, thick walls provide a very good thermal protection and minimize the heat loss in winter and heat gain in summer; furthermore they act as thermal mass to store the heat from the sun when required, and provide a heat sink when the need is for cooling. Ceramics and baked clay are used to cover floors which provide an efficient insulation materials used in wall such as clay reduces unwanted heat losses or heat gains through the roof and walls. Orientation of frequently used spaces towards south causes to gain maximum sunshine in cold seasons, and to more easily exclude the sun's heat in hot seasons or occasions.

Zoning of internal spaces allows different thermal requirements to be compartmentalized when required. Balconies and porches allow passive solar gain in winter and sun protection in summer. Suitable percentage of glazing; both help to trap the sun's warmth inside spaces when it is needed, with adequate shading and protection of the building from unwanted heat gain or heat loss.

CONCLUSION

The results of the study show that Iranian residential textures and houses have a sense of unity in their structures, functions and aesthetics. The results indicate that these features can help to combine and use the one-by-one houses in a unique structure with new functions and new public spaces. The great positive socio-cultural and economical influences of art-architecture faculties in historic houses of neighborhoods in Tabriz, Isfahan and Yazd are of the successful experiential examples of such theoretical concept. Revitalizing old neighborhoods is one of the most fundamental aspects of heritage conservation. Planning and designing infill and new functions to historic buildings and precincts are the common practice of architecture over all time in all cultures. Many heritage conservation practitioners develop skills of assessment of the impact of new functions on the old settings. Whilst the structural sustainability and spatial organization of the traditional courtyard houses will participate in adaptation with new functions, some new infill developments are needed to verify some of the modern infrastructures. The ability to assess the appropriateness of the design of new buildings and planning new functions in old settings is necessary. The courtyard organization maximizes shading and allows for the creation of a pleasant microclimate. The availability of plants and a water feature within the courtyard helps in cooling and humidifying the internal atmosphere.

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CONSTRUCTING THE SPACE OF THE OTHER:
NEW ROMA SETTLEMENTS IN ROMANIA

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ABSTRACT

This paper argues that Roma identity is articulated at architectural level not by formal innovation but through a unique process of building production. The study reveals the process of constructing new Roma settlements as the articulation of their most identifiable trait: otherness. Using Michel Foucault's concept of heterotopia, the paper argues that this process occurs through the manipulation of a broad decorative language that mirrors and contests the larger context from which the other has been banished.

Keywords: Roma, Heterotopia, Identity, Decoration, Romania

INTRODUCTION

For centuries, the Gypsy population has avoided assimilation and settling. Recently, in many parts of Eastern Europe, affluent Roma communities have put down roots, giving birth to an architecture that is at once eccentric, eclectic, and authentic. Having the "palace" as a sole typological component, these settlements represent a break with both the nomadic tradition and with the physical context in which they flourish. However, the break does not reflect assimilation, but rather the appearance of a new geography favored by the new post communist geo-political reality: the space of *the other*.

The new settlements studied in this paper are the product of affluent groups of Roma that share a clan-type social structure. While financial independence is a necessary condition for tackling such vast constructions, the process of making the settlement is inextricably linked to Roma traditions of production and social practice. Furthermore, these traditions and practices are crucial definers of Roma identity, and it is important to understand the settlement as their extension.

THE MAKING OF ROMA IDENTITY

A Gypsy Identity

Referring to a Gypsy identity as articulated in the built environment is nearly impossible. General identifiers, such as an official written language or a nation state are absent, while specific ones such as clothing or music remain contextual and fail to address Gypsies as an ethnic group. After 1989, in Romania, home to the largest Gypsy population in the world, the Roma elite – intellectuals, politicians, artists – has started a systematic effort to construct an ethnic identity. This effort makes use of all modern forms of activism (political parties, cultural associations, media outlets) to articulate and disseminate symbols specific to Roma culture (Achim 2004:215). However, the new settlements are the product of a less organized manifestation of Roma identity based on a traditional type of leadership, commonly associated with the Gypsy *clan*. A form of extended family, the clan has formed the basis of Gypsy social structure for centuries and has represented a key factor for the survival of the group (Barany 2002:14). Viorel Achim argues that this type of leadership that acts at community level has a greater authority than that of the elites (Achim 2004:218). The elite aims at eradicating stereotypes and constructing a Roma identity that is essentially "ethnic" (Achim 2004:217); the clan leadership operates within a traditional belief, according to which the identification of the Rom can only be achieved in opposition to the non-Rom, or *gadje* (Barany 2002:14). The concept of *gadje* is crucial in explaining the mentality that makes possible the articulation of identity at clan level, and along with it, that of the new Roma settlement.

Zoltan Barany places the understanding of the world as split in two – Rom versus *gadje* – at the top of the list of factors that might describe "gypsiness" (Barany 2002:15). Though it can be argued that identity is always relational, for Gypsies, identity is particularly constructed against an ever-changing environment. Permanently excluded, with no country of their own, and always on the move, Gypsy people constitute *the other* anywhere, "the marginal ethnic group *extraordinaire*" (Barany 2002:62). In this light, the Gypsy propensity towards self-segregation appears as a survival skill, a tactic that helps them avoid assimilation and survive as a group (Barany 2002:15).

Thus the quest to maintaining an identity by opposition to *gadje* has become the most identifiable feature of the Gypsy populations.

This continuous need to relate to the world of *gadje* forces the Rom to remain aware of and identify the characteristics of the dominant culture. Like any marginal group, Gypsies are condemned to live in two [antagonistic] worlds at once (Stonequist 1937:xv): one that exists outside and one they have to construct using shared symbols (buildings, stories, etc). When such symbols cannot stem from the group itself, they can be imported and appropriated (Barany 2002:52,76). Michael Stewart argues the Gypsies "take objects, representations, and practices that exist in the outside world, and they invert or subvert their meanings to their own end" (Stewart 1997:13). During centuries-long persecutions, the Gypsies learned to invent traditions in order to survive as a group (Barany 2002:205).

Bound by marginality rather than shared ancestry, the Gypsies create a social space (of their own) according to their *own* ethic of relatedness (Stewart 1997:28). According to Stewart, Gypsy identity is not ethnic or inherited, but one constructed and constantly remade in the present "in relations with significant others" (Stewart 1997:28).

The Making of Meaning

Driven from place to place for centuries, Gypsy people developed both a lack of attachment to land and an ability to construct a social space regardless of the physical quality of that place. The Gypsy tradition of settling is not linked to an established image of the ideal settlement but to a practice of adapting the "existing" - often in form of urban *poche* - to suit their lifestyle. As Daniel Willis observes, there is a long tradition of gypsies to transform the "waste" of *gadje*'s world into *adornments* for their house (Willis 1999:129). The place is never constructed from scratch, but always involves the adornment of an "existing", basic frame.

Working outside and opposed to mainstream means of production, the Rom cannot help but produce the split between frame and adornment. The Rom operates from the point of view of the pre-Brunelleschian architect, who, according to Gottfried Semper, sees the building's structure – the frame – as a base for the application of decoration (Semper 1989:56). In this sense, Mark Wigley notices that "the material wall is no more than a prop, a contingent piece of scaffolding, foreign to the production of the building […] the essence is no longer construction but the masking of construction" (Wigley 1992:367).

Simmel notices that "ornament, being related to the individuation of objects, may subsist in craft but is out of place in industrial production", while Adolf Loos links it to the pleasure of the maker, instead to that of the user's eye (Rykwert 1982:93). This process of adorning the frame allows the Gypsy maker to escape modern means of building production which might preclude the manifestation of meaning.

Willis links the primacy of producing meaning over that of creating artifacts to a pre-modern mentality - which gypsies still embrace - where the process of making is ceremonial and participatory (Willis 1999:120). If the wagon proved a successful frame for a nomadic life, its dwelling function consisted in the process of adorning these "frames" with *meaningful* objects and motifs (Willis 1999:129). This dichotomy between frame (structure) and object (adornment) also makes the process of adapting to a new situation particularly trouble-free. The fact that the frame is "given" and contextual allows the adornment to be treated as a highly interchangeable carrier of meaning.

The isolation of the settlement is necessary not only for maintaining an identity separate from the dominant culture but also to allow the Roma social and production practices to unfold. Throughout time, Gypsies have mastered the making of temporal or quasi-permanent settlements isolated from and in opposition to their *gadje* environment. The tent camp, the clustered shanties at the edge of the city, and the new settlements of the prosperous Roma all share a process of settling in continuous dialectic with a host environment. The settlement is a place where Roma identity is

forged everyday, by developing what Kevin Hetherington called "alternative spatial ordering" (Shane 2005:232).

A Roma Heterotopia

Foucault's concept of heterotopia provides a framework for understanding the formation and dynamics of such type of place, and of the new settlements in particular. Foucault describes heterotopias as places that "are sorts of actually realized utopias in which […] all the other real emplacements that can be found within the culture are, at the same time, represented, contested, and reversed" (Foucault 1994:178). Since heterotopias include "all exceptions to the dominant city model" (Shane 2005:232) it is important to define the Roma settlement as a place of alternative spatial ordering more precisely.

In this endeavor, the concept of heterotopia of resistance is of particular significance. Margaret Kohn interprets heterotopia of resistance as "a real counter-site that inverts and contests existing economic or social hierarchies", and unlike other heterotopic structures "its function is social transformation rather than escapism, containment, or denial" (Kohn 2000:508). The Roma settlements surpass their simple identification as "other spaces"; their making embodies a contestation of dominant economic and social practices deeply embedded in Gypsy traditions.

Foucault's first five principles of heterotopia provide a good platform to understanding the characteristics of the new Roma settlements. First, Foucault argues that heterotopias form a universal category of space, found in every society (Foucault 1994:176). Since all types of Roma settlement throughout history have been heterotopic in nature, it is important to understand the new settlement as a new form responding to newly conditions and status of the group rather than a new phenomenon. This view shifts the focus from an identity created through symbols to one linked to a practice of settling. This approach is further supported by the second principle, according to which "a society can make a heterotopia that exists and has not ceased to exist operate in a very different way" (Foucault 1994:180). The Roma settlement owes its resilience to an ability to reconstruct itself in new environments, without depending on specific building forms or typologies. If the tent camp responds to an acceptable form of nomadism, the new settlement signifies an adaptation to a society that makes any form of nomadic living impossible, as jurisdictions over land create exclusions. Since its built form changes along with the mode of operation within the whole, the heterotopic nature of the Roma settlement appears to rest in its formation as social space. Regardless of its built form, this space where the community life occurs is simply called by Roma *tziganie*.

The next two principles provide an understanding of the settlement's heterotopic structure and the role of its components in the process of settling. According to the third principle, a heterotopia can host "several, sometimes incompatible sites within itself" (Foucault 1994:181). While most forms of settlement contain spaces capable to host incompatible sites, the new Roma settlement is exclusively formed from such spatial units. Indeed, the settlement is made by the multiplication of a singular type of construction: the *palace*. Lacking a clearly articulated space for shared activities of any kind, community life occurs within spaces created in and around individual

palaces. Realms that the *gadje* acknowledge as incompatible, such as public and private, coexist within the space of the palace. In Ciurea, communal rituals take place in several "private" palaces, which successively host the families involved in the ritual.

Foucault's fourth principle links the existence of place to precise "slices in time" (Foucault 1994:182). As particular manifestations of this principle, Foucault opposes the fair, which occurs on sites that become activate at precise moments in time, to the museum, a modern type of heterotopia as a site of "indefinitely accumulating time" (Foucault 1994:182). The new Roma settlement reflects a shift from the temporality of the tent camps to a stable site that allows the accumulation of architectural forms and elements corresponding to trends. Both Ciurea and Buzescu settlements exhibit dramatic changes in the architectural language employed over time, yet without erasing previous interventions. Thus each unit of the settlement is rendered as a potentially fresh site of reevaluating the identity of the clan.

The fifth principle stresses out the relative independence between the settlement as social space and the architectural language used. According to Foucault, each heterotopia features "a system of opening and closing that both isolates them and makes them penetrable" (Foucault 1994:183). The new Roma settlements function according to clan's internal rules, and remain inaccessible to outsiders, especially *gadje*. To enter the settlement, the non-Rom needs prior approval from the local leader, called *bulibasa*, and has to pass a form of "eligibility" test. However, the settlements are neither fenced nor gated. Furthermore, the ubiquitous gate accompanying the individual palace of Ciurea is, unlike its *gadje* correspondent, never closed; and many times, the house's entry door remains unlocked.

THE MAKING OF HETEROTOPIA

The New Settlements

Aiming to achieve homogeneity of living standards, the communist regime failed to acknowledge the importance of the unique social structure of Roma, particularly the role of communal living (Achim 2004:192). Achim argues that by employing no special treatment, the communists have all but destroyed Roma communities. Forced relocations into flats, although applied uniformly across Romanian population, dismembered Roma *clans* and coerced families into isolation (Achim 2004:192). Despite all this, the Roma have been extremely resilient to change, by fleeing their newly assigned "modern" apartment in favor of less desirable but community friendly environments. The years following 1989 have surfaced a forgotten practice: the informal making of space as a direct response to a newly gained freedom of expression, and individual or group pride. For affluent Roma groups, the possibility of transforming these places into *desirable* forms of community appeared.

The new Roma built landscape is simply known as "Gypsy Palaces". The palace can either exist as an isolated object within a non-Roma settlement, or as a sole component of a Roma settlement, which can be constructed by one or more clans. Studying the palace within the Roma settlement as opposed to as an isolated

phenomenon is crucial in understanding the process of making the settlement as a social practice.

The new settlements were created by Roma groups that have lived and prospered in or around specific areas of the country. In that sense, they are not "new". However, if the territory they occupied before 1989 was dominated by temporality and flexibility of boundaries, its post-communist version became increasingly stable and enclosed. Within these newly created boundaries, the Gypsy practice of settling articulates a built landscape that although based on one type of structure – the palace – exults in formal diversity. Without following a consistent architectural language or fixed constructive solutions, this accretion of palaces forms nevertheless strongly individuated landscapes.

However, their distinct identity owes little to the specificity of the architectural language. Across the Romanian territory, the language of the palace is influenced both by local architecture and by the specificity of the clan responsible for making the settlement. Furthermore, these formal characteristics are fleeting and never lead to a consistency of language. What they *do* have in common though is a *process of making* that is specific to Roma population. Studying this process of making implies looking across the Romanian territory at examples such as Ciurea and Grajduri in Moldova, and Buzescu and Costesti in the southern part of the country.

At territorial level, the making of settlements is synonymous with the *erection* and *multiplication* of palace structures. The palace is the mark of one family and it is usually erected with limited or no help from "specialists". In the process of making the palace, each family takes credit for design decisions, while local workforce is responsible for most of the construction. Although the involvement of an architect may occur in areas with enforced building regulations, the family never sees the "project" as a complete image of the palace, but rather as a frame to be further adorned according to Gypsy rules. Furthermore, the growth of the settlement does not occur according to a predetermined plan but through the multiplication of its basic cell, the adorned palace, within the *poche* of the available space.

Ciurea, Romania, 2006. Author's archive

The Palace

The palace represents a continuous accretion of images that mirror and contest the normative codes of their surroundings. The surroundings are never limited to the immediate built context, but reflect an *extended* and *projected* environment; *extended* because they include the entire world of *gadje*, world that becomes known through traveling *outside tziganie*; and *projected* because they also refer to the imagined city, or the world known indirectly though photographs or other media sources. Gypsies *must* formally articulate the *tziganie* in dialectic with the *gadje* world. The palace maker *has* to appropriate architectural forms from the dominant culture and subvert their meanings to their own ends. In the process of construction, these forms are always used as adornments, objects attached to an "existing" frame.

Architectural elements such as balustrades, loggias, or roofs appear in the *gadje* world as organized, dispersed, and differentiated in *space* according to hierarchies and uses. Once de-contextualized and transported into the Roma world as adornments, they can be multiplied and reassembled according to rules revealed only to its maker. The multiplication allows the maker to work towards achieving his ultimate goal: the adorning of the entire frame.

The roof is often the most prominent feature of the palace, and the first to be completed after the frame. The roofs of the early palaces of Ciurea and Buzescu were a fertile ground for local metal workers to practice the act of adornment. Thus roof elements, such as richly decorated cornices, are multiplied and stacked to form towers, which are themselves replicated throughout the perimeter of the roof. The towers' location favors their perception from the immediate area around the palace, and they appear rather as extensions of the façade. At the same time, from afar, in places like Ciurea and Grajduri, the repetition of multi-towered roofs de-individualizes the palace and exposes the settlement as a mark of the clan. Despite their prominence, these towers remain uninhabited, adornments of palace frames.

In numerous palaces from Buzescu and Costesti, the loggias wrap around the entire frame of the building. Often repeated on all palace levels, the loggias become a second skin, a scaffold for future adornments. In Ciurea palaces, the interior of the loggia forms a canvas fully covered with paintings and moldings, while completion of its floor finishes and railings may never occur. Furthermore, the use of the loggia space remains to be negotiated. Open or closed with glass panels, the loggia is not imported for its quality as mediating space, and its placement is not determined by location; it is first as foremost employed as a means of masking the frame of the palace.

The process of adorning by repetition of formal elements is also visible in the case of balustrades and dentils. Often redundant, the balustrades become prominent adornments, wrapping and texturizing the facades. Dentils, freed from any structural role, appear as either "sustaining" multiple registers of false cornices, or simply attached to ceilings in repetitive patterns. Given their dialectic nature, these formal traits are permanently changing and never lead to a consistent language. Mariana Celac notices the fast appropriation of new architectural elements occurring in the Buzescu settlement. Thus the formal catalogue is expanding to include domes, marble tiling, and curved curtain walls (Celac 2008:13). What is important in this

process is not the use of these elements exclusively as adornments, but their employment towards creating a *horror vacui* effect. For the palace maker, the act of settling becomes equivalent to cancelling the meaningless – existing frame – with the meaningful – adornment.

Ciurea, Romania, 2006. Author's archive

For the palace maker, the building process is two-fold. One the one hand, he *needs* the frame, which may involve according to case the involvement of a specialist. The scale of the construction, building regulations, and structural challenges may all constitute objective causes for contracting specialized workforce. On the other hand, he *makes* the palace by continuously adding to the frame. This second part takes place *in-situ* and represents the *real* process of creating meaning, a process that is always ceremonial and requires the affective involvement of the owner. The pride that the owners take in their palaces is not so much associated with a finished artifact but with its making. The identity lies in the mysterious rules that prompt "design" decisions.

The Structure of the Settlement

The settlement tends to mirror the organizational structure of its *immediate* environment. Buzescu appears as an extension of its host village, integrated in its infrastructure, while Ciurea mirrors the land division pattern of its adjacent villages. Created by the multiplication of one type of intervention (the palace) and built exclusively by private hand, the settlement never generates new ways of dealing with infrastructure and shared space - what we would call public amenities. In order to function, the Roma, as the new comers, look to plug into existing networks. In Buzescu, the settlement *happens* to be next to a road, and consequently the palaces develop along that road following the pattern of non-Roma houses. In Ciurea, which has developed outside the existing road network, the arrangement of palaces generates a *poche* used for access.

Communal space has never been institutionalized in Roma settlements. There are no precedents of built schools, churches, or plazas. However, this does not mean that communal activities are missing from the settlement, but that they are simply

occurring somewhere else; and this place is the palace itself. Stewart observed that communal life occurs as a permanent "flow" (of goods and people) between households (Stewart 1997:47). As communal life - meetings, exchanges, rituals - happens on what the non-Rom views as "private" ground, the Gypsy palace lends itself to a "public" domain. In fact, Stewart remarks that the Gypsy house is not exclusively private (Stewart 1997:67), and as much as the settlement is opaque to *gadje*, just as much each house is permeable to the members of the community. The palace becomes an open display case, and the act of adornment, a necessary social practice.

The positioning and size of palaces reflect a certain hierarchy that exists within the clan. In return, the built achievements of each family contribute to further redefine this hierarchy through competition among clan members. Thus the process of making palaces appears as inextricably tied to the social dynamic of the group. If making a palace has become a moral responsibility for the prosperous Roma family, its remaking becomes a necessity. This permanent need to identify and reaffirm one's position within the clan and clan's position within the world at large constitutes the driving force for continuous reevaluation of the settlement's image.

Almost two decades in the making, most of the palaces remain unfinished. Less concerned with an end result, the Roma family takes no issue with inhabiting a permanent construction site. Similarly to pre-Renaissance builder, the Rom does not see the palace as a finished form but as a continuous process. The settlement appears as a direct reflection of the continuous of process of constructing identity in response to the ever-changing built landscape of *gadje*.

This dynamic nature requires the development of a flexible model, which the Roma found in the dichotomy between frame and adornment within the palace. Using Shane's characterization of typical heterotopias, the Roma settlement can be described as multi-cellular, with the palace as a basic cell, a reproducible entity capable to sustain Gypsy life, and flexible, with the frame of each palace allowing for a continuous flow of symbols to unfold (Shane 2005:232).

CONCLUSION

The new Roma settlements are real sites, concrete manifestations of the ideal place of its inhabitants. They represent a microcosm, a recreation of the world done on Gypsy terms, and constructed by Gypsy hands, yet inextricably dependent of their contextual time and place. The permanent need for Roma people to reevaluate their position within this context leads to a process of construction that requires the continuous change of the architectural vocabulary. Paradoxically, the new Roma settlements offer an inverted model of constructing identity through built form. Instead of aiming at creating an architecture that can be identified as "Gypsy", the Roma employ a process of constructing space that allows the articulation of their most identifiable trait: *otherness*.

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EQUITY OF SOCIAL ACCESS
IN CONSTRUCTION OF TRADITIONAL IRANIAN CITIES AND VILLAGES

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ABSTRACT

Mobility disabilities that makes limitation for enormity of population. Limitations which outcome from disabilities of handicapped can not be considered as barrier against their access to desired spaces. They must be able to live with the greatest possible independence regardless of limitations and far away from stresses of constraints that usual people of society are free from them. Providing equity access for people with mobility limitations will have extraordinary mental effects, in addition physical and sanitary security.

From a social perspective, providing equity and consideration of the rights of all people is emphasized. People of various ages, various races and ethnic backgrounds, at any level of capability should be able to participate in social activities fairly and no person should experience discrimination and be underprivileged. Since some people who make up the work force are physically restricted, design of urban spaces which brings people into social contact is crucial. The purpose of this paper is to identify the principles of "Inclusive Design" in social environments with origins in Islamic theories and principles. It can be stated that in Islamic cities, urban and architectural spaces should be accessible to people with varied levels of capability and no person should be exempt from access to any space.

In this article, we refer to examples of textures of Iranian cities and villages. These examples are set out to demonstrate the inclusion of urban spaces from different aspects. This study is based on the analysis of the morphological characteristics of the several traditional cities, the socio-historical information, the direct observation of the spaces and face to face interviews with citizens especially those having physical-movement limitation. Based on the findings in issues related to physical limitations of people with special needs and conception of the varied problems that such people have, in this paper some key solutions have been proposed for free spaces and independent movement and achieving equity of access.

Keywords: Equity, Accessibility, Construction of urban and architectural spaces, Inclusive design

INTRODUCTION

During the Cities Project (Cities Aspects and Multidisciplinary Methods of Analysis in Arid Region) the authors had the opportunity to visit and study several examples of urban fabric in Islamic Iranian Cities in order to explore the spatial functional structure underlying an apparent diversity in the organization of such traditional cities. Investigations were carried out in order to check whether these spaces are accessible for all people.

Vernacular cities have certain characteristics that can be summarized as follows: they are fully integrated to their context and they respect the environment either the natural or the socio-cultural one. They are the most significant expression of the common values of a society and the result of a certain vision of the world and a defined model of life (Rapoport, 1972).

In traditional architecture we may find differences and variations, but they all integer a system and general order or a common vocabulary that is well known to the people living in a similar culture, and these norms are usually transmitted from generation to generation. These variations are adapted to answer to a common culture or a common functioning system.

"Equity" or fairness is concerned with the "fairness in mobility and accessibility levels across race, class, gender and disability." (Sanchez, 2003) Furthermore, Sanchez notes that the aim of equity is "to provide equal access to social and economic opportunity by providing equitable levels of access to all places." The case of access management techniques having a role to play in achieving mobility equity.

Providing equity of citizens access has always been considered and practiced in different situations from long ago, but has not been done with complete harmony. Reconsideration of urban design in organic cities and many villages specially with difficult access shows precision in providing of spaces access. It can be said that in old cities, appropriate places have been designed for elderly persons passage and people with mobility disabilities, and in dimensions and sizes of paths, transportation means scale were important.

People with disabilities should not be prohibited from participation in their chosen recreational, social or employment activities because of architectural or attitudinal barriers. The barriers to the participation of people with disabilities in society are nowhere more clear than in the built environment. They must be able to live with the greatest possible independence regardless of limitations and far away from stresses of constraints that usual people of society are free from them.

According to Koç (1998), the quality of the lived environment, quality of life and social structure interact with each other. Significant developments in the quality of the environment will affect life positively, and the improvements in quality of life will consequently, positively influence the quality of space. This interaction will increasingly take part in the formation of a quality-sensitive life culture.

Architects and urban planners work with a concept of space that influences the idea of lived environment whose quality directly affects peoples' expectations.

Accordingly, the practicality and capability to meet the users' needs, and, therefore, the space's utility are the important indicators of the spatial quality.

Design of accessible spaces for all people is a challenge of specialists and designer, architect, and urban designer in furniture, building, and urban scale should consider the wide spectrum of individuals. The spectrum which covers individual with limited physical capability or disabled, sentimental handicapped (blinds, weak-sighted, deaf, and semi-deaf) and people of various physical and movement capability (elderly people, children, women and so on) as well as usual people and individuals who are other disabilities. In developing country, in spite of some governmental organizations trends toward accessibility and usability of spaces, no special attempt toward inclusive design that can satisfy the needs of majority, has been performed.

The most usual aspect of handicapped is physical-movement disabilities. Inclusive design for people with mobility limitations is appearance of providing equity access that will have extraordinary mental effects, in addition physical and sanitary security. Today accessibility for all is recognized as a basic necessity and there are attempts all over the world to ensure this.

Inclusive design has specifications, characteristics and principles that isolate it from ordinary ones. Urban spaces can be accessible for a wide spectrum of people with appropriate and optimized design. In this way spaces can adapt the needs of all people with any level of mobility disability, any age or any physical condition. In fact, inclusive urban space responses the requirements of disabled people, increases their physical independence and decreases their needs to help of others.

HYPOTHESIS AND OBJECTIVE

The form of traditional cities is determined by several socio-cultural factors which could be considered as primary forces, whereas physical aspects are mostly generator of variants and could be considered as changing factors. The form of a city could hardly been understood outside the environment, the culture or the way of life of the society where it is shaped.

This paper seeks to answer questions about the logic by which traditional urban spaces respond to needs of all people and the potentials offered by their spatial structures. The hypothesis in analyzing their layouts are based on the ability of cities to adapt to socio-cultural norms of certain societies and that they could be shaped to respond to social needs and to produce appropriate behavior. This study is based on the analysis of the morphological characteristics of the their layouts of several traditional cities, the socio-historical information, the direct observation of the spaces and face to face interviews with citizens especially those having physical-movement limitation. The main objective is to explore the following questions: 1) How are traditional cities "designed" to fulfill users' social needs? 2) How architectural settings in the urban spaces are "coded" or "structured" to produce appropriate social practice or behavior?

FORMS AND NORMS

In any city, or architectural project there are two active human entities that interact with spaces, the physical body with its basic needs, dimension, requirements for comfort etc… and the social hidden body with all its psychological and socio-cultural needs that may differ from one society to another and from one period of time to another. The social body has to do with all the norms and codes that are defined or considered by the society, while moving in the street, using a public facility, interacting with neighbors, etc…. And in the Islamic world these codes may become strict laws that govern the behavior of people (Lou'aiby, 2007).

The social body requires a certain environment that should be designed to promote psychological and social well-being that go along with these codes, such as having the opportunity to move from one place to another if needed, to interact with others or to have privacy, to feel secure and safe, to be in an interesting environment with aesthetic attributes, and many other conditions that permit to the soul as well to the body to feel in harmony with the world and the physical environment.

Research on the interrelations and double link between forms and behaviors seeks to answer questions about the mechanisms and rules by which buildings are constructed to fulfill social needs. The potentials and the physical characteristics of spaces that are defined by their spatial structure give people different options of use and in some cases they could force some social behaviors. In this regards, we could explain some psychological acts, behaviors or emotions by looking outward at the physical surrounding.

ACCESSIBILITY

In Iran, as well as in other places in the world, accessibility – meaning the existence of democratic venues that can be made use of by anyone, regardless of any physical, sensorial or cognitive limitations – consists of a process that is implemented in a sequence of stages. The process begins with the perception of the need to ensure social inclusion, followed by decisions to put it into practice. Next, specific social measures must be taken based on the realization that it is essential to structure a legal framework that emphasizes equal opportunities. The process should also include other less theoretical aspects concerning the various technical areas.

In this context, the space shows a chaining joint structure starting from the inner doors of our building and extending to the urban spaces and natural areas surrounding the city. One of the most important links of this chain is composed of the urban spaces that are the areas increasing the human-nature relations, ensuring the integration with the natural environment and meeting the biological, physical, and psychosocial needs. While the spaces designed with respect to users' needs in mind are frequently adopted and owned, the spaces not adopted or owned are unused, neglected and changed by time.

The evaluation of the lived environment in relation to the users is important for sustaining the livability, and the data obtained after the evaluation provide inputs for the planning and design studies. The design evaluation is concerned with assessing

the effectiveness of the designed environments for the users which have an important influence on the human experience (Sanoff, 1992). It can facilitate activities, create a mood or feeling, relieve or create human tension and stress. Generally speaking, the designed environments can support satisfaction, happiness and effectiveness (Sanoff, 1990).

The objective of the study in which the survey, observation and photographic methods were used, was to examine the urban spaces providing individual and social benefits to people and to determine the principles regarding the establishment of this space. Two hundred ninety one respondents participating in the survey were asked about the urban spaces and alleys they use in the cities, the qualities of the routes, their purposes use, and a descriptive analysis was performed to determine the route's quality. At the end of this study, two main components determining the space's quality were found: (i) qualities of the physical environment (climatic features, location of alleys, its relation with the surrounding structuring, pedestrian / vehicle relation in terms of accessibility, fixed elements / equipment in the area, quality of open space area, quality of landscape accessory) (ii) user characteristics. User characteristics also comprised two quality criteria: (i) the behavioral and functional quality, (ii) the visual quality.

DETERMINANTS OF OUTDOOR SPATIAL QUALITY IN CITIES

The urban pattern is composed of roads, buildings and spaces. When these components, as elements of the physical environment, are taken into consideration in terms of the concept of space and structured environment, they may be defined as the environment's utility for individual and social uses. Rapoport (2004) stated that these environments have several components, and the structured environment is composed of fixed (infrastructure and buildings), half-fixed (outdoors: trees, boundary elements, lighting elements, benches etc.) and non-fixed (users, user actions and vehicles) elements. Half-fixed components are the important determinants of the environment's influence on user attitudes. The outdoor spaces are shaped with fixed and half-fixed components in relation to the user needs in the scope of physical environment. The quality of the outdoor spaces formed by the components coming together is a type of life quality determinant.

The urban spaces support the relationships between people and increase the quality of social life (Biddulph, 1999). Mitchell (2000) defines as health, security, physical environment, personal development and community development as components that contribute to a better quality of life. Kamp et al. (2003) considered that the synonymously used concepts like quality of life, environmental quality, and livability were related to the areas of specialization like planning architecture, public engineering, public health and policy.

While the important elements of quality principles were livability, character, connection, mobility, personal freedom and diversity, the physical form criteria were categorized under community, urban block, buildings, streets, pedestrian pavements, open space, vegetation and feature areas. This extensive list of physical form criteria was put together with respect to the quality of the community. The examples of strong elements are open space areas, outdoor amenities and "walk ability" which

correspond to active or passive outdoor spaces supported by a pedestrian circulation network.

The quality of outdoor spaces is likewise judged according to how well it responds to the spatial quality and the users' needs that it is important to determine the outdoor spaces' purpose and user actions. Besides the positive effects on physical, mental, and social health, the participation in outdoor activities also increases self-confidence and self-respect, leads to positive changes in personal skills, social behaviors, body and personality development, and general behaviors (Mc Avoy, 2001). People use outdoor spaces for learning, discovering, examining and researching.

There is a strong relationship between the quality of the outdoor spaces and the activities carried out in these spaces that the quality of the outdoor spaces either supports or negatively affects the activities performed in those spaces. The outdoor activities were divided into three parts by Gehl (1987): (i) necessary activities, (ii) optional activities and (iii) social activities. When outdoor areas are of poor quality, only strictly necessary activities occur, and if the quality of the outdoor spaces is good, optional activities will occur with an increasing frequency. Furthermore, as the levels of optional activities rise, the number of social activities usually increases substantially.

Dober (2000) stated that the functional, convenient, safe, nice, exhilarating experiences of a city user who goes from one space to another were the desired qualities for a good landscape order. Availability and utility, aesthetic attraction, fluency between inner and outdoor spaces, suitability for the realization of activities, safety, variety in use and convenience for every user of the outdoor spaces were described as the principles of spatial quality (Oktay, 1999; Marcus and Francis 1990). Indeed it can be said that some requirements of pedestrian networks which is both as a part of transportation system in the city and providing access to different functions and also acts as an urban space are as follows:

Continuity

Pedestrians need a connected network that joins all origins to all destinations without any interruption and disconnection. Appropriate design for the pedestrian to pass the driving lanes, not using the pedestrian routes by drivers or vehicles and bicycles, suitable floor making for sidewalks, not cutting the routes by bridges or natural obstacles are among the criteria for pedestrian network continuity.

Safety

The safety of routes is one of the main requirements of pedestrians. With regard to safety can be mentioned some factors such as:

Separation of the routes for cars and pedestrians, continuity of pedestrians routes, level pedestrian routes and absence of bumps, stairs and pits on them, supplying enough light for the routes, covering the uncovered gutters.

It is of utmost importance to say that one of the most important issues in the current condition of the world from the human safety viewpoint is the safety of human communities or safe communities. This collective movement that most countries especially developing countries have joined so far, has been defined and designed by World Health Organization (WHO) for promotion of human safety level. Thus paying attention to the safety of citizens and at least from physical and equipment safety viewpoint is important and should be taken into consideration in urban and architectural design.

Convenience

Some of convenience criteria of routes are as follows:

Having appropriate slope, having a firm, smooth, non-slip and even surface, sufficient width of sidewalks regarding their traffic rate and accumulation the superficial waters of the sidewalks. Pedestrians are very sensitive to the distances and generally select the shortest route, better routes but longer ones are less used by them.

When the requirements of pedestrian roads are described and realized, the level of the equity will easily gain meaning. Determining the needs and behaviors, meeting user expectations, and arranging the spaces according to their needs will aid in assessing the spatial qualities. The requirements related to these are described in Table 1 with the sub-contents and equipments of those spaces.

Table 1. Requirements of pedestrian roads. (Source: Authors)

Continuity	Safety	Convenience
Not intersections between pedestrian and vehicle roads	Separation of the routes for cars and pedestrians	Having appropriate slope
Suitable floor making for sidewalks	Supplying enough light for the routes	Sufficient width of sidewalks
Not cutting the routes by obstacles	Covering the uncovered gutters	Shortest routes

METHODOLOGY

In evaluating the equity of social access, a survey was applied and the following qualities related to urban spaces were determined in parallel to the data obtained through the literary research:

- user behaviors, needs, expectations
- equipment/accessories in the routes, and their qualities
- sensory effects on the users in their preferences of urban spaces

The users were surveyed through the questionnaire in order to evaluate their opinions about the area and adjective scales were used to obtain the impression of the users' reaction to some aspects of the physical environment which provides

important input for the description of the users' perceptions related to the space. The questionnaire asked basic demographic questions like age, sex, and nature of disability. It was also designed to gather data on participants' current city conditions and future city needs.

Of the 291 respondents who answered this question, the age range was 14 to 84. Of these respondents, 91 were under 40 years of age (31%), 143 between 41 and 60 years of age (49%), and 57 were 61 years of age or older (20%). Respondents' gender make-up was 166 males (57%) and 125 females (43%). With regards to the nature of disability, 71 respondents had a physical disability (24%), 17 were visually impaired (6%), 6 were hearing impaired (2%), 17 had psychological disabilities (6%), and 14 had other disabilities, such as learning disabilities (5%). Additionally, 15 reported having multiple disabilities (5%). Sixty-four respondents used mobility aids (22%), while 227 did not use aid of any kind (78%). Of those who did, 6 used scooters (9%), 5 used crutches (8%), 7 used a cane (11%), 43 used wheelchairs (67%), and 3 used white canes (5%).
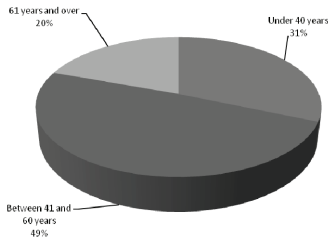
Figure 1. Age of Respondents (Source: Authors)
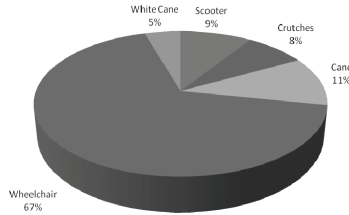
Figure 2. Mobility Aids. (Source: Authors)

EXAMPLES OF EQUITY ACCESS IN TRADITIONAL IRANIAN CITIES

Routes are a part of urban communication networks which originally provide access to urban residential spaces. In the past cities people generally traveled on foot. Speed was not as yet an important factor in transportation, therefore, the two different types of roads and routes of communication were not distinguished.

Travelers, though few in number, met on urban spaces. In time, these open and covered extents of space along the networks of communication, that is roads, squares and points of entrance, developed into cities. Alleys and narrow streets within the residential districts were used for semi-public functions. In fact, routes performed other and more extended functions.

With relation to design and construction of Iran past cities examples of inclusive design which have roots in Islamic ideology can be observed in urban environments. For instance sitting platforms (Pîrneshîn), slope surfaces of roads and alleys have been measures in order to help people who are physically restricted. It would be apposite to refer to examples of textures of Iranian cities. These examples are set out to demonstrate the inclusion of urban spaces from different aspects. They are about the desert township, Abyaneh, and Masouleh.

- Abyaneh is a famous historic <u>Iranian</u> village near the city of <u>Kashan</u> in <u>Isfahan Province</u>. This village is located in a rather deep valley and high and approximately upstanding walls of mountain. Position and situation of the village texture are in a linear form. Being situated in a mountain region, it has taken some special architectural features.

Communicational routes in Abyaneh are designed with slopes because of regional mountains. Steep slope of the village in the foot of the mountain has given a special form to buildings and routes. Due to this steep slope, buildings are constructed with different levels and can have direct relation with different levels by using routes that are situated on different levels. Buildings are built in a way to ease the citizens coming and going in different seasons.

Figure 3. Routes in Abyane. (Source: Authors).

- Masouleh in the North of Iran demonstrates the uniqueness of the traditional texture. In this village architectural elements, and local materials created a unique homogenous environment, a combined texture of houses and buildings with nature and culture. The village, built on a steep slope of a mountain, has used this natural slope in the best way.

The natural sloping condition of Masouleh affected the building forms and routes. The buildings have been built into the mountain and are interconnected. These are mostly two or three stories (1st floor and below floor) and access is gained to the buildings from the upper and lower levels.

Through sloping routes and without using any stairs, village residents are led from the lowest point of the village to the highest. But in some parts, 2 levels are connected with some stairs to help the people that prefer fast accessibility. Because of the sloping site of the village, the routes inside the village lie on the roofs of the houses below in order to provide access of spaces for all people. In fact courtyards and roofs both serve as pedestrian areas similar to streets. A walk around town is very pleasant. In Masouleh the small streets and steep slope also wouldn't make possible for vehicles to enter. It is the only village in Iran with such a prohibition.

Figure 4. Routes lie on the roofs of the houses in Masouleh. (Source: Authors)

- In entrances of old cities buildings, there are some platforms called Pîrneshîn which is a communal space for neighbors to gather and speak there. Furthermore, Pîrneshîn is a place to be used as a sitting and resting space for elderly persons and people carrying heavy loads. In side surfaces of many routes that were built for providing access to residential spaces, some platforms were made so the people could take breath when tired. This issue caused the existence of social activities in addition to the communicational activities that are one of the most important functions of urban spaces. Face to face communication of the people that used to exchange information and thoughts when visiting, was the social activity in routes and alleys that could form a part of people's spare time.

Figure 5. Platforms (Pîrneshîn) in entrances of buildings and routes in desert township. (Source: Authors).

FINDINGS BASED ON THE SURVEY

When the users were asked for what reasons they use the urban spaces and alleys, it was determined that they mostly prefer the area for speaking, meeting with friends, and performing the social activities.

Eighty percent of the respondents reported that they arrive to the urban spaces comfortably, whereas 30% indicated that there was no appropriate pedestrian pavement leading to the routes, and the pavements frequently intersecting with the vehicular roads make the pedestrian movement difficult.
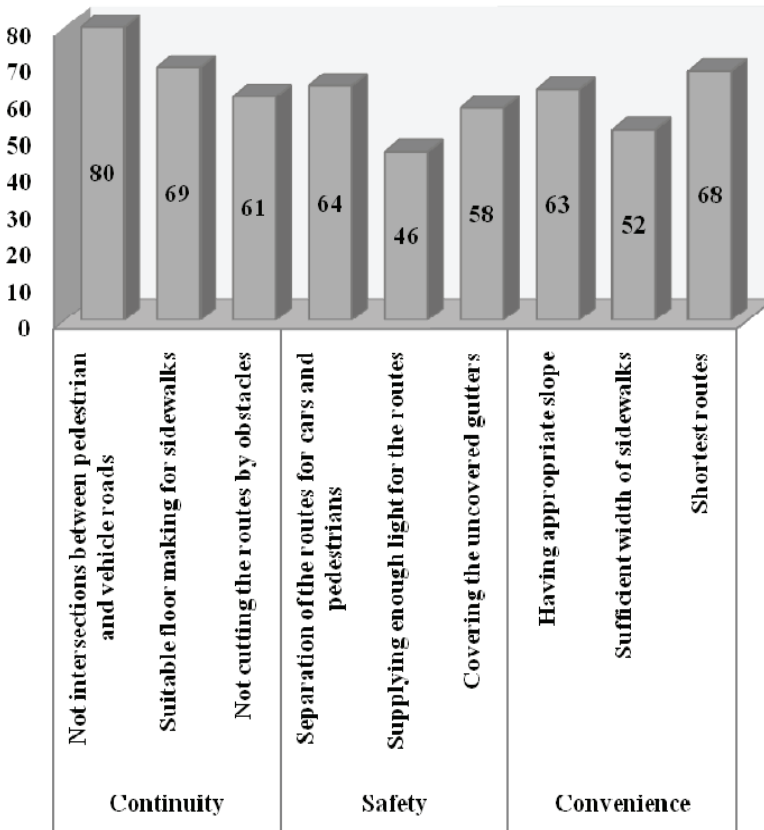
Figure 6. Respondents' Opinions about the Quality of the Routes in Cities. (Source: Authors).

The qualities of the urban spaces were determined primarily in terms of general appearance and sensory effects on the user. The appearance of the outdoor spaces is considered to be an important factor in the space's attraction and inviting quality. Users cited the sensory effect as their reason for preferring the space. Nearly 64% of

the respondents considered that the general appearance of urban spaces is moderate. The respondents evaluated as "moderate" the qualities of the space's being comfortable, clean, safe, orderly.

The survey asked for the respondents' opinions regarding the quality of the landscape accessory elements in the routes. The landscape elements in the outdoor spaces are the half-fixed components that provide the spatial quality. The individual quality of the landscape accessories that animate the space is accepted as the determining element of the total quality.

69% of the respondents rated ground covering, 46% rated the lighting elements, and 61% rated the quality of the green as "moderate". Nearly 74% of the respondents stated that they enjoy using the alleys. Users considered that the changes related to ground covering material and arrangements to create a more efficient use of space are "not necessary". The respondents are of the opinion that establishment of elements for shade, slope of routes, use of aesthetic materials in the arrangement, and facilities for the disabled are "good".

CONCLUSION

The findings of the research showed that social equity and the shaping of an inclusive community are among the problems of developing countries and it is evident by fulfilling purposive fundamental measures a inclusive condition will be prepared for urban spaces which is one of the chains of equity provision.

people who experience disabilities have equal rights to access the physical environment, information, communication and services including education, employment, recreation, rehabilitation, participation as citizens, health and accommodation services.

Equitable opportunities for all people is critical to the development of our city. People with disabilities should have equity, regardless of gender, ethnicity, type of disability and when the disability was acquired. All people, including those with disabilities, have the right to live in an inclusive community where they are able to make the most of their talents and abilities in learning, training and work.

On the other hand, safety and convenience providing are some ways of public health level promotion especially from mental aspect that achieving them can indirectly decrease hazards. Finally it can be said that with inclusive design, urban and architectural spaces can be accessible for the people with physical and movement limitation and help them participate in personal and social aspects.

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BIOCLIMATIC ISSUES IN THE DESIGN AND CONSTRUCTION OF TRADITIONAL AND CONTEMPORARY OPEN SPACES IN GREECE

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ABSTRACT

Open spaces constitute vital parts of urban centers, especially in countries with Mediterranean climate, such as Greece. This paper attempts to analyze the design and construction parameters that characterize urban open spaces in traditional settlements and contemporary cities with respect to bioclimatic architecture, to point out similarities and differences, and to draw relevant conclusions.

Keywords: Urban open spaces, Greece, Materials, Thermal comfort

INTRODUCTION

In areas around the Mediterranean Sea, private and public open spaces constitute an integral part of the people's everyday life. For an extended period of the year, from April to October, many activities, especially leisure, can take place in the open air. In earlier times, most of the household activities took place outside, as well. Aris Konstantinidis (1987: 13) once said that "the mild Greek climate gives us every opportunity to live comfortably outdoors, namely to live under the sky, in open spaces". While it is certain that the stay in open spaces depends, above all, on the need of people for social contact and interaction (Rapoport, 1969: 68-69), it has also been linked to the prevailing thermal, visual and acoustic comfort conditions.

In the last decades, the open space of the city, its microclimate and the resulting thermal comfort conditions during different periods of the year have been the object of numerous small and large-scale studies (Boussoualim, 2000; Nikolopoulou, et al., 1998), including the E.U. RUROS project. (Nikolopoulou, 2004; Chrisomallidou, et al., 2002; Dessi, 2002; Katzschner, 2000; Katzschner, et al., 2002; Nikolopoulou and Steemers, 2000; Nikolopoulou, 2000) The reason for this interest is that microclimatic and thermal comfort conditions may affect the patterns of use of open spaces, with

consequent influence on the use of environmentally friendly means of transportation (Pressman, 1991; Nikolopoulou, et al., 1998: 179; Marques de Almeida, 2002: 437) and the overall sustainable development of the city. Furthermore, the good bioclimatic quality of open spaces has been linked to their safety, because of their increased use and contact with the surrounding buildings. (De Schiller and Evans, 1991)

The design and the construction materials of open spaces play a decisive role on the heat transfer processes that take place between the city and the climatic environment. In cities with warm Mediterranean climate, the long hours of sunshine and the intensity of solar radiation during the summer, result in elevated surface and air temperatures. These high temperatures largely affect the urban microclimate and outdoor thermal comfort conditions, which in turn may limit the use of open spaces.

Apart from the above, modern cities are like living organisms, which absorb large sums of energy, water and raw materials from their direct and wider environment and at the same time reject large quantities of waste to the air, the ground and the water. The same applies to the materials that are used for the construction of the different parts of the city, namely their open spaces and their buildings. During each stage of their construction (extraction, production and transportation) raw materials, energy and water are drawn and air, liquid and solid waste is emitted, forming their environmental impact. The wide use of building materials with negative environmental impact further increases the need not only for over-exploitation of the planet's resources, but also for the absorption of even larger quantities of waste.

For the above-mentioned reasons, it is imperative to look into the design and construction of open spaces through the scope of bioclimatic and environmentally friendly architecture. This paper attempts to analyse the design and construction parameters that characterise urban open spaces in traditional settlements and contemporary cities with respect to bioclimatic architecture, to point out similarities and differences, and to draw relevant conclusions. The choice to compare traditional and contemporary open spaces is deliberate and derives from the fact the traditional architecture of every area is based on the accumulated experience and practice of many centuries and can constitute a continuous source of knowledge. The use of local materials and the harmonisation with the local environment and climate are some of the factors, which contribute to the distinct architectural identity of every area.

METHODOLOGY OF THE STUDY

It is acknowledged that the design, the construction and the shaping of open spaces is primarily influenced by the prevailing social and economic processes, which differ considerably from time to time. In vernacular settlements, the street was used as an extension of the house, especially in the islands, whereas the square as a place of meeting and social interaction. These open spaces were not designed, but rather resulted from the voids that were left by the buildings. On the contrary, in contemporary cities, the street and the square are, in many cases, the object of detailed design, which often results from architectural competitions.

Figure 1. Photographs of the selected open spaces. a. Doltso Square, Kastoria, b. Psarades Square, Lake Prespa.(Karadedos, Tsolakis, 1998: 166), c. Chora Square, Amorgos Island (http://photosamorgos.blogspot.com), d. Syntagma Square, Athens (http://el.wikipedia.org), e. Omonia Square, Athens, f. Kotzia Square, Athens

This study solely focuses on the aspects of open spaces that are in the scope of bioclimatic and environmentally friendly architecture. For this reason, the analysis / comparison concerns two distinct elements, design aspects and constructional aspects. The quantitative analysis involves specific case-studies of open spaces in traditional and contemporary surroundings: 3 in different traditional settlements around Greece (Doltso Square in Kastoria, the square of Psarades, Lake Prespa and the square in the Chora of Amorgos Island, The Cyclades) and 3 squares in Athens (Syntagma Square, Omonia Square and Kotzia Square). (Fig. 1) It was performed with the Ecotect v.5.5 software on three-dimensional models of the selected urban spaces, which were drawn over drawings from Moutsopoulos (1998:109) and Karadedos, Tsolakis, (1998: 165) (squares of Doltso and Psarades), by G. Antoniou (Amorgos square) and pictures from Google Earth (squares in Athens). (Fig. 2)

Analysis of design aspects

The analysis of the design mainly involves the scale and the geometric characteristics of the open spaces and their surrounding buildings, which in combination with orientation, affect insolation and shading during the different periods of the year. Shading and insolation patterns in an open space largely affect microclimatic and thermal comfort conditions throughout the year. The requirements for the cold and the hot period of the year are diametrically different. During the winter, there is need for sufficient insolation, whereas during the summer shading is desirable.

Another aspect of the design involves the materials, which form the horizontal surfaces and through their optical and thermo-physical properties affect the absorption and reflection of incident solar radiation and the retention of heat. It

should be noted that water and vegetation can also be considered as building materials of an open space, which have their own unique characteristics and properties. Consequently, the use of materials can, in combination with the climatic conditions, affect the microclimate, thermal as well as visual comfort conditions.

Apart from the above, during the winter, protection from the cold, prevailing winds is essential, while during the summer cooling through different means (air movement, evaporation, vegetation, etc.) is desirable. The former depends mainly on the design of the space relevant to the prevailing winds, whereas the latter on the appropriate integration of elements such as plants and water surfaces. Furthermore, throughout the year, there is need for visual comfort and avoidance of glare, which depends on insolation and shading in combination with the optical properties of the applied materials.

Insolation and shading, as well as wind circulation in a certain open space are dependent on the geometrical characteristics of the open space, namely the height of the surrounding buildings in relation to the width of the open space. In this paper, shading and insolation is analysed with the Ecotect v.5.5 software. The three-dimensional models of the spaces are tested for representative periods of the year: winter solstice (21st of December), summer solstice (21st of June) and vernal / autumnal equinox (21st of March and September, respectively) and representative hours of the day (09:00, 12:00, 15:00 and 18:00). This method of approach was selected because it is more detailed and comprehensive than the representation of sun azimuth and altitude angles on the plan and sections of the open space, while it offers the possibility to perform a multi-faceted analysis, which involves 3d images, shading masks and calculation of incident solar radiation and daylighting levels. In this paper, due to restrictions of space, only the shading analysis is presented.
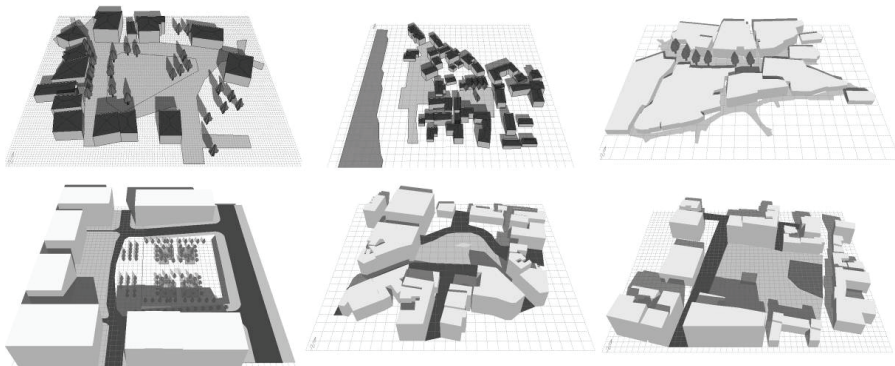
Figure 2. Ecotect model of: a. Doltso Square, Kastoria, b. Psarades Square, Lake Prespa., c. Chora Square, Amorgos Island, d. Syntagma Square, Athens, e. Omonia Square, Athens, f. Kotzia Square, Athens

Analysis of constructional aspects

The constructional aspects of open spaces are examined as regards to the environmental impact of their materials and construction details. The environmental impact of building materials involves both quantitative parameters and qualitative parameters. The former comprise of:

- Energy consumption (embodied energy). (Berge, 2003; Woolley et al., 1997)
- Air pollution (emissions of CO_2, which contribute to global warming, SO_2, which cause acid rain, and NO_x, which contribute to the formation of photo-chemical smog and to the eutrophication of waters). (Berge, 2003; Woolley et al., 1997)
- Water consumption. (Berge, 2003)

The environmental parameters, which can mainly be described with qualitative data, are:

- Ecological degradation (e.g. resource consumption, landscape and ecosystems destruction, production of dust, noise and vibrations, and possible cause of environmental disasters). (Berge, 2003; Woolley et al., 1997)
- Toxic substances, which affect the environment, human health or both. (Berge, 2003; Woolley et al., 1997)
- End-of-life-cycle issues, such as the possibility to repair/restore, reuse or recycle, and of course, waste. (Berge, 2003; Woolley et al., 1997)

Last but not least, it should be noted that for the city scale, the surfaces that form open spaces (materials and construction details) may affect the water-cycle as they influence the amount of rainwater that is absorbed by the ground and eventually ends up in the underground water bodies, as well as the amount that is lead to the draining system (runoff). (Landsberg, 1981)

DESIGN AND CONSTRUCTION OF TRADITIONAL OPEN SPACES

Design aspects

The scale, geometric characteristics, special features (vegetation and water) and construction materials of traditional open spaces are in close relationship to the local environment and climate. The open spaces are smaller in size and the buildings that surround them usually have one, two or maximum three storeys. Usually, they are situated in the immediate vicinity of one or more churches, as the church was at the centre of the traditional social life.

There are differences between the open spaces in mountainous and rural settlements in the mainland and those on the islands. These mainly concern their geometrical characteristics. In this way, the squares of island settlements are smaller and more confined by the buildings of the settlement, a fact that is mostly attributed to issues of safety (protection from pirate attacks), but can also be linked to climatic factors (intensity of solar radiation). Vegetation, in the form of one or several trees is a common element that is found in all traditional squares. These trees in the higher latitudes and the mountainous areas are usually deciduous (e.g. plane and chestnut

trees), while on the islands, they maybe deciduous or evergreen, local or indigenous, with the ability to withstand heat and drought (e.g. pines, olive trees, eucalyptus, acacias, etc.). Furthermore, in the rural and mountainous settlements, the element of water in the form of springs and watering reservoirs is also found.

The shading / insolation analysis and the sun-path diagrams (Ecotect v.5.5. software) show that only in the case of the Amorgos square, which is the narrower and more secluded of the three, there is sufficient sun-protection during the hot, summer period. Furthermore, in all three squares, the low sun altitude angles during the winter result in the overshadowing of significant parts of the squares.
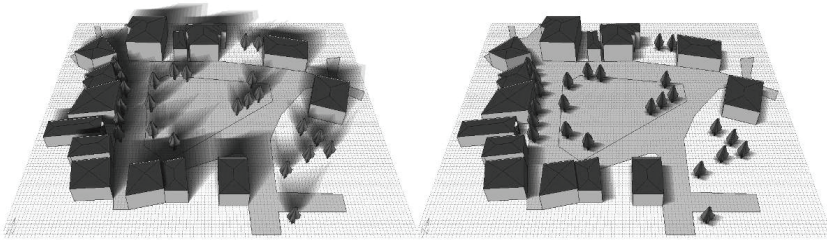
Figure 3. Doltso Square, Kastoria. Shadow range at noon (from 12:00 to 15:00) on: a. December 21st and b. June 21st
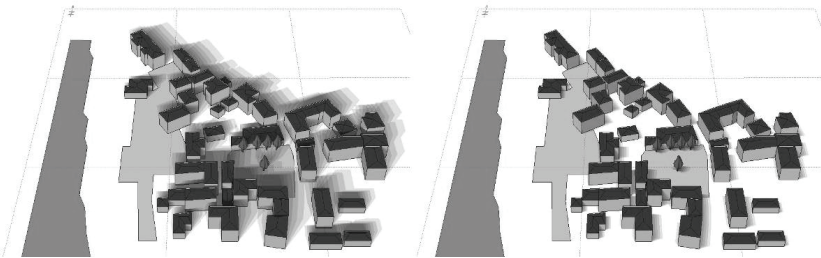
Figure 4. Psarades Square, Lake Prespa. Shadow range at noon (from 12:00 to 15:00) on: a. December 21st and b. June 21st
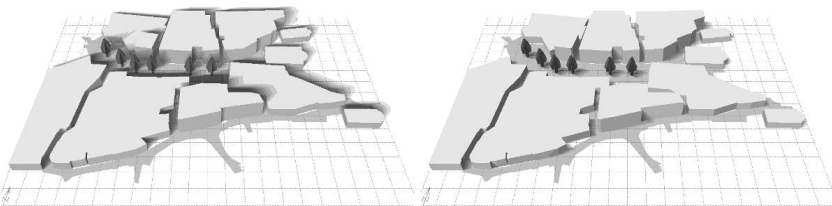
Figure 5. Chora Square, Amorgos Island. Shadow range at noon (from 12:00 to 15:00) on: a. December 21st and b. June 21st
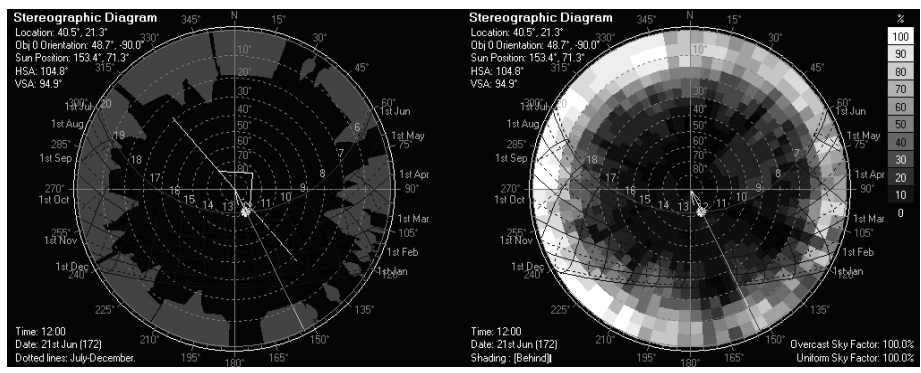
Figure 6. Doltso Square, Kastoria. Sun-path diagram and overshadowing percentages for the central area of the square
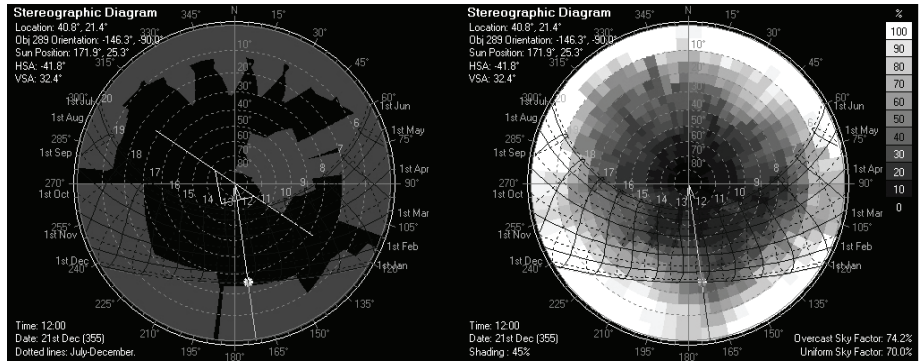
Figure 7. Psarades Square, Lake Prespa. Sun-path diagram and overshadowing percentages for the central area of the square
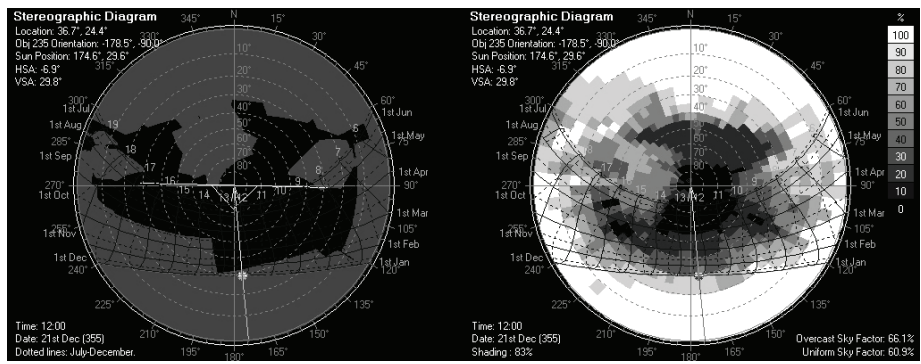
Figure 8. Chora Square, Amorgos Island. Sun-path diagram and overshadowing percentages for the central area of the square

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Construction aspects

The materials, which form the final layer of traditional open spaces, are usually slabs or blocks of local stone or slate placed on earth substrate. There is also extensive use of earth. The choice of natural materials with little or no modification that are usually taken from close distances results in very low embodied energy and air pollution values, while at the same time confines ecological degradation (resource consumption and landscape alteration) to the immediate vicinity of the settlement. Furthermore, the placement directly on an earth substrate without the use of connecting mortar facilitates recycling and reuse, while it increases the water-permeability of the surfaces.
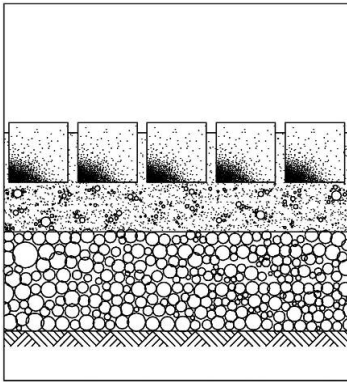
Figure 09. Detail of blocks placed on a sand substrate, adapted from (Tsiora-Papaioannou, 2004)
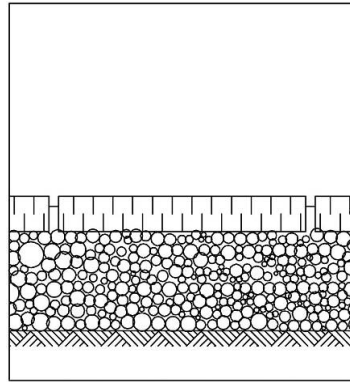
Figure 10. Detail of stone slabs placed on a aggregate substrate, adapted from (Tsiora-Papaioannou, 2004)

DESIGN AND CONSTRUCTION OF CONTEMPORARY OPEN SPACES

Design aspects

Open spaces in contemporary cities, namely squares with a clear urban character, are usually large and are characterised by the predominant use of hard paving surfaces and the absence or scarcity of vegetation. In many cases the trees are placed in the periphery of the square, near the surrounding buildings, leaving the central part of the square void. Among the presented examples, only Syntagma Square has groups and rows of trees incorporated in the design of the square. The water elements that are used in contemporary open spaces are usually jet fountains. These are usually placed in the centre of the squares, based on aesthetic criteria. Consequently, even though water exists, it does not help improve microclimatic conditions. It should be noted, though, in Syntagma Square there are water-walls placed on the sides of the square, which cause a downward draught of cool air and have a local cooling effect.

The shading / insolation analysis and the sun-path diagrams (Ecotect v.5.5. software) show that in all three cases there is increased overshadowing by the surrounding buildings during the winter due to the low sun altitude angles. On the contrary, during the summer, the high sun altitude angles and the absence of vegetation result in increased insolation and lack of shading throughout the day.
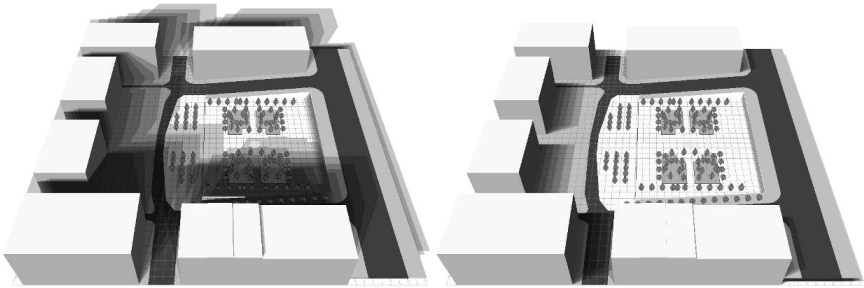
Figure 11. Syntagma Square, Athens. Shadow range at noon (from 12:00 to 15:00) on: a. December 21st and b. June 21st
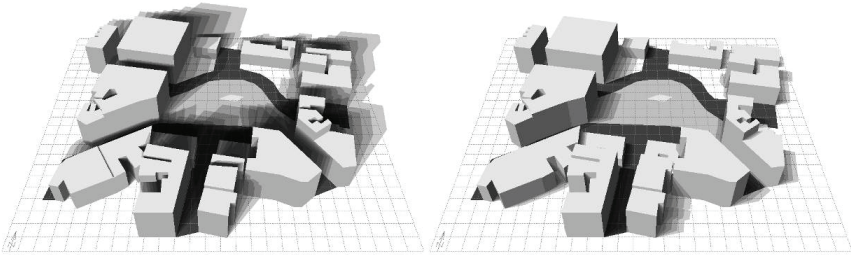
Figure 12. Omonia Square, Athens. Shadow range at noon (from 12:00 to 15:00) on: a. December 21st and b. June 21st
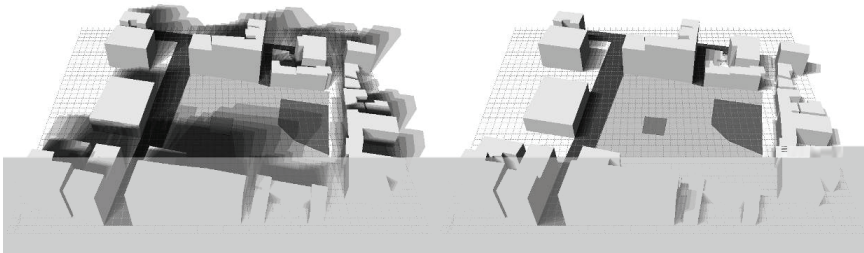
Figure 13. Kotzia Square, Athens. Shadow range at noon (from 12:00 to 15:00) on: a. December 21st and b. June 21st
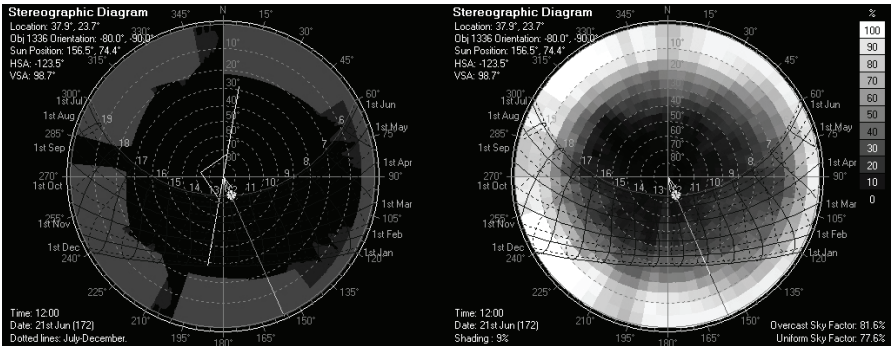
Figure 14. Syntagma Square, Athens. Sun-path diagram and overshadowing percentages for the central area of the square
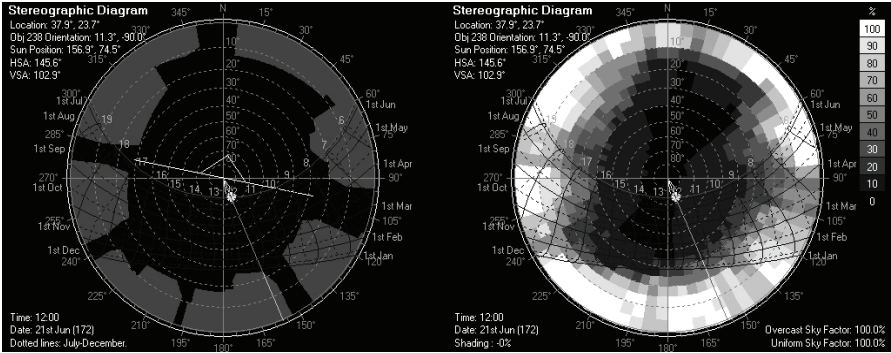
Figure 15. Omonia Square, Athens. Sun-path diagram and overshadowing percentages for the central area of the square
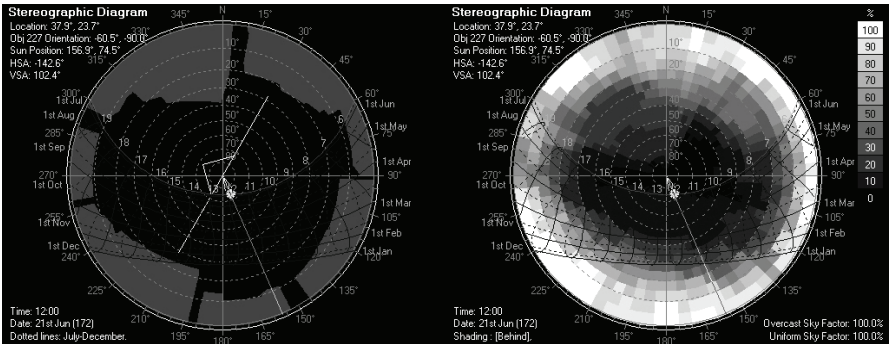
Figure 16. Kotzia Square, Athens. Sun-path diagram and overshadowing percentages for the central area of the square

Construction aspects

In the contemporary open spaces, the variety of the used materials and their construction details is immense and depends mainly on aesthetic and economic issues. The common element of most open spaces is the predominant use of hard materials and their placement on a solid concrete substrate with sealed joints of concrete mortar.

The use of cement-based substrates and mortars raises the total embodied energy of the structure, with a significant increase, which ranges from 30 to 60%, depending on the materials, which are used each time. (Bougiatioti, et al., 2009) Furthermore, the use of concrete and mortars significantly affects end-of life-cycle issues of the materials, such as their reuse, recycling or rejection, as it does not allow for dismantling and reuse. During maintenance work of city infrastructure and networks and after demolition, most surfacing materials cannot be separated from the mortars and, consequently, lose the possibility of being primarily reused. As a result, the only possibility of recycling is to grind them into second-hand aggregate or deposit them in legal or illegal landfill sites. Finally, this type of construction negatively affects the water cycle, as does not allow the absorption of rainwater from the ground.

CONCLUSIONS

Concerning design aspects

The scale and the geometrical characteristics of traditional and contemporary open spaces vary considerably. Even so, in all the analysed case-studies, there is lack of shading by the surrounding buildings during the summer, around noon, when the sun is at its highest (e.g. 74.4 degrees for Athens, on June 21st, 12:00). The main difference is that in the traditional surroundings, the presence of trees provides shaded and consequently cooler areas within the square.

In the areas around the Mediterranean, shading, in whatever way it is achieved, is of utmost importance in order to ensure acceptable microclimatic and thermal comfort conditions. Shading is also very important as it helps maintain the surfaces temperatures of the paving materials at low levels. Measurements of surface temperatures of shaded and exposed materials presented in Bougiatioti (2005) clearly demonstrate that the effect of shading is more pronounced in the case of dark-coloured materials (e.g. asphalt, dark-coloured stone, etc.). The differences in the surface temperatures of exposed and shaded dark-coloured materials are very large, ranging from 19 to 28 ^{o}C for the absolute maximum temperatures, and from about 13 to about 21 ^{o}C for the mean temperatures. In comparison to the mean ambient temperatures, the mean surface temperature of the exposed materials was approximately 10 to 18 ^{o}C higher, whereas shaded materials were nearly always cooler than the air temperature. Finally, around sunset, exposed materials were found to be 5 to 9 ^{o}C warmer than the air temperature, while shaded materials were considerably cooler. This quantitative data becomes even more important if we consider that in most traditional and contemporary open spaces, the applied paving materials are usually dark-coloured or become darker because of their use.

Apart from the above, the use of vegetation and water elements in traditional open spaces is not "designed" but spontaneous and directly linked to the use and the activities that are fostered there. On the other hand, vegetation and water elements in contemporary open spaces in Athens comply with the design and in this way, rarely contribute to the improvement of the prevailing microclimatic and thermal comfort conditions. Only in rare cases (e.g. Syntagma Square, and Eleftherias Square, which is not presented in this paper) water elements are combined with the use of shade trees resulting in improved microclimatic conditions, even during the hottest days of the summer months.

Concerning construction aspects

Concerning the constructional aspects, the principles of traditional architecture, which can be relatively easily integrated in contemporary open spaces, mainly involve the choice of materials and their construction details. At this point, it must be noted that in many cases the use of natural materials in traditional construction resulted from the under-development of industrially manufactured materials, their scarcity and extremely high cost. (Rapoport, 1969; Smith, et al., 1998; Wines, 2000) Nevertheless, natural materials are used with great efficiency enforcing the bioclimatic function of the open spaces, their environmental impact, as well as their aesthetic integration to their natural surroundings.

The use, whenever possible, of local natural (stone) or locally produced artificial (modular cement or ceramic elements) materials can significantly reduce embodied energy and air pollution from construction and transportation. Furthermore, the absence of connecting mortar in the placement and the sealing of the joints of modular elements can promote their reuse and recycling, as well as their easy removal and re-placement in the case of maintenance work of the city underground supply networks (electricity, natural gas, water, telephone). Water permeable and semi-permeable horizontal surfaces can retain an important part of the rainwater during storms, and in this way reduce runoff and increase the quantity of water that is conducted to the underground water reservoirs. Furthermore, part of the water that is retained evaporates to the environment and, in this way helps the regulation of the urban microclimate.

From this preliminary analysis of the design and the constructional aspects of traditional and contemporary open spaces, similarities and differences concerning their scale and geometrical characteristics, the presence of vegetation and water elements and the use of surfacing materials are noted. Further and more detailed research should also include issues of daylighting and glare, as well as thermal comfort with the calculation of daylighting levels and spatial comfort indices (Predicted Mean Vote-PMV, Predicted Percentage of Dissatisfied-PPD, Mean Radiant Temperature-MRT, etc.), respectively.

Finally, it should be noted that this approach does not propose the abandonment of all current design and construction principles and the return to the simple design and the strenuous construction practices of the centuries preceding the industrial revolution. It merely looks into the principles of vernacular tradition concerning the design and the construction of open spaces in order to assess and integrate them to the present.

ACKNOWLEDGEMENTS

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RECONSTRUCTION OF THE VERNACULAR

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ABSTRACT

Postmodernism is a world of reproduction as it commodifies the original by distorting, adapting according to the market. Thus, the original artefacts and notions of tradition lose their meaning and rather gain a commercial value. As a result the formalistic use of Turkish vernacular architecture formed only an illusion of traditional settings for its inhabitants but created a great commercial value for its developers and nostalgia for its users. The aim of this paper is to present the image-production process experienced in Turkey via architecture named 're-construction of the vernacular'. 'Vernacular' Turkish architecture has been subjected to various 'understandings' of its characteristics in contemporary Turkish architecture. The paper will discuss the change in this 'understanding' by examining the three cases: vernacular in Sedad Hakkı Eldem's architecture, vernacular in the neo-traditional town scheme of Kemer Country in Istanbul and vernacular as an institutional identity preferred for Koc University in Istanbul. In the first one 'traditional Turkish house' was a source to create a national identity. For the other two examples the vernacular was again the source, but this time with the motivation of selling and attraction rather than forming a layout of a new architecture. This paper will question the claimed identity in the design of these three cases to illustrate the change in 'understanding of vernacular' in accordance with the global factors and post-modern conditions that led to the emergency of hyper-traditions.

Keywords: Regionalist concern, Vernacular Turkish architecture, Modern Turkish architecture, Kemer Country, Koc University

INTRODUCTION

Regionalist concerns have been always in the agenda of architectural discourse and practice but in different meanings and contents since the first century B.C. The notion of regionalism is existed in architectural discourse in Vitruvius' book (1960) but conceptualised as a way of criticism since the late 18th century. The concept is an historical phenomenon has changed according to the particular time and place. Modernity has challenged to the tradition pointing out not the past but today would create the future. Rational and universalist character of modernity project proposed a common culture for the humanity without much respect to the cultural particularities. Late in the 20th century modern architectural discourse and practice has been

questioned in favour of tradition and local values. Criticism on the modernity and modern architecture was flourished at the post capitalist environment after the Second World War. The new era called postmodernism witnessed the commodification of differences.

In postmodern times, with the advent of global telecommunications, the mass media, information technology and transportation, organizations gained power, states lost power, citizens became consumers, and economies became organized around consumption (Kellner, 2003; Richter, 1996). In the words of Featherstone (1991), in a late capitalist society, sign and commodity have come together to produce the 'commodity-sign' and that the 'aestheticization of everyday life' and cities has become the arena in which consumer culture to develop. As Baudrillard (1998) describes this postmodern condition, the consumption of goods is a part of competition for prestige. It is a fact that consumption is a system of signs and consumers consume signs (or meanings) rather than actual commodities (Özdemir, *et al.,* 2007). Within this context, consumption has played an important role in the emergence of post-modern culture (Miles, 1998) and has become an important determinant of architectural production. As Frederic Jameson writes (1984) *what has happened is that aesthetic production today has become integrated into commodity production.* According to Baudrillard, today there are only models that reproduce reality and from now on simulation will replace reality. The overall aim of postmodernism in the 1980s was not the mass production and consumption, but a flexible production targeted to the different segments of the growing market. This flexible accumulation regime within the organization of production necessitated rapid changes in today's consumption patterns and heightened the competition among the sectors of economies (Özdemir *et.al*., 2007). Most importantly history and tradition were subjected by consumerism. Locality was assimilated by the global forces and presented to the market as a pseudo-locality.

The dramatic change on the regionalist concerns of architecture through time is the main theme of this article to understand the change in the cultural politics and the meaning of culture in the contemporary world. The paper will present the changing understanding of vernacular in modern Turkish architecture by three significant cases taken place in different periods. Vernacular architecture as an inspiration source of modern Turkish architecture initiated mainly by Sedad Hakkı Eldem will be questioned with its relation to the European modern architecture. His aim of the national architecture based on the vernacular architecture resulted in abstracted and aestheticised forms derived from a Turkish house defining an architectural style of its period called the Second National Architecture. Postmodern understanding of the vernacular in Turkey will be analysed through the neo-traditional town of Kemer Country in Istanbul in which an illusion of vernacular architecture rather than its original characteristics satisfied the costumers. It is used to form an aetheticised, theatral visuality of a Turkish *Mahalle* as the main concept of the scheme. The third case for postmodern interpretation of the vernacular is the architecture of Koc University's Rumelifeneri campus. In this example vernacular architecture is not used as in its original form or abused as in the case of Kemer Country but rather it is adapted directly from Sedad Hakkı Eldem's interpretation of the traditional Turkish architecture to create an institutional identity. Eldem's style was stylised again but in much formal way. Since the 1980s, critical regionalism although aims to show that there is a possibility of making architecture inspired from its place without being

nostalgic about the history or tradition, architectural praxis in the post-modern world and Turkey show the problematic situation of vernacular today.

LEGITIMACY OF VERNACULAR ARCHITECTURE FOR MODERN TURKISH ARCHITECTURE

Since the 1920s transforming the society from the religious based Ottoman Empire to a nation based Republican State led to a new set of principals and concepts. The 'modern look' was the most desirable form of representation in the Republican world. It was clear that references to the Ottoman monumental buildings were not longer desirable to the architects and building patrons of the new state (Nalbantoğlu 1993: 67). Various government offices invited numerous European architects to introduce the modernist ideas to architectural education and practice by the late twenties. Flat roofs, horizontal window strips, whitewashed surfaces well received by the young Turkish architects and represented successfully the 'modern look'. However, in the 1930s, Anatolian themes were at the centre of the nationalist and official production of culture for the modern Turkey (Bozdoğan 2001). Vernacular architecture and pre-Islamic civilisations of Anatolia became the new sources for the search of a modern and national Turkish architecture (Bozdoğan 2001:255).

European architects had a significant role in encouraging the traditionalist discourse both in education and practice (Bozdoğan 2001, Nalbantoğlu 1993). Ernst Egli, Clemenz Holzmeister, Bruno Taut and Paul Bonatz encouraged the studies of vernacular architecture through their teaching of the early generation of republican architects (Bozdoğan 2001:257). Besides, some of the Turkish architects were in favour of national style. Sedad Hakkı Eldem descendant of Ottoman elite and educated abroad (Tanyeli 2008: 42-131) was critical in understanding the modern architecture questioning its universalist audacity and pointed out the significance of national values (Eldem, 2009: 96-99). Eldem has exhibited his extensive series of colour perspectives and beautiful sketches in Paris and later Berlin under the title 'Countryside Houses for Anatolia' (Tanyeli 2008: 123). He projected images of individual dwellings with pitched tile roofs, repetitive windows and cubic window projections above solid walls set in a hypothetical countryside (Figure 1).

| Suna Kıraç Villa | Taşlık Şark Kahvesi | Ayaşlı Yalısı |

Figure 1. Buildings designed by S.H. Eldem

He stated that a style of national architecture is to be derived form the Turkish domestic architecture and imitation of the European style should be avoided (Eldem 1980: 90). His experience and studies in Europe led Eldem to 'discover' the modern qualities of the Turkish House such as lightness, transparency and modular logic both in structure and building design. He confirmed this idea indicating that one of the pioneering architects of the Modern Movement, Le Corbusier, was also deeply inspired by the Turkish house (Bozdoğan 2001: 261). On the other hand he was influenced by the architecture and ideas of the modern masters such as Le Corbusier, Auguste Perret and F. L. Wright. He devoted himself to the reinforced concrete skeleton believing its possibility of translation into the Turkish vernacular architecture (Özaslan 2004). The most important of these influences was of Frank Lloyd Wright's prairie houses published by Wasmuth. When he saw the album in Berlin, he believed that he '…*discovered some important elements of the Turkish house of the future in these designs. The long, low lines, the rows of windows, the wide eaves and the shape of the roofs were very much like the Turkish house I had in mind. This romantic, naturalistic houses were far more attractive than the box-like architecture of Le Corbusier*' (Eldem 1980: 91).

Overall, he believed that vernacular architecture represents the rational way of relationship between the place and people by using the local materials, construction methods and labour. Understanding of the vernacular architecture was the initial step to be able to create a national modern Turkish architecture. In other words traditional Turkish house was an inspiration source for contemporary national architecture. Thus vernacular was not an historical phenomenon although it belongs to the local traditions but rather a formal set of rules inherited from the past but open to use to construct the present. He was the most important figure of modern architecture that practiced, taught and researched architecture for more than fifty years in Turkey. His interpretation of vernacular architecture has been continuously the subject of architectural debate in Turkey and also influenced later attitudes.

RECONSTRUCTION OF VERNACULAR
THE CASE OF THE KEMER COUNTRY, ISTANBUL

According to Çalışlar (1988), the significant effects of popular culture became widespread after the 1980s, as if capitalism was acquitted because of the great economic success in Turkey at this time. The structure of society was also changing in Turkey, and a consumer society was created. During this period, various architectural styles started to be designed synchronously with Europe and Postmodern architecture arrived as a buzz-word in the architectural press. Regarding residential architecture, general attitudes developed based on eclectic references to traditional Turkish vernacular dwellings. In this consumption process, not only were the architectural styles peculiar to Turkey used and consumed, but also styles from other countries, mostly Western, were imported and consumed as an indicator of prestige. Designers were even selected from other countries just to impress potential buyers. Kitsch modes of representation became embodied into Turkish housing architecture as an indicator of 'being different'. Some housing typologies and even architectural terminology also became objects of consumption. For instance, the Turkish word '*konak*' – denoting a mansion, or large single-family dwelling in traditional Turkish vernacular architecture – began to be used in housing

developments to indicate a privileged status in consumer society, not necessarily a large house.

In the postmodern context the recent revival of traditional house forms were celebrated by the upper classes and emerging 'yuppies' of the 1980s. Neo-traditional towns are good examples to examine dissolution of 'real' space and its transformation into an 'invented' space by their developers. They in fact erase actual history and tradition and create a trademark names and images that have become an essential part of the identity of a 'consumer'. Thus tradition became a useful tool for the historization and aestheticazition of the modern world to sell more. Simulation of tradition distances itself from the real and actual turning into a new form called hyper-tradition that is found in many places such as U.S.A, India, Chine and Turkey.

New residential patterns, generally built outside the city, included swimming pools, tennis courts, horseback riding, and golf courses. The earliest and the most influential example of this is the Kemer County development located just outside Istanbul, which is one of the residential examples designed by a foreign architect representing a post-modern condition where traditional styles and elements are consumed that have no connection with the introduced lifestyle (Figure 2, Figure 3). At the beginning of the project, the developers of Kemer County began to establish ideas about the basic qualities of the residential area. The inspiration source originated from the nostalgia of the residential, social and urban qualities of old Istanbul where the developers actually grew up (Arradamento Dekorasyon 1993:114-121). They conceptualized the theme of the project 'not as an escape from the metropolis' but rather 'an arrival to the dream'. The commission was given to the American 'New Urbanism' architecture and planning firm of Andres Duany and Elizabeth Plater-Zyberk (DPZ), known for their traditional neighbourhood development (TND). DPZ's designs for Kemer Country were included in the exhibition of 'Vision of Europe' organized by Prince Charles and Leon Krier who have both criticized modern architecture and seek the active restoration and re-creation of traditional 'classical' urban values (Özaslan 2001). DPZ came to Istanbul for an initial charette, which became the design forum for the appropriation of vernacular form by an international team of designers. Neo-traditionalist architects took part, including the Egyptian architect Abdel Wahed El-Wakil who designed the Kemer County Country Club, in successive meetings of concise design work. Participant designers were also given essential information on the characteristics of traditional Turkish houses.

Figure 2. Kemer Country Villas, İstanbul

Figure 3. Kemer Country Lale Kasrı, İstanbul

A study tour to Safranbolu, an exemplary and well-preserved town of traditional settlement, strengthened the 'images' in the minds of the designers (Figure 4). The program and the plan of the individual houses do not share the characteristics of a traditional scheme. On the contrary, the designs represent a type of a suburban house in various sizes that can be found in the United States and recently in the other non–western countries such as India and China. In fact, the houses have little to do with the Turkish vernacular, except that one can get an illusion of its original appearance from the exterior provided by stylistic details such as projecting bays on upper floors (*cumba*), wide roofs (*sacak*), and round tiles (*alaturka*). The design and the construction process of Kemer County disclosed the formalistic use of vernacular architecture in order to create an artificial identity, not as the significant part of the self but to 'sell' the houses as architectural commodities. Just like in the Second National Style, the 'traditional Turkish house' was again a source, but this time with the motivation of selling rather than forming a layout of a new architecture.

Figure 4. Houses from Safranbolu, built in the early 1900s

REPRODUCTION OF THE VERNACULAR
THE CASE OF KOÇ UNIVERSITY, ISTANBUL

One of the turning points in the country's history was 1980s when liberalist socio economic approaches dominated international relations and national developments. Higher education system was centralised and all the universities were controlled by the Institution of Higher Education (Yüksek Öğretim Kurumu). Privatisation of the production, trade and services was the main issue of the Government which

supported the foundation of private universities financed mostly by the industrial based foundations in the 1990s. Bilkent University was the first in this sense and was founded in 1984 by Ihsan Doğramacı through the joint resolution of his various Foundations (http://catalog.bilkent.edu.tr). In October 1986 Bilkent University admitted its first students. The establishment of this private university was later approved by an act of Parliament in 30 November 1989. Postmodern architectural language of the era was dominant in the design of Bilkent University's buildings. Eclectic and historicist manner indicated to the classical European architecture probably to sign the relationship between the science and European culture as the University's name means 'City of Science'.

Sabancı and Koç families that hold the greatest companies in the country, were keen to invest on education. They established universities carrying their names Sabancı and Koc. Although there are several examples of private universities founded during this time they are particular due to their deliberate preferences for the architecture of their university buildings and campus. They employed architecture to represent their institutional identity through the historical references. While architecture of Sabancı University was designed by the explicit references to the Ottoman architectural past through its forms and materials, architecture of the Koc university was based on the vernacular architecture interpreted by Sedad Hakkı Eldem years ago. Here we will focus on the case of Koç University due to its use of vernacular architecture.

After a problematic process about the location of the university campus, it was constructed between 1997-1999 [1] in Belgrad Forest in Istanbul. The architectural design of the complex was given to both ARUP and Payette both with an international experience for designing the university campuses. ARUP's design was appreciated by the client but the proposal of Payette was approved due to its message and power to construct an institutional identity. The head architect of Payette, Mozhan Khadem, an Iranian origin- American architect, employed the regional and historical references as the main idea of his project. The client, Suna Kıraç, asked him to design buildings functional inside and traditional outside. '*It should be as classical and traditional as if a cultural heritage*' (Koç Üniversitesi, 2002: 220). Mohzan Khadem emphasised on his eastern origin even tough he lived in U.S.A. The client and the architect shared the same desire for a historicist architecture inspired form the vernacular architecture. His proposal astonished the client not only due to its way of presentation but in fact due to its references to the architecture of Sedad Hakkı Eldem who had designed numerous building for the Koç Family. Khadem explained the concept of their design and understanding of architecture that should be sensible to cultural and regional values but also functional.

On the other hand, similar to Suna Kıraç, Rahmi Koç, as the owner of the company, asked to the architect not to design a 'modern look' but relate to the history of the place but in a 'classical' manner just like Oxford and Cambridge universities (Koç Universitesi, 2002: 222). The architect and his office studied the history and culture of Turkey to be able to design 'culturally sensible architecture' (Koç Üniversitesi, 2002: 225). The design office was provided by Sedad Eldem's books and taken to his buildings. As a result, architecture of Koç University's Rumelifeneri complex contains eclectic interpretation of regionalist ideas but in the look of Sedad Eldem's style (Figure 6).

Figure 5. Koç University, İstanbul

The references to Eldem's various buildings are clear but influence of Istanbul University Faculty of Sciences and Letters designed by the trio of Sedad Hakkı Eldem, Paul Bonatz and Emin Onat, in 1942-43 is remarkable (Figure 6).
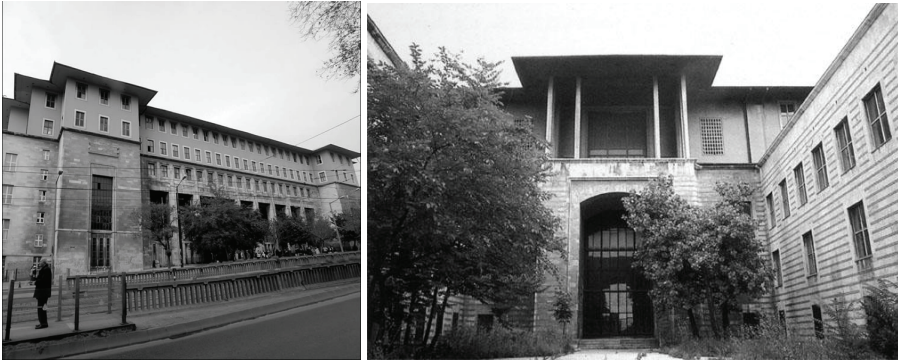
Figure 6. Istanbul University Faculty of Sciences and Letters, designed by Sedad Hakkı Eldem, Paul Bonatz and Emin Onat

CONCLUSION

Historically a desire to return to past, or tradition or cultural values most often occurs in moments of crises. The holy phrase of the postmodernism 'The presence of the past' (Eliot, in Venturi 1977: 13) draw our attention to new architectural forms as they relate to past urban images (Özaslan 2000). Postmodernity is assumed to free the particular identities but rather it helped to make them a consumption good which had only a value for its difference but noting for its originality. Some say it is a historical and cultural condition (Lyotard, 1984), while others say it is a movement in art and culture that corresponds to a new configuration of politics and economics, late capitalism, and globalization (Jameson, 1985). The latter use also uses the terms post-industrial or consumerism. So, in postmodern theories, consumption becomes a main factor behind lifestyle and culture (Miles *et al*., 2002), and consumerism is an important power. The cultural heritage in the conditions of consumer society has been inserted into a system of exchange in which any element can be abstracted

from its social and ceremonial context and assigned a monetary value (Root 1996: 73).

The paper showed that the 'past' is no longer history but a material for contemporary architecture. It is a kind of repertoire from which images could be taken and used as decorative schemes on façades. In fact vernacular architecture provides images for reproductions. The three cases mentioned in the article showed that the vernacular was treated as a medium of a formal repertoire. In the first case it offered lessons to learn from and some of its aspects carried forward to the future. The two other cases, however, show characteristics of the postmodern age where not the awareness but the production of plurality was the major focus of cultural industry. Vernacular lost its authenticity and reconstructed according to the demand of the market. Eldem's style of modern Turkish architecture was already an interpretation of vernacular. But he was in an effort to justify how in fact the Turkish house embodied the modern design principals. The reason was to invent an architectural language that could communicate with its public and also represent in the modern world by signifying the genuine cultural identity of Turkey. Paradoxally both history and modernity was employed to understand the logic behind the vernacular architecture and create a mode of representation in a very utilitarian manner.

The use of traditional vernacular architecture in the case of Kemer Country and the Koç University is a result of postmodern conditions in which paradoxes and particularities supplied the ongoing production. Dualities of modernism and juxtaposed contradictions are easily combined to produce a commodity with sign value. However Lewis Mumford (Tzonis 2003: 20) defined architecture as a rational dialog between the earth and people which undoubtedly contains the assets of the time without a need to repeat the tradition. Traditional vernacular architecture was concerned as information to understand the earlier ways of the dialog between the place and its community but not a formal repertoire. What make valuable to the vernacular architecture today is not the forms but rather its power to represent the reality of the earth and mankind. It is therefore a moral and rational way of making architecture in any time if can be avoided from the postmodern abuse and remember its ability to create endless variety of representation modes for each relation of man and earth.

ENDNOTES

[1] The Project was designed by Boston Design Collaborative lead by Mohzan Khadem. Application Project was draw by Meteks, Engineering Project was developed by the İstanbul Office of ARUP and Garanti-Koza was to construct all buildings and the site (Koç Üniversitesi 2002: 231).

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THE CHANGES IN RURAL ARCHITECTURE: TRABZON AS A CASE

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ABSTRACT

In paralel with city architecture that has been improving and changing constantly in recent years, big developments in terms of architecture has been come out in rural areas, too and the number of architectural structuring that their originality open to question has increased. Changing living conditions upon the requests and needs, develoing technology, differentation in cultural and social life have a big proportion in the differences between old and new building style. Some physical regulation principles that are set in the framework of laws' being too general and insuffcent and structural decisions' making in a wrong way by professionals in the planning studies comprising the rural areas affect architectural structuring in rural areas in a bad way. In rural areas affected from all this development process mostly, it is observed that indigenous civil architecture examples disappeared, newly built structures dont accord with the environment and historical identity, selected materials and scale dont match with the building entirity of the rural areas.

In this context, in order to determine reasons of structuring newly in rural areas in the city of Trabzon, people living in the village settlement place and in the villages located in borders of contiguous area are interviewed. In the light of surveys and interviews done in the district, effect of socioeconomic form of the district and living way of the dwellers to structuring are studied.

In conclusion, it is observed that natural structuring in villages has changed recently and buildings have changed from single–flat home to multiple storey apartments. These distortions in natural structure both damaged general scene of rural areas and make dilemma between rural and city architecture.

Keywords: Rural architecture, Trabzon, Exchange, Deterioration, Planning

INTRODUCTION

Rural settlements are considered as a natural environment meeting requirements of residents, suitable for land formation, appropriate to climate and heeding cultural values. With agricultural actions, recreation activities, social formation, habitat, residential estates and other units - all in all - this settlement plays an important role in formation of our architectural culture.

From another point of view describing rural settlement in social formation of population; the concept "Rural Settlement" is considered as a settlement with a poor division of labour, economy based on agriculture, crowded families having face to face neighborhood relations and communities – at this point - differentiated from urban society. According to this description; communities named "village" are described as populations which are settled in separate geographical and ecological areas from other communities, have its own labour division, social organization, culture, a specific name and history and a less population (1).

At Urban Science Dictionary, village is described as a settlement which can be differentiated from urban in management situation, social and economic specifications or population density and usually differs in existence of agricultural occupations and besides this, residential estates and other establishments of which reflect its own life (2). At this description, village residential places are village lands covering development areas of present settlements with cadastral map and no zoning ordinance.

Sudden changes which settlements go through during the progress in building evolution, construction techniques and social activities result in departing from traditionalism. When urban culture is superior to rural life culture, traditional buildings degenerate and a new building culture appears and as a result of this, the past is forgot.

In this study carried out for this reason, central villages of the city of Trabzon are determined to be a pattern for searching these degenerations in rural settlements in Eastern Black Sea Region. In Village residential places throughout the borders 10 km far away from the city centre of Trabzon and Villages in contiguous area borders, social and physical reasons of changing architectural structure are studied and their effects to natural formation in rural area are taken into consideration.

RURAL SETTLEMENTS IN EASTERN BLACK SEA

The scattered settlements of the Eastern Black Sea region usually consist of groups of a few houses built on mountain slope to be used by the members of the same family. Occasionally there is a distance of one or two kilometers between them. The scenery is breathtaking with the step arms of mountains stretched to the sea, numberless hills, and tiny settlements of only a few houses scattered on the slopes or individual houses lost in the woods and greens (Figure 1) (3). In villages, houses are detached and surrounded by a garden. Among factors which directly effect this natural settlement are climate, land, topography, structure materials and way of living and working.

Figure 1. The scattered settlements of the Eastern Black Sea region

In Eastern Black Sea Region, there are not only houses in rural areas but also wood-based prefabricated systems (store room), mosques and churches which are typological components peculiar to rural area. Store room known as *serander* are one of the most amazing architectural items of the region. Store room is actually a separated building which is erected next to house in order to store and prevent food from spoiling, meet several functions of a house and which is not suitable for residence (Figure 2).

Figure 2. Seranders

Rural settlements in the region exist along narrow or wide valleys lying towards interior. Rural settlements can reach the height 1500-2000 meters in the region and

they are not statics because population density varies in summer and winter. The reason is that a certain population move from urban to rural when tea, hazel nut and tobacco season start and that village folk take their animals to plateaus before extreme warm climate.

Another factor in addition to harvest collection, livestock, and population movement based on climate is to live in a foreign land. Due to this migration, female population is more than male population in villages. Even if a man who is used to working in metropolis returns to his village, he can not deal with rural affairs or occupations as well as in the past any more. This migration certainly plays an important role in labor arrangement which hold women more responsible in working in Eastern Black Sea (4).

Eastern Black Sea houses either allocate space to the sons and their wives and children or allow growth by way of adding bedrooms for the newlyweds and creating additional entrances for them. (see: table 1- Type B) When the number of daughter-in-laws and grandchildren increase or ender cohabitation difficult, an additional house is built next to the existing one (3).
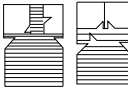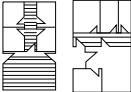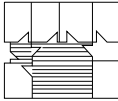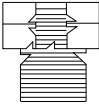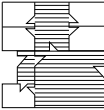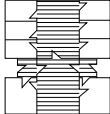
A	B	C	D

Table1. Plan typologies of traditional rural houses (5).

TRADITIONAL RESIDENTIAL ARCHITECTURE IN EASTERN BLACK SEA

In rural area of Eastern Black Sea, residential estates are so dispersed that there is mostly no a center and that yards, gardens and flat grounds in one's own property are chosen for housing projects. These places are mostly chosen among grounds favourable for agriculture. Therefore, suitable places for housing are possessed without having an anxiety to be close to neighbour. In the near past, people living in rural areas of Black Sea used to build their own estates according to local conditions by means of structural materials which they obtained around their environment and techniques they learned.

Structural materials peculiar to the region are primarily wood and secondary Stone. The style of structure is generally built-up and the upper floors are executed as rubble walls with stones infilled within small wooden frames and called "stuffed walls" by the people of the region (3). Stone material are mostly used as bearing in villages of Trabzon and Giresun. Shingle was preferred for roofage and then residents have started to use zinc sheet.

When we take a look at plans of traditional country houses in rural areas of Trabzon, We face that back side leans against the ground while front line looks over a valley or open area. These houses are often built up on a hillside including a few houses around and the part (basement) sunk into soil is a shed for animals which produce milk and the upper ground floor is for residential space. On the upper ground floor, the space leaning the hill includes partly wooden flooring and soil. This space of the house is soup kitchen known as "aşhane" and in order to prevent dangers coming from outsite, windows are a couple or closed by wooden covers inside. Bedrooms are in the rest half part of the house looking over a valley (Figure 3,4,5). The walls of the bedrooms are filled stuffed and plastered outside. Flooring and ceiling are designed with wood. Of the soup kitchen, flooring is usually made of condensed soil and ceiling is with no covering. That is, rafters and shingle are seen (6).
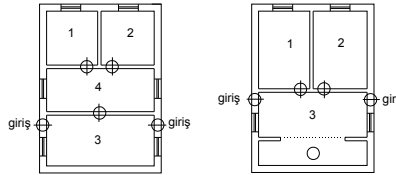
Figure 3. Shematic diagram for common residential type in Trabzon (1, 2. Oda; 3. Gunluk yaşama bölümü; 4. Gece yaşama/giriş holü)
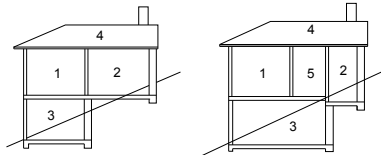
Figure 4. Section schema for common residential type in Trabzon

Figure 5. Traditional rural architectural patterns in Trabzon

In parallel with the concept "rural settlement" mentioned above, Eastern Black Sea Rural Settlements have displayed different formations from the past to the present due to matters such as developing technology, some requirements based on changing life standarts, social life undergoing a change and no efficient and forceful decisions made by relevant regulations.

Until the late of the century 20th., residents used estate typology effectively while prefering their estates. Residents needed to live in the same house types as those by which they were influenced because they saw, knew and lived in these houses for a long time. Thus, identity and characteristics of Eastern Black Sea Rural Architecture have inherited from generation to generation. A new way of living obtained by migration to rurals and urbans, region and abroad during 1960s started to effect plan and structure of houses (7).

As a result of modernization process which got at each part of society from urban to rural in the late of the century 20th, traditional way of living regressed and even came face to face with the danger of disappearance

CONTEMPORARY RURAL SETTLEMENTS

Residential type which was traditional up to 30 years ago has survived by mainly maintaining plan type and general appearance and with a changed structure system but not running contrary to natural scene in rural area. In this period, easier availability and increased variety of materials, easy transportation, wish to improve comfort conditions had affects on this change. For the last 30 years, estates erected in villages are one or two-floor and construction type is built-up and materials are brick or concrete briquette. This estate type built in rural areas does not run away much from traditional estate architecture and seems to be in harmony with nature when we look at dim outlines of buildings in village (Figure 6).

Figure 6. Rural Architecture in harmony with natural structure

For the last 15 years, this natural silhouette in rural areas has been damaged by buildings which are so similar to those in urbans and incompatible with environmental characteristics. Settlement running contrary to local picture has made our villages into concrete (Figure 7). GÜR expreses that uncontrolled and unplanned settlements which come in sight in urbans are also increasing in rural areas and that degeneration of rural areas are systemic degradation (8).

Figure 7. Settlement patterns incompatible with rural architecture

CONTEMPORARY DEGENARATION IN RURAL SETTLEMENTS; AT CENTRAL VILLAGE SCALE IN TRABZON

The study includes 4 central villages of Trabzon. The main reason why we have chosen this territory for studying is that these central villages are directed from village settlement borders into contiguous area borders (Table 2), (Figure 8). Population of the villages in this territory is generally constant and consists of approximately 1000 individuals (Table3).

Table 2. Cadastral Situation of Villages * (Secretary General of Trabzon Special Provincial Administration)

Name of village	The date when village settlement area is approved by administrative committee	The date when village is entirely involved in contiguous area	The date when village is partly involve in contiguous area	Wheather or not to have a cadastral plan
Bulak	"	-		Exist
Çilekli	"	20.05.2003 May 20, 2003		Exist
Çimenli	"	-	04.01.1982 January 04, 1982	Exist
Kavala	"	-	-	Exist

Table 3. Distribution of village population in 2000

Villages in contiguous area	Populatin	Villages in village settlement area	Population
Çilekli	856	Bulak	833
Çimenli	2100	Kavala	1449
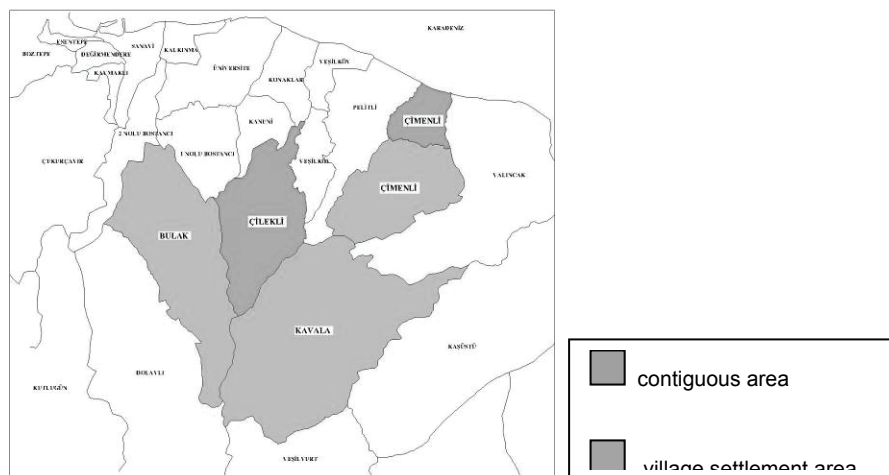
Figure 8. The village borders on the map* (Trabzon Municipilaty)

In the last years, most of the people living in villages of Trabzon have built similar houses to those in cities and as a result of this fact, reinforced concrete village houses which can be considered as a new type residence have been seen in village silhouette. Among multi-floor houses, 1 or 2 – floor village houses do not attract as much attention as in the past any more. Existence of reinforced concrete houses in rural area indicates that houses similar to those in city centers invade villages (Figure 9,10).

Figure 9. Existence of reinforced concrete houses in rural area

Figure 10. Reinforced concrete village houses

The reasons of distorted settlements seen in rural areas are as follows;
- Changes in socioeconomic formation
- Deformation of territorial integrity (due to increasing population, housing activities increases, shortage of building plot, heritage)
- Variety and Facility in implementation of new materials
- No masters who know traditional construction system
- Defective inspection

Changes in Socia-economic Formation

Due to easy and comfort transportation from center to the villages, most of people living there deal with works based on urban economy and moreover social services

and daily requirements of public are supplied easily. All for these reasons, population in these villages has increased. Easement of access to urban has changed homogeneous village life of these people in social. One of them who preferred living in village after retired has expressed that "here is not our village but we bought land here and and built our house. The weather here is nice, clean. There is a grocery store. The transportation is easy. There is a municipality bus and public bus running between city and village."

Day by day, cooperations or relations with urban area are increasing and villagers want to imitate urban life. Therefore, they try to improve their life standarts while building their new houses by considering more comfortable conditions. One who is working in urban said: "Does it match village silhouette? It does. Villages turn into cities anymore. Even if a single-floor house is built in centre of village, it will probably be taken down a day. In the part of central villages which is near cities, such buildings are constructed but mutli-floor houses are much more." and stated that social and physical formation of the village are changing because of its connection with urban. In addition, eventhough it is not much more than the rate of migration from county villages, migration from central villages does also exist. because wealthy citizens want to possess a second and even third house while urban areas enlarges against rural areas due to migration, we are facing more and more matters. "We have a house in urban. However, we prefer living here. we have more advantages than in urban. Here is not only rural but also urban. We have no transportation problem." Two citizens whom we interviewed answered the reason why they have a second building in the village.

Corruption of Territorial Integrity

Housing projects in village settlements come in a few ways. A new family who leave its parents possess a new house, members leave home and build a new one due to land balancing among families and as a result of increasing population, one or more families move to another place. Population rate does not visibly vary in summer and winter because central villages are not too far away from urban areas. In addition, while number of families is increasing, number of land suitable for housing is decreasing. Therefore, people have started building multi-floor apartment blocks. A citizen who built 5-floor apartment in the village has given the following answer to this question "It is not logical for people who live in villages near city center to build up a single-floor house. For example, I have built a 4-floor house because I had not enough land to build one house for each of my children. Thus, I met my children's requirements without sharing the land."

Shortage of Masters who know traditional construction system

Masters who implement local architecture build dwelling houses in accordance with original data to have done in a certain way for a long time - not according to plans. These masters have no schooling. They use the same methods as their fathers' or grandfaters'. In local architecture, size is the only difference among dwelling houses similar to each other. Today construction systems also started to change as a result of changing economic and social formation. One of the reasons why traditonal

formation degenerates is that there is rarely a master who use traditonal construction materials and is familiar with stone, wood and ground.

Today in rural areas, we also face similar buildings which reflect urban architecture because there are few masters who know traditional construction system and on the other hand, masters who know contemporary construction systems are employed. A citizen who built an apartment with an elevator and a fire escape in village expressed "I erected a concrete residence in accordance with today conditions eventhough the old one is better at health conditions. While building that, I cooperated with masters who are good at this work.

Variety and Facility in implementation of new materials

Traditional buildings were constructed using the most advisable materials and components in accordance with climatic conditions. Traditional construction masters obtain their materials from natural environment while modern ones prefer industrial materials. This preference is considered as a stage of progress in construction. As a result, modern materials which today technology provides are preferred to stone, soil, lime and wooden materials which traditional masters use. According to 4 people interviewed, building concrete dwelling houses is easier than traditional dwelling houses because cost of materials is cheaper and the variety is more.

Defective Inspection

In charge of preventing environmental degeneration inside the boundaries of Village Settlement Areas and Contiguous Areas, related institutions do not exercise their authority. Besides this, efective legal provisions and lack of the ability to extrapolate are the other factors which lead unenviable results in these areas. It is clearly known that no buildings especially those which are erected in central villages do not go through an inspection. As a result of the fact that special provincial administration can not inspect effectively, such a kind of structuring come in sight. Citizens whom we interviewed did not want to talk about this subject but suggested that we not find these buildings odd due to being close to city.

RESULTS

In the light of survey and interviews, it is clear that traditional settlement method has lost priority in a major part of Trabzon Central Villages. Eventhough they are few, present traditional houses are used as a cottage. On the other hand, in order to earn easy money, some of the citizens in Trabzon Central Villages have sold their lands which are close to the city to the dwellers in urban, which puts different styles on architecture of the village.

According to the interviews, young generation does not like old houses and find comfort conditions not adequate. As a result of changes in social and economic formation, wishes and demands are increasing day by day. Moreover, families

provide their youth living in villages with a dweller estate in the same apartment block due to lack of land.

Easy transportation in villages which are in close contact with the city allows construction materials to be obtained easy and cheap. New type dwelling houses in villages are projected by an architect but constructed by masters who know urban architecture. None of these projects is exposed to any inspection.
Inspection of the new apartments having been built recently in Trabzon Central Villages must be certainly taken into consideration – especially by Trabzon Special Provincial Administration and Municipalities.

It is so important to make villagers conscious of planning architectural designs which are with a limited number of floors, have no damage to natural scene of villages, reflect architectural characteristics of the district, and connect the concept "tradional" with "modern".

Table 4. The changes in rural architecture from the past today

Name of the village	Rural Architecture	Rural Architecture in harmony with natural structure	Settlement patterns incompatible with rural architecture
Çilekli (contiguous area)			
Bulak (village settlement area)			
Kavala (village settlement area)			
Çimenli (contiguous area + village settlement area)			

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ENVIRONMENT & SUSTAINIBILITY ISSUES

DWELLING IN THE CHANGING SOCIETY

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ABSTRACT

The development of dwelling has always been related to changes in society, lifestyles and technological development. The rapidly developing information technology in communication services has already had a remarkable impact on the society within the last decade in Finland, and the consequences of this development will accelerate in the forthcoming years.

Information and communication technologies have enabled integrated global network where the interrelationship among distant elements – things and people is continuous and in real time. This development has considerable affects on the way of action of people, including the way people live and work. Since the way of action in the information society is more significant than the new technology itself, this article focuses on the functional changes of architectural space and thereby the spatial organisation of the dwelling and housing in the information society.

Keywords: Information society, Dwelling, Housing, Collective theme housing

DWELLING IN THE CHANGING SOCIETY

The rapidly developing information technology in communication services has already had a remarkable impact on the society within the last decade in Finland, and the consequences of this development will accelerate in the forthcoming years. Technological improvements in communication has opened way to new sorts of network possibilities which accelerate globalization.

The impacts of information technologies and globalization on architecture can be observed through new building materials and building technologies with a rapid development. However since the way of action in the information society [1] is more essential than the technology itself, this article will focus on the functional changes of architectural space and thereby the spatial organisation of the dwelling and housing.

Information and communication technologies have enabled the availability of information in real time which shortened the reaction time to information remarkably. The movement which brings distant elements – things and people – into

interrelationship and which is characterized by being continuous and in real time is called the *space of flows*. (Stalder, 2002:5) Such interrelationship has always existed, but in the information age the interrelationship takes place in real time which is a new phenomenon from historical point of view. The space of flows can be also summarized as the integrated global network. It was first introduced by Manuel Castells (Castells, 1996) who defined the concept in three aspects: The first aspect of such network is the *technology* that is the infrastructure of the network. The second aspect is the *places,* which are the locations of strategically important functions and decision making. Places are also called the *nodes.* (Castells, 2001:443) The third aspect of space of flows is *people*. People are the elite who command the networks such as exclusive social clubs etc. The *space of flows* in other terms is the medium through which things flows, such as the digital communication technology, things that flow, like information and the nodes among which the flows circulate which are, like hybrid of people and machinery. (Stalder, 2002)

In the *space of flows* the accelerated speed of action sets serious challenges to working life, but at the same time it gives liberty to man to decide when and where to work or interact with the others. This development has affected the ways of working and had serious impacts on the traditional borders of work and leisure. Man can continue to work at home or at his summer cottage without being forced to have a physical displacement. The medical services through internet have been also in use for a while in Finland where the physician meets the patient in the cyberspace. These services have helped the inhabitants of the geographically remote countryside to some extend. Distance learning/teaching is widely profited by educational institutions. These changes in the way of action have affected the structures of the society and lifestyles in Finland.

The development of dwelling has always been related to changes in society, lifestyles and technological development in the history. Traditionally dwelling is defined as a place where man gathers his memories of the world and relates them to everyday life (Norberg-Schulz, 1971) therefore the private dwelling holds the personal identity of its owner. According to Christian Norberg-Schulz man has to define his environment precisely in order to feel 'at home'. In the space of flows the dwelling has included such functions that had never existed before or it regained some of the functions that have been abandoned during the period of industrialization and urbanization. Distance working, learning, shopping and health care may be mentioned as some of these functions which may take place at home. These are the functions of the information society which do not require changing physical location of the individual. Being free of compulsory physical displacement, man can choose when and what to do from the location he chooses to be. Therefore in the global network society the significance of home and thereby dwelling grows, but at the same time the functional character of home changes. As a result of developing information and communication technologies home becomes a multifunctional space which involves private and public activities and therefore it loses its identity as being strictly a private territory by its traditional meaning. In the *space of flows* dwelling can also become *nodes* where the flowing information is controlled.

The principles of full participation and equal opportunities are the basic principles of the information society; therefore it has impacts on the building practice as well. The building code for public buildings and dwellings in Finland has been regulated

recently in order to enable accessibility and thereby better physical environment of action to the elderly and the disabled. (G1 and F1:2005)

The rapidly developing information and communication technologies have created certain concerns among researchers; for instance according to Fernando Leal as the sophisticated technologies substitute the human skills, the human skills which are learnt by doing will be abandoned and they will not be passed onto the next generations and de-skilled generations will arise in society. (Leal, 1996:79) On the other hand for the first time in human history the skill has shifted from the old generation to the young who can use the information and communication technologies with ease and without prejudices. Old generation learn from the young and try to keep pace of the changing society. Thus the risk of disappearing skills is a threat for both younger and older generations. The risk of discontinuity of old skills and the rapid development which leave the aging generation behind might lead to a gap among generations. The question is: "is it possible to use the housing environment to minimize this gap between generations in the changing society by architectural solutions?"

The boundaries of space in the information society change. As the communication via internet replaces the social contacts taking place in *places*, it might become a risk for the society since face-to-face communication is important for the wellbeing of people. (Leal, 1996:80, Day, 1996:186-210) Peter Day argues that the number of spaces in the physical environment decreases since the information can be communicated through cyberspace, which reduces the need for the displacement of people. (Day, 1996:186-210) The diminishing number of public spaces in the physical environment is being compensated by public cyberspace. (Day, 1996:199)

As the physical spaces where people meet and interact diminish, and the functions shift from public spaces to home environments, the significance of home environments grows. As a result of e-working and e-learning possibilities, people can work at home. On the other hand according to statistics in Finland, the one-way distance between work and home gets 200 metres longer each year. (Heinonen et al,. 2004:19) S.Heinonen's data however points out that people would like to work at home in case the dwelling solution gives the possibility to work. (Heinonen et al,. 2004:19) Information and communication technologies give the liberty to work or learn regardless of age limits also. In the changing society the leisure of people grows and the age structure of the population change. The ageing societies re-define the terms of their economies. Production for instance is defined in terms of goods and services through paid or non-paid work. (Koskinen, 2004:32) Education, religious and political participation, hobbies, membership of a voluntary organization, and being active in retirement organizations are considered as productive ageing. (Ibid) Hence the house, besides its other characteristics, gains a more productive identity in the information age. In Finland already in 1998 among the age group of 55-70 in Helsinki region, home offices had a proportion of 50%. (Lehto, 2004:18) The proportion of those who do distance working is likely to grow. The growing leisure well as the aging structure of the population bring new demands and set new requirements for housing design. The need for re-evaluating the properties of housing environments arises.

The productive character and multipurpose space requirements of home of the information society show similarities with the traditional Finnish rural house.

During the first decades of the 20th century in Finland, the rural dwelling still had the common room (*tupa*). This multipurpose room had a common identity and other rooms opened to this common room. In the common room (*tupa*) overlapping and interrelating activities took place. People lived and worked in this room and the privacy by its meaning today did not exist. The dwelling functioned as a place of production and consumption. Leisure and work were not separated nor did they have separate places. (Saarikangas, 1993:161)

At the end of the 19th century the spatial differentiation began in town houses, but this appeared among the wealthy families where the hired worker and the members of the family were separated. (Ibid:164)

The most significant spatial differentiation took place during the Modern Movement in the 1920s-30s where the functionalist architecture was widely practiced. The movement aimed to create new dwellings suitable for the modern lifestyle, where different activities inside the dwelling was separated one from another in separate spaces. The dwelling belonged to the nuclear family, which was strictly private. The most important purpose of dwelling was to provide individual family members the opportunities for isolation and rest (Ibid:144) The dwelling did not have a productive identity any more. Since the production had switched from houses to factories and to separate production units outside the dwelling, social life also switched from home to other public spaces. (Özer-Kemppainen, 2006)

The space formation of the dwelling today, still follows the principles of the functionalist period, although the changes in the society and lifestyles of people are visible. The regained productive identity of home and the interwoven relation of work and leisure of the network society need to be emphasized in the space formation of the dwelling and in the housing architecture to enable better physical spaces.

Although the arenas of communication shift from the physical spaces to cyberspace, man still has the need to define himself with his environment where he feels 'at home'. Thus human territories grow as information technology enables people to create secondary territories in cyberspace. (Ibid:179) where people set mutual regulations and have control of the place, which thus feels as their own. Cyber environments like Facebook and Second Life are such environments where people create their own environments with which they identify themselves or with which they want themselves to be identified.

In the space of flows the places where the production is made and the places where the production is controlled from can be apart from each other even thousands of kilometres. This has accelerated travelling globally. As a result people can have several homes in different parts of the world where they feel 'at home'. Perhaps it is the information and communication technologies which let people feel at home wherever they go, since they can reach their personal environment in the cyberspace no matter where their physical locations are.

The personal environment in the cyberspace is abstract and easily modifiable, but architecture and in particular housing and dwelling are concrete and they are long term establishments which need to last long despite the changing world, functions or life styles and they should be able to serve as meaningful physical environments.

Manuel Castells argued in 1996 that if the space of flows is truly dominant in the society spatial form of the information society, architecture and design are to be redefined in their form, function, process and value in the future. (Castells, 2001:448) In less than a decade we already see the need for a change in the architectural solutions as a result of the changes in action in the society.

The built environment indicates the codes of society's basic structure of dominant values. According to Castells this meaningful relation between the society and architecture over go a change in the information age. When the *space of flows* gets stronger, the spatial expression of globally dominant interests across the cultures takes the form of a neutral architectural language which is independent of history or cultures. (Ibid). In the surfing culture of the information society since people do not belong to any place or to any culture, an extreme version of post-modernism imposes itself into architecture. The liberation from cultural codes hides the escape from historically rooted society. The architecture will be neutral, pure and diaphanous. (Ibid:449) Castells continues that, the more societies try to recover their identities behind the global logic of uncontrollable power through an over significant language of architecture which contains the codes of their culture and history, the more gets lost their meaning of messages in a 'surfing' culture. (Ibid:450)

While considering the architectural space solutions of the information society instead of abandoning the history, culture and identity based information, it seems to be fruitful to follow the footsteps of Norberg-Schulz who had discussed the dilemma of architectural structures versus mobility and disintegration already in 1970s. He argues that man's existence is dependent upon the establishment of a meaningful and coherent environmental image. Norberg-Schulz stresses on the fact that architectural space can contain mobile elements but as a totality it cannot become mobile because when history is not related to a stable system of places it becomes meaningless. (Norberg-Schulz, 1971) Therefore in the changing society, architectural space, which offers rich possibilities of identification, like ambiguous, complex but well-structured architectural space, which allow different interpretations without loosing its identity, can be the alternative to "fatal ideas of mobility" and disintegration. (Ibid)

In this respect, interpreting some of the principles of rural Finnish architecture to the needs of contemporary architecture offers an alternative to housing design. The space formation of the information age housing and dwelling need to emphasize three properties: productive character of housing, social interaction through physical proximity and accessibility.

On the dwelling level the productive character of dwelling can be attained by including working spaces to the floor plan. The dwelling with a working extension with sanitary solutions which can function as an accessory dwelling in case of necessity can be a model of dwelling of the information society. Such solution can be adapted both in compact urban dwelling solutions and in detached house solutions.

Accessory dwelling solution can function as a modifiable lifetime dwelling first as a working unit, later as the first dwelling for the youngster of the family or home for the grandparent.

The change in the dwelling architecture is observable in the division of space on floor plans. As a result of accessibility regulations and design criteria in Finland, the proportion of different spaces in the dwelling has changed. For instance the surface area of wc/bathroom areas and entrance halls of the dwelling has increased however there has not been a remarkable increase in the overall surface area of the dwelling; therefore the actual living space has even become smaller. There might be a necessity to grow the surface area of the dwelling due to the accessibility requirements.

The hearth of the dwelling has left its place to digital receivers. Fireplace, around which the family members used to gather and which symbolized the productive character of the rural Finnish farm house(Özer-Kemppainen 2006: 38), has been substituted by digital receivers in the information society. Through these digital receivers dwelling opens to the outer world. All the other functions of home are gathered around these receivers. The centrally located living space forms the core of the dwelling. According to the research conducted among the elderly in Finland, people locate themselves in the most central part of the house from which they can control their territories as they become fragile. (Özer-Kemppainen, 2006) Thus the living room becomes a multifunctional space where almost all domestic functions take place. It is the place where man rests or contacts the outside world in the way he wants and whenever he desires.

The risks of the changing society which are mentioned earlier set also requirements on housing complexes. Housing complex delivers the premises for face-to-face social interaction. The significance of housing environment grows especially for the elderly who gradually become fragile, but also for families with small children. The research for instance has indicated that the social interaction of the elderly of today does not take place mostly within the same age peer or among the same social status as it used to be in the 1960s and 70s. (Özer-Kemppainen, 2006) Like the other age groups elderly also interact with people with whom they share common interests. (Özer-Kemppainen, 2006:158). Therefore age concentrated housing solutions do not serve interesting social spaces for the aging generation any more.

Housing practice which offers mutual social spaces in the housing complex for diverse age groups are considered to be desired environments for living where the residents create their secondary territories which they control and feel of their own. These types of living environments enable the residents to keep their social relations active — through actual communication — while avoiding segregation among generations. Such housing environments can continue the interaction between generations while keeping mutual skills alive, and allowing old skills pass onto future generations.

In the light of research findings, an alternative housing model which is based on common interests of its residents has been suggested. (Özer-Kemppainen, 2006) The so-called *collective theme housing* model, which consists of different age groups with similar interests, is predicted to enable social interaction among the residents

while avoiding age segregation. "Theme housing" can be developed around different subjects like environmentalism, arts and crafts, woodwork, weaving, religion, acting, information and communication technology, literature, politics etc. The aim is to provide the residents of different ages the possibility of sharing experiences and developing themselves through these interests or hobbies, and attaining self-fulfilment.

In 2008 a modified version of collective theme housing idea was submitted as an architectural competition proposal by the author and her team. The jury of the architectural competition for developing the elderly housing in Finland found the competition proposal of such theme housing very inspiring and worth developing.

The changing society has brought the need for collective living once more which encourages social interaction through physical proximity. (Özer-Kemppainen, 2006:44-65) The private dwellings with their accessible and contemporary space division including working room extensions which are connected to the common spaces of the housing complex which offer multifunctional space solutions might offer a contemporary solution to the need of the changing society.

In the changing society, dwelling architecture returns to its rural origins to find a flexible spatial order and a productive identity to constitute the different levels of social order and integration. The modern *tupa* in its contemporary interpretation offers the service possibilities of the cyber world. In the changing society, information and communication technologies enable people to be a part of space of flows from their very of personal territories. The *tupa* model both on the dwelling unit level and on the housing level is suitable for the lifestyle of the network society,

A reinterpretation of the principles of the spatial organization of the Finnish rural housing provides the possibility for facilitating social interaction and the production of different generations while avoiding isolation and social exclusion.

ENDNOTES

[1] The information society is a society which is critically dependent on information and communication technologies. Webster's dictionary defines the information society as a new kind of society where the position of information technology is central for production and economy. Keywords of such society are organizational networks and innovation based development. The principles of full participation and equal opportunities are the basis of the information society. Such a society is socially, psychologically, economically and physically barrier-free, where there are no attitudes preventing some groups from participating in the society as equal members. Equality in education and unhindered access to education for all people, regardless of their social class, provide the members of this society with the possibility of using their knowledge and talent without financial obstacles.

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(DE) (RE) CONSTRUCTION OF THE SOCIAL LIFE, THE URBAN ENVIRONMENT AND THE HOUSE WITHIN THE SPAN OF THREE GENERATIONS: THREE CONSEQUITIVE LIFE EXPERIENCES ON THE SAME LOT IN KARSIYAKA – İZMİR

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ABSTRACT

Current physical patterns and forms of environments and buildings that we live in, are the final products of ongoing social, political, economic, and cultural processes which are experienced by their societies and inhabitants. These experiences are imbedded at the memories of the individuals, varying in accordance with their age, culture and also according to the types of experiences lived The outcoming images and memories may be positive or negative, leaving cheerful, motivating or rather dreadful and depressive messages for the ones involved in these experiences. The final evaluation or judgement of the "place"or the "site", by the parties involved, is therefore largely dependant upon his/her overall mood and general psychology at that time.

It is very common for us, the physical planners and architects, to appraise the spatial settings, forms, facades and styles of architectual design products with our professional eyes and jargons. On the other hand, successful designs and todays superficial thematic projects are by no means guaranties nor any positive contributions for the well being and happiness of the societies and the inhabitants.

This article aims to display the "personal living experience" of an individual, the author, at three different house units on the same lot in Karşıyaka, İzmir, from early-fifties to our day. The transformations experienced within the life periods of three generations (grandparents, children and grandchildren), is evaluated and displayed within the "(de) (re) construction" process of the physical environment, the social life of the community / family and finally the building itself.

Keywords: Micro-history, House, Life span

Today, evaluating the concept of space solely in terms of its physical characteristics and manifest functions or expressing it through abstract techniques of representation, such as plans and elevations, or making generalizations through architectural styles are regarded as 'old' or 'traditional' attitudes. We are aware of the fact that the built environment and architecture is a product of complex interactions of nature-culture-society and individuals. Likewise, we also accept that 'place values' or our

evaluations of places are subjective processes; such that a 'building' is actually a physical *container* or *stage* whereas 'space' is a *continuum* formed by individual and social perceptions and conventions. This critical distinction of *building* and *life* existed in speech long before its adoption within the architectural discourse. In the most conspicuous sense, the tongue set forth the idea that *house* and *home* stood for slightly different meanings. The language and the thought, defined *house* as the *shell* or *scurf* and *home* as the *life* contained within. On the other hand, architectural discourse paid a close attention to this critical distinction and scrutinized the issue. We as architect-researchers felt the necessity of understanding *home* and started to scratch the concept to conceive deeper meanings underneath it, as we never used to do (Ersoy,Z.2002. *The Comparative Analysis of Concepts of House and Home*, Unpublished Doctoral Thesis, D.E.U. Institute of Science).

While as we investigated and examined the issue of *home*, we realized that it is one of the richest texts for understanding human psychology, social relations and history etc.; alongside it is one of the hardest cases to examine and provide datum. In many ways, it is quite difficult to *get into* this well preserved living environment. Literally one can not easily step into ones home; or metaphorically even if one can enter in, it is not easily possible to comprehend. One can only get an instant picture or a snap shot of a complex pattern of life. That means a *home*; whatsoever is the reason of the study, can only be understood through *time*. A home always withholds and preserves something for itself. It is mainly why; study of homes or domestic environments are long and arduous processes that need devotion of effort and time. Regardless of all facts, there may be no better and convenient material than home which displays *who we are*.

Especially for those cultures -like ours that are rather 'reluctant' about preserving their natural and cultural heritage, material culture and the traces from the past, the tangible records and archives on domestic life are considerably scarce. Thus, individual *oral records* and *verbal history* become one of the most convenient instruments in obtaining knowledge about the domestic history.
Departing from this point, our article aims to display the story of 'three homes' consecutively demolished and re-built on the same lot, which the verbal material is quoted from the real users-*homeowners* (The descriptions on domestic life and space are derived from Professor Gunduz , one of the authors of the article, whose family were the homeowners of the house(s) that are subjects of the article). The transformations in domestic space will be depicted by making parallels with evolutions within structures of the family and society in the mentioned periods. Starting form early 1950's- the habitation of the first house and the evolution of domestic space is recorded and interpreted under the sub-topics such as – features of the house (physical qualities), - space uses, -community and contextual relations and – domestic roles. Besides striking the attention to materials of verbal history, the other aim of the paper is to display a panoramic view of domestic life and space, specific to Karşıyaka, Izmir from early 1950's to our current day.

THE STORY OF THREE HOMES

Our story begins in 1948 with an immigration of a Turkish family - the protagonists, from Menemen (a province in Izmir) to another one- -Karşıyaka, Izmir- with their two

sons (ages 11 and 3). Karşıyaka located on the coast of Izmir Bay, across the city center housed remaining few Levantine families, also wealthy Turkish families along with those who came by barter. In that time the houses in Karşıyaka were considerably alike in terms of their appearances, generally single or duplex individual houses with yards and patios. (Figure1,2)
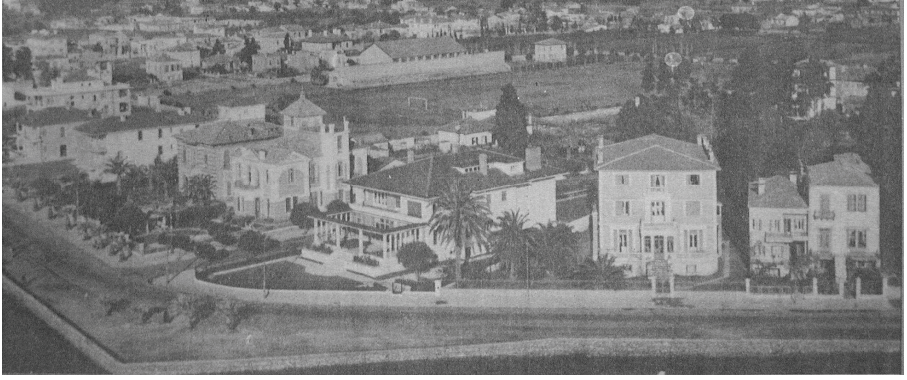
Figure 1. Karşıyaka-general appearance of the neighborhood in the 1950's.
(Prof.Dr.Gündüz archive)
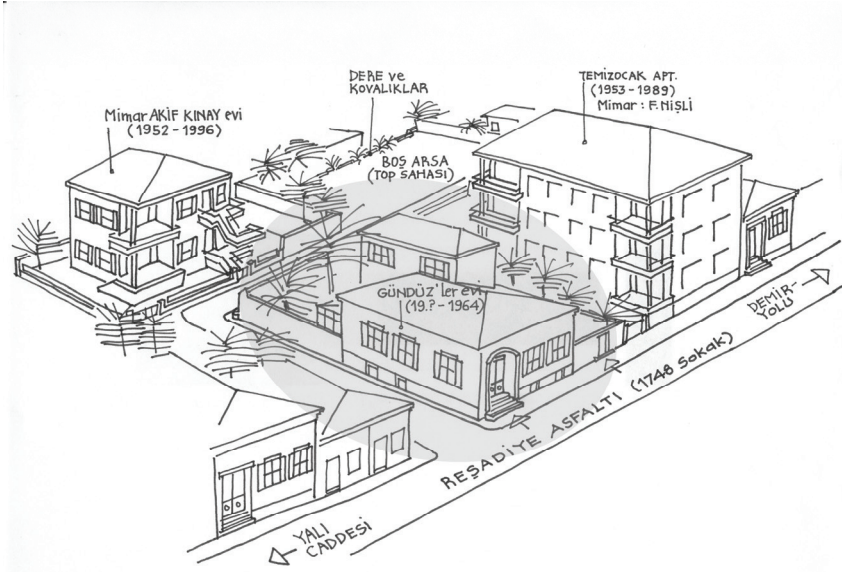
Figure 2. A sketch of the lot and neighborhood in the 1950's
(Sketch by Prof.Dr.Gunduz)

FIRST HOME (1953-1964): 'FAMILY HOME'

Features of the House (Physical Qualities)

The first house was a self bearing structure, located near the coastline of Bostanlı, on a corner lot having a small yard/patio, presumably built in the 1920's. The building sits it on a ground area of 100m2, approximately having 150m2 of total use area and 160 m2 of garden. This modest building had a self bearing masonry structure on the ground floor, and timber skeleton on the upper floors had an ordinary appearance in terms of architectural design and details. The ground floor set on a sub-basement and was elevated three or four steps off the ground. One could reach the main entrance hall through a heavy double winged iron door. Connected to the main hall were the parent's room and a guest room, a staircase leading upstairs, a closet room underneath the staircase and a connection down to the cuisine. The terrace, later on added in front of the guest room was then completely enclosed and used as a casual gathering place of the family for sitting and dining. Climbing down a few steps   was direct access to the cuisine, through a low rise door. The connection to the yard/patio was only from the cuisine by a high step. The stair leading upstairs, first dropped in a mezzanine which used to be the grandmother's bedroom for a period; and continued to ascend with a steep staircase to the children's room in the attic. In this first phase, it is quite obvious that domestic technologies were not yet advanced. The refrigerator had entered home in 1953 and telephone connection was made a few years later. In terms of comfort conditions, even for that period, the house was considerably modest.

Space Uses

The most remarkable remembrances related to uses of spaces were of main hall and yard. Main hall was the gathering place of the family and focal point of domestic activities. The big folding dining table in the main hall with heavy massive walnut chairs used to serve occasionally for the guests but more frequently as a ping-pong table for the kids. The small yard with fruit trees and flowers was a secure and cheerful play area for the kids of home and for the neighboring children as well. Most of the routines of home used to take place in the yard/patio and was the public domain of the family. Kids bicycles, a small boat and families car used to park in the patio and annual maintenance of the craft was carried out here. Also women of the house used to prepare tomato paste, jam and jellies there and the mulberries shaken off the tree were shared with the neighbors. Family and religious rituals used to take place in this open area. The sacrifice rituals of the Greater Muslim Bairam and the Feast of the Sacrifice were gripping scenes from the setting.

Neighborhood/Community Relations

As it would be appraised, the community and neighborhood relationships were considerably strong. The sea, seashore and the activities related with them were shared communal occasions. Besides neighborhood activities, the inhabitants used to realize other city events in common such as organizing trips to near surroundings

by renting a bus or participating to Izmir International Fair activities. Sailing contests and outdoor cinemas were other common events recalled.

Domestic Roles

Children's major activities inside home were mainly sharing time and chatting with the older family members in the social areas of the house, like the terrace or the main hall, also listening to the radio, doing school work and reading. The outdoor social activities were bicycling with kids from the neighborhood, playing soccer in vast lots. Especially during summer, having a swim in the sea just at the edge of the street, fishing, taking a walk on the sea coast and going to the outdoor cinemas in the neighborhood were the common leisure activities. The kids used to spend more time with neighbor's children, out of the house rather then staying inside.

End of First Home

After a certain time, the natural wearing out of the old building, its constant need for maintenance, the lack of comfort, technical and hygienic deficiencies started affecting the domestic life negatively. Besides, the older family members' aspirations for more comfortable living areas, such as 'modern apartments' which promoted better domestic life and the care and desire for providing an independent house for each of the sons brought the inevitable end of first home in 1964;
'demolition and re-construction'.

SECOND HOME (1966-2004): THE 'FAMILY APARTMENT'

In year 1965, to answer the ever increasing housing demands of the growing population in the country, popularly adapted and legalised new solution was the building of apartments on share basis, resulting in multifloor concrete blocks occupying the greater portion of the existing lots. This new urban pattern was also a new life model for the families all unfamiliar to each other, which dictated transformation and (re)construction in the social lives of the families and the community.

In the case of the 'family', the radical decision for a new apartment absolutely was not for 'profit' purpose, which was in fact a major incentive for the landlords to possess certain units of apartment flats, at that period. The basic reason was solely to meet the true needs of the family. For the same reason, new apartment building was built for the members of the family, as three individual flats with sufficient floor areas. The apartment also gave place to a small back yard.

Features of the House (Physical Qualities)

Second house of the family was a moderate 'family apartment' with spacy and bright flats that faced the narrow streets on three sides. Individual flats of the second apartment were designed with large glass surfaces to provide maximum light inside.

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This was, in a way, a reaction to the introverted life style of the past – to the small windows and dark indoor spaces- of the old house.

Entrances to the apartment flats were through wooden doors at two different sizes. The two-wing larger one was to serve the guests, the reguler size one was for the daily use. The L-shaped, 'salle a manger', living room housed the guests at the longer arm of the L-shape, the major dining table took place on the other side. Building materials of the apartment consisted of the available local materials of that period, namely; stone and seramic tiles, marble and linolium. Heating of the apartments were by gas stoves placed at living quarters, which were replaced by central heating units in the following years. Gas heaters used in the bathrooms were also replaced by electric heaters. General comfort conditions of the family apartment could be regarded as much more advanced, compared with the previous old house.

Space Uses

Each family member shared his/her individual life primarily within his own family, where the isolation from the greater family relations became inevitable. The most public space of the family apartment was the small yard on the back side of the apartment, where three generations frequently came together. This small yard was a parking area, also a secure play area for the children. Traditional religious rituals were still carried at this small site during the Bairams and the Feast of the Sacrifice. The ground floor family members took the most advantage of the garden, yet upper floor relatives enjoyed the view of the greenery from the upper floors.

Neighborhood/Community Relations

Starting with the mid 1960's, apartment building process continued in a ever growing trend and by 1980 surrounding streets were lined up with attached apartments, resulting in five story high concrete wall.The physical and social transformations inevitably affected the domestic life. Growing population of the neighborhood and participation of new inhabitants, disabled the tight relations among the neighbours. Izmir Bay became over polluted within this period and swimming and water oriented activities were no more possible. New trends for new recreation were visiting close distance coastal zones during summer and this resulted to major changes in the lives and activities of the neighborhood. Increasing number of vehicular traffic displaced the pedestrians and the children from the streets. Outdoors was no more quite, peaceful and natural environment.

Domestic Roles

Family members living under the same roof of the family house experienced the transition from the traditional 'large-family oriented' life style to more 'independent' way of life in its most congruent rhythm. It was appropriate to call this process, a 'sufficiently independent', yet 'commonly adopted' transition period. One of the most critical instrument to affect the family life was the introduction of TV to the family's daily life, toward the 1960's. This new device has affected the social life within the

family, as well as the general setting of the house including the invention of "daddy chair".

Marriage of the family's boys (second generation), participation of new characters, the brides and the grand children (third generation) to the family and finally the passing away of the first generation's elderly adults has totally changed the order and the hierarchies of the domestic life. With the introduction of family's new members, it was not possible to talk of a 'single big home' any more, but 'independent homes'.

End of Second Home

Dense downpour of rain at the early hours of November 5, 1995 collected a massive water body at the outskirts of Karşıyaka, which rapidly ran down to the lower levels along the coast. The result was drowning of sixtyfive people from upper levels, plus flooding of all the ground floors along the coast and resulting in extensive casualties. In the same way, the main entrance, the ground floor and the back yard of the 'family apartment' was flooded by one meter high water body. The trace of the dirty flood water on building facades, having mixed with gasoline, kept its existence as 'zero level' for many years, as to remind the flood for many years.

The ground floor of the family apartment was in a non-residable state after the flood and the ground floor family members had to evacuate the apartment soon after by moving to a new apartment in close vicinity. Partition of the ground floor inhabitants after the flood, emptiness of the top floor after the decease of the elderly members, the fate of the second building, the "family home" was again decided for the second time in 2004; *'demolition and re-construction'*.

THIRD HOME (2006-) : THE 'NEW APARTMENT'

By the turn of the century, second generation of the family was now the elderly members and their decision was replacing the existing 'family apartment' with a new one. In this decision, there was no expectation for living together with the younger generations, as it was the case in the previous family apartment. In the new life model, imposing such a decision to the new generations was practically impossible due to their uncertain future living and working conditions. Yet, two families moved to new apartments with their children, close to each other in the same neighborhood, probably a sentimental attitute to living together in the same environment for fifty years. Construction of the 'new apartment' was on a shared basis upon agreement with a young engineer contracter and inevitably had to give priority to commercial goals.

Features of the House (Physical Qualities)

The 'New Apartment' sat on the full area of the lot and consisted of four floors above the open ground floor. Each floor level consisted of two apartments (flats), larger one with three bedrooms, smaller one having two bedrooms - eight apartments in total. Materials and acccessories used in the new apartment may be regarded as new

technology products, yet all at modest scale. The covered ground floor is the common public space of the apartment inhabitants, providing sufficient parking space and a shelter area, as legal requirement.

New Apartment which carried and carries the family's name is a well-designed building with sufficient and comfortable use areas and also energy efficient. The new built and well-maintained building is further advantageous with its parking area, which also served as a secure covered playing area for the small children.

Community Relations

A major transition is experienced at the neighborhood and at the environment, paralel to the houses.

Former single or two story houses within green yards have now totally turned into apartment blocks. There is no more vacant open, green space for outdoor recreation and for children to play. Rapidly increasing number of motor vehicles and vehicular transportation has limited secure pedestrian and bicycle traffic and also parking areas. Expensive motor vehicles are haphazardly parked on the roads and on pavements, blocking vehicular and pedestrian access.

Left over areas of the green yards, after the completion of the apartments, serve no practical uses for the inhabitants and are not cared by them.   The popular socialization areas of the past, the green yards, are now unowned and unmaintained residual areas.   It is not possible to talk of close contact and sharing among the apartment inhabitants and with the neighbors in the existing social setup. Typical daily life of the apartment inhabitants in the common areas may be described as parking of their cars, checking their mail boxes, using the elevator etc.

Domestic Roles

The New Apartment eventhough carried the family's name is not a family apartment any more. Family members are now shareholders like the other inhabitants. They do not reside in this new apartment, except for the small flat that is periodically used by the family members as as private archive and work place. Yet, they feel responsible for the well being of the apartment and carry the managerial tasks where the new neighbors are usually unwilling for such a contribution.

Families in the apartment occupy the large and small flats according to their family size and economic conditions. Younger generations are educated and all parents actively work during the week days, as parents or caretakers (attendants) take care of the small children. Children, during the pre-school periods spend their time within the house or attend to day-care centers. The parking area at the ground floor serves as play area for the children under the attendance of adults.

And the Third House (2006-)

The third house and the second apartment carrying the family's name is not built for the family to live in but as a property of commercial value. Families currently residing at the new apartment, have made their preference under their current conditions, which are open to change in the coming years. Therefore, all inhabitants of the apartment, except for the old couple, are open to changing their living environments in accordance with their changing social and economic conditions. This reality clearly displays the status of the 'new apartment' as a 'temporary living quarter' like many other apartmen houses and housing units in Turkey. (Figure 3,4)

TO BE CONTINUED…

There will be no end to this story. There will continuously be new lives, new people, new homes on the same piece of land, since places are intrinsically woven with people, actions and time. This article -quasi story, attempted to display only a simple portion of what is distilled in the user's mind, who once used to be the child of the house but now almost an outsider looking from a distance. Besides, the text and the story narrated might seem familiar to majority of people who shared the same segment of time in Karşıyaka, İzmir or even in various environments and neighborhoods in Turkey, since the domestic life, besides being an autonomous sphere is a social construct. There for the whole story is a sequential 'de' and 're' reconstruction process of domestic space. It is both 'de' and 're' construction of the physical structure- the *house*, as well as the mental and social construct – the *home*. Thus, it appears that the process is a loop of building and re-building as well as a *constant evolution* that shelters valuable codes of man.
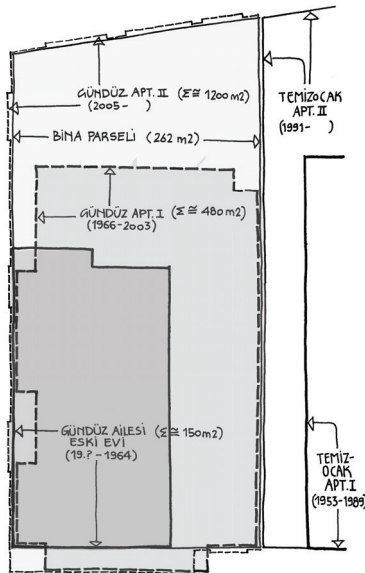
Figure 3. The site plans of the three houses on the same lot.

First house
(1953-1964)

Second house
(1966-2004)

Third house
(2006-....)

Figure 4. Front views of the three houses

READING SOCIAL (DE/RE)-CONSTRUCTIONS IN URBAN NEIGHBORHOODS: FROM CUL-DE-SACS TO GATED COMMUNITIES IN ANATOLIAN CITIES

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ABSTRACT

Cities are composed of buildings and open spaces between buildings; the links that connect them are the products of humans and society. These elements are arranged in a way that reflect the culture. This study aims to emphasize the strong relationship between spatial properties and culture by means of a cul-de-sac, which comes from welding people's lifestyles with semi-public/semi-private characteristics and a gated community within a modern style cul-de-sac.

In the traditional urban texture of Anatolian cities the cul-de-sac is a semi public street which is mainly a safe playing area as well as a semi-private social space for adults for greeting, socializing, sitting and resting. Cul-de-sac may be defined as the sitting room of the neighborhood in traditional usage with four tall walls around it but doesn't have a ceiling. It is well known that crime is less predominant in such urban layouts. Contrary to modern cities where cul-de-sacs are viewed as an area for circulation only and one that is not appreciated very much. In modern cities, development plans propose a grid system and forbid creating cul-de-sacs. However, gated communities have specific physical impact upon the urban built environment, such as the closure of streets. Both the cul-de-sac and gated communities are open on one side only and connected to other larger public spaces. Gated communities represent an urban phenomenon that is spreading all over the world similar to Anatolian cities. They can be defined as residential areas for a particular populous seeking security, comfort, a better quality of life and social homogeneity. They consist of neighborhoods closed by either walls, barriers or fences and the majority have access gates.

In this study **"Social (Re/de) Construction in Architecture"** has been analyzed starting from spatial properties of cul-de-sac in traditional Anatolian urban life to the gated community in modern Anatolian metropolitan life considering the neighborhood relationships.

Keywords: Cul-de-sac, Gated community, Neighbrhood, Development plan, Social relation, Social (re/de)construction

READING SOCIAL DE/RE CONSTRUCTIONS IN URBAN NEIGHBORHOODS: FROM CUL-DE-SACS TO GATED COMMUNITIES IN ANATOLIAN CITIES

> *"The sociology of knowledge must concern itself with everything that passes for knowledge in society."*
> (Berger and Luckmann 1966)

INTRODUCTION

Humanity is the product of the society and the society is the product of humanity. The social construction of reality refers to the processes humans use to actively create and shape the world through social interaction (Berger and Luckmann 1966). The central concept of "*The Social Construction of Reality"* is that individuals and groups interact together in a social system form. Knowledge and people's perception of what reality is becomes embedded in the institutional fabric and structure of society (http://en.wikipedia.org/wiki/Social_construction). Society as objective reality has habitualization, institutionalization, legitimacy, symbolic universe, therapy as a form of universe maintenance, nihilation and reification. Social reality is therefore said to be socially constructed. The foundations of knowledge in everyday life have paramount reality (the reality of everyday life), typification (habitual ways of acting), and objectivity (human expressivity manifests itself in products of human activity, signification (human production of signs) and language (the most important sign system) (Berger and Luckmann 1966).

In Turkish culture not only relatives but also the neighbours are very important and as a social construction of reality relatives and neighbours are strong relationships. Social construction changes over time and it causes not only social transformation but also physical transformations concerning the city and urban space. Change and transformation of social and physical constructions may lead to a sense of loss. This study aims to emphasize the strong relationship between the spatial properties and culture by means of neighborhood relationships. Cul-de-sac is one semi-private urban space that comes from the neighbourhood and family relationships that affect urban patterns in traditional Anatolian cities. Cul-de-sac in the Islamic/Ottoman context mainly deals with segregation, privacy through space hierarchy and control. Cul-de-sac has been a space of social interraction and to bring the relationsships between relatives and neighbours closer. The cul-de-sac addresses a range of inter-disciplinary issues such as crime, walkability, housing preferences, traffic behaviour, traffic safety, cost, sustainability and social interaction. In the modern age and modern city the same concepts especially crime, housing preferences and social interaction creates gated communities that may be labelled a different type of cul-de-sac. How human behaviour and perception of the neighborhood has changed from tradition to modern, namely from cul-de-sac to gated community. To have completed this study is important because one of the significant problems of today's cities is the sharp-edged transition between the private and public space; the cul-de-sac has offered an alternative solution to the sharp-edged transition problem, with particular buildings between public and private spaces which provide soft, gradual and hierarchic transition. On the other hand, a community gate that may be called a kind of cul-de-sac creates a segregation that is not familiar to the nerighborhood relationships of Turkish culture.

"CUL-DE-SACS" IN TRADITIONAL ANATOLIAN CITIES

"The curvy, narrow streets which give you the feeling of an old town may sometimes lead to somewhere or may not. A "çıkmaz sokak" in Turkish is neither a cul-de-sac nor dead-end-street. It certainly isn't the second one. It is obvious that a culture which is called "çıkmaz sokak" as dead-end-street has not experienced "çıkmaz sokak"as it is in Anatolia. A child who sits looking out of a window on to a cul-de-sac will never get bored. This is the sitting room of the neighborhood. Even though it may seem like the houses in the street are leaning against each other, once you walk through the garden gates you can feel the independence. Some are gardens; some are just backyards or cul-de-sacs. Whichever type it is, it is just a sitting room with four tall walls around it but doesn't have a ceiling" (Balamir 1994).

The concept of "cul-de-sac" in Western logic

Several terms such as street, path, avenue, highway, way, route, road, boulevard, mall and promenade have been used for similar functions. If these concepts are used as technical words, some differences occur between them (Moughtin 1992). Cul-de-sac is a part of circulation element which is important for limiting structures along the street and in order to get benefit from urban parcel considering dept. Cul-de-sac is defined in architecture and urban design literature as "the street pattern open only in one side and connected to other larger street." (Keleş 1999), (Sözen ve Tanyeli 1992) (Figure1).
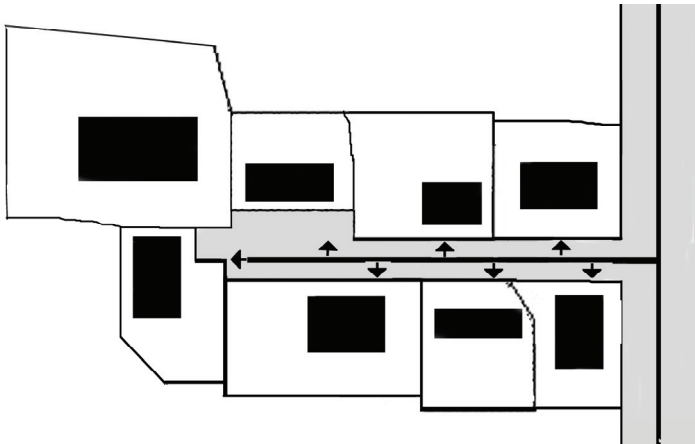
Figure1. Cul-de-sac is the street pattern open only in one side, connected to other larger street (Bala and Nafa 2008)

The meaning of 'cul-de-sac' derives from a French term meaning 'bottom of the sack' and commonly refers to a dead-end street. The Oxford English Dictionary defines it as 'a street, lane or passage closed at one end, a blind alley; a place having no outlet except by the entrance'. Although in English "dead-end street", "blind alley", "blind path" are used as well as cul-de-sac namely numb, dead, lazy, sluggish, lethargic, shiftless, indolent way; in Turkish "çıkmaz sokak" is not used to define something negative in expression or meaning.

Cul-de-sac seen in Medievial cities (Mumford 1989), (Morris 1979), (Moughtin 1992) do not have the same peculiarities with dead ends of Anatolian Ottoman and Islamic cities. Cul-de-sac style courts, closes and quadrangles are found in many English, French and German towns of the Middle Ages (Southworth and Ben-Joseph, 2004, Cozens and Hillier, 2008). Andre Raymond (1994) mentioned that the comparison between Western medieval cities and their urban institutions with an Islamic city show that the latter has lost the regularity of the antique city. Roger (1996) uses typical words such as; "Nothing is more foreign to a Muslim town than the rectilinear avenues of a Roman or a modern city an aerial photograph of any Muslim city makes us think of a maze, or a labyrinth. Instead of being integrated into a planned design, the buildings have forced the communication routes to skirt round them, or to slip between them as best they could. As a result, there are an extraordinary number of dead-ends and the roads are very rarely straight". Gustave von Grunebaum (1946) wonder why Muslim cities have given up using "the advantage of a straight line as the best route from one point to another" and preferring narrow streets ending abruptly. J. Sauvaget (1946), claims that "the Islamic city is no longer considered as an entity, as a being in itself, complex and alive; it is just a gathering of individuals with conflicting interests who, each in his own sphere, acts on his own account. There are no more municipal institutions".

In conclusion, Western logic depicts the cul-de-sac as something negative. However, the usage and the approach to cul-de-sac phenomenon have been completely different in traditional Anatolian cities. In order to explain why the cul-de-sac is not the part of labyrint, not giving up the advantage of staight circulation patterin, not a dead-end-street, we have to understand the social reality, culture and the logic behind creating cul-de-sac.

The Logic behind Creating "Cul-De-Sac" in traditional Anatolian Cities

Typical features of traditional Anatolian cities were organic and free networks, not geometric and in rhythmic order, having a large number of cul-de-sacs, winding and narrow roads in human scale (Aru 1998), (Kubat et al., 2001). The pattern of traditional residential areas was in general 1-3 floors, having a courtyard belonging to house and cul-de-sac, which were curved, narrow and full of bends (Aktüre 1978). The growth of cities occurred in two ways. The first was filling the gaps (graveyards and un-constructed areas) in city pattern (Figure 2). The second appeared as an expansion of urban settlement areas towards the suburbias (Raymond 1995). This pattern gives users a sense of belonging, a territory where they feel safe and protected. The public, semi public, semi private as well as private overlap with activities (Stewing 1966).
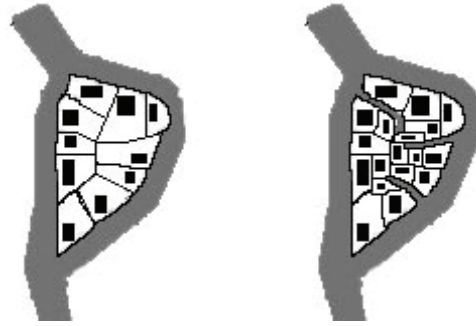
Figure 2. Filling the gaps creates the pattern of traditional residential areas in Anatolian cities

During the period of Ottoman rule, people and animals that carry loads used the Anatolian city (Schwarz 1959). The cabriolets are either used limitedly or used on the main road (Yerasimos 1996). Hence the roads are generally narrow. The streets change direction frequently (Schwarz 1959). Not only the direction but also the width of the roads changes frequently. Narrow and broad street parts follow each other in disarray. These are dead ends that have short or long branches and the width of which change one after another. Cul-de-sac in the Islamic/Ottoman context is to do with segregation, privacy through space hierarchy and control (Lapidus 1967), (Stewing 1966), (Bala and Nafa 2008) (Figure 3).
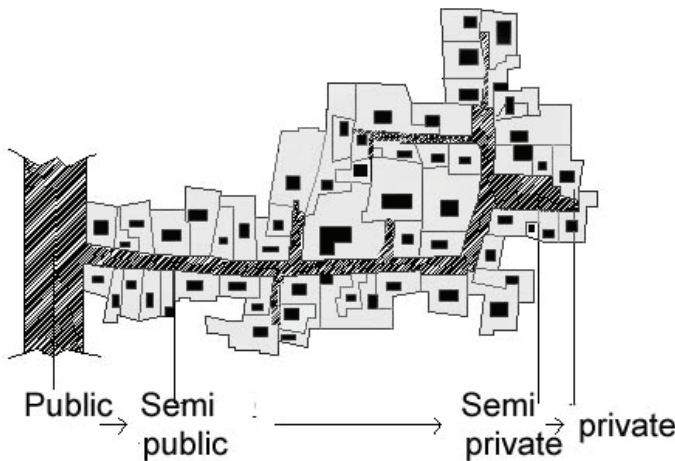
Figure 3. Cul-de-sac is either a semi-private or semi-public road for residential (Bala and Nafa 2008)

As well as all these factors, there is also more important factor, creating the cul-de-sac is the social reality.

Social Realities and Creating Cul-de-sac

One of the important elements of Turkish cultural life and structural society is relatives and neighborhood. Neighborhood, that is the important element of social dynamics has historical characteristics of diversity, changing from society to society and region to region. Neighborhood relationships and family relationships also affect urban patterns. There is a common social reality in traditional Turkish culture that is sons have carried the honour of all the family; so the family roots and relationships are so strong that when the son gets married, he can not leave the large family alone, soan extension is added to the family house . These houses constitute a dead end by attaching these two separate houses. Two houses facing each other are joined together and constitute two new ends (Figure 4).
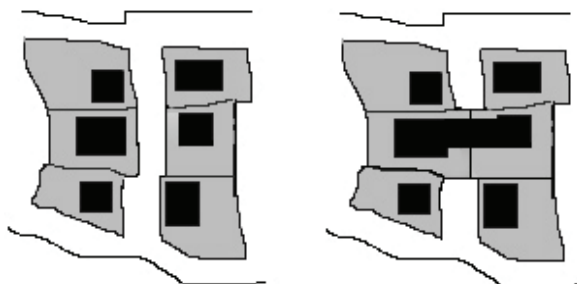
Figure 4. An extension is added to big family house constitute a dead end by attaching these two separate houses

It is not legal considering building regulation in universal perspective but it is in line with constitution and traditions (Yerasimos 1996). In traditional Turkish culture each member of the society must have been careful about the others right considering spritual world. None of the neighbours would construct his house in a selfish way. They were careful about nature, context and neighbours. In other words, people constructed their house in a way that their buildings did not block incoming sun-shine and did not close the view of their neighbours. They have also never distroyed trees or any creature's habitat. All this behaviour is in keeping with "mortal right" according to Islam. To ignore the "Mortal right" is one of the biggest sins within İslam. Thus, traditional Anatolian cities respect nature, context and neighbours rights.

Religious rules were much stronger than the official rules at that time considering urbanism. According to Stewing (1996), since Islamic rules attach more importance to private property right than public property as long as they do not do harm to other people directly. Islamic city culture defined the spatial and physical structure of dead ends. Islamic cities are not the space someone can by pass from one point to another, one quarter to another as one wishes. There is a soft, gradual and hierarchical transition from the most public spaces like mosque or bazaar, square, large street and garden gate to the most private space like a garden and house. This is not a proper comment describing this honeycomb structure of the city as "labyrinth"

in Western logic (Stewing 1966). According to (Armağan 1996) Oleg Graber defines Islamic Cities as "human faced cities". Cold nature of laws are disguised into humanistic warmth in streets (Armağan 1996). Urban and rural areas are unplanned and uncontrolled due to the fact that absolute individualistic interest is in the forefront in housing, and positioning according to parcel of land (Cerası 1999). However as it is aforementioned, it is again a reflection of the Islamic view. Nevertheless the emphasis of Stefan Yerasimos (1996) in this context clarifies this warmth in a legal dimension.

"The status of dead end is a wonderful example in terms of the priority of the rights of natural person. The partnership of property in dead end is not monotype; every resident is the partner of the property, which starts from the entrance of dead end and ends in the threshold of his house. Therefore he cannot enlarge his threshold towards the dead end without the approval of the other owners of the property. The area of the dead end, which is getting more private towards the inner area, becomes the private property of the owner located at the end. Social status of the street residents follows a decreasing order towards the open end (Yerasimos 1996).

 In Islamic cities private property is more important than public property and the border concept is shaped through this understanding. There are common property areas in Islamic cities however public benefit liabilities are not applied in these areas as it is applied in the west (Stewing 1966). The concept of a boundary separating private and public property from each other in Islamic cities is called "fina". Fina is used in place of border, which means the progressive transfer from one unit to another. The phenomenon of dead end, turns the public area into private area in accordance with the fina enabling the transfer from one property to another in Islamic law (Yerasimos 1996). It is a kind of privatization process of public usage that is based on agreement of property owners of buildings that have a surface facing towards the dead end. Private property is more important than public property, an interface is created that is cul-de-sac (Stewing 1966), (Yerasimos 1996). The owner of private property can occupy the street in front of his private property; moreover he can have the right to use this area permanently. Therefore, this street becomes his fina. Two neighbours facing one another may break off the road and divide it into two dead ends with the permission of the street residents. These two dead ends become the property of the residents. Therefore, people in this area would privatize the public area.

According to Denel (1982), administrative, legal and economic alterations were observed in Anatolian countries under the rule of Ottomans after the proclamation of "Tanzimat" which is a series of regulations adopting Western views in 1839. These alterations comprise the transforming of the traditional Ottoman city pattern into grid by deteriorating traditional city patterns. The societal logic which creates cul-de-sac become "the other" starting from Tanzimat period. It is reflected in urban spaces. Once the spatial hierarchy is taken into consideration, modern city lost the cul-de-sacs as interface (Bala and Nafa 2008).

What happened to cul-de-sac in Anatolian Modern Cities?

It has been observed that two basic settlement design patterns have been used in the world throughout the centuries.These two patterns namely "the grid-iron" and "the

organic" orders have been exercised in Anatolia, either one after the other or even synchronized (Figure 5). Many discipline-specific studies have compared the cul-de-sac with the grid in relation to a number of themed issues, but few have attempted a truly multi-disciplinary evaluation (Cozens and Hillier, 2008). The grid is an ancient urban form, which refers 'to a plan of generally straight streets meeting at roughly perpendicular intersections in a consistent and comprehensive pattern' (Grant, 2001). It has been observed in many cultures and locations and colonizing Europeans exported the grid as a simple and replicable design to Canada, America and Australia (Mumford, 1961).

a)The grid street pattern   b)The cul-de-sac street pattern
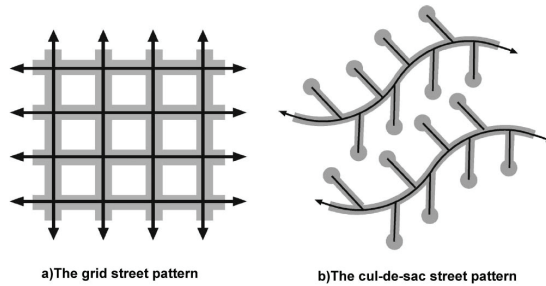
Figure 5. Two basic settlement design patterns (Roitman 2005).

In modern cities, streets are designed for motor vehicles rather than pedestrians. Thus, development plans propose a grid system and forbid creating cul-de-sacs. Although the cul-de-sac has a function for being a transitional space between public and private space in traditional Anatolina cities, they have disappeared in modern ones. A quiet, pedestrian-focussed environment was created where courts and close arrangements of terraced houses bordered a central green space accessed by a narrow service road connected to the public street system. Early cul-de-sacs were short and narrow, with no circular turning point provided and often equipped with mid-block pedestrian walkways, which connected to another street or cul-de-sac. Sidewalks were always present with trees and shrubs and architectural features such as walls, fences and gates created a unique pedestrian thoroughfare. They were designed to provide a public realm for residents while allowing safe, slow vehicular traffic movements (Cozens and Hillier 2008). In recent years, the cul-de-sac has become both elongated and widened, with more dwellings incorporated. Some urban analysts and planners turned to the Garden City model and winding streets, crescents and irregular shapes came to dominate urban thinking and design throughout much of the twentieth century. New Urbanism promotes high-density, mixed-use residential developments in 'walkable'neighbourhoods close to public transport, employment and amenities and generally advocates the use of the grid street layout in preference to the cul-de-sac (Morrow-Joneset al., 2004). The dominant grid layout implies that car parking is commonly hidden from view, often in rear lanes (Martin, 1996). New Urbanists argue that cul-de-sac layouts are car-oriented and pedestrian-unfriendly, while grid layouts are fewer cars dependent and can enhance walkability by virtue of their permeable configuration (Duany and Plater-Zyberk 2003-1992), (Calthorpe 1994), (Kartz 1994), (Cozens and Hillier, 2008) urban sprawl and the rapid increase in the number of cars and car journeys have

undoubtedly contributed towards reducing the relative benefits of living in the suburbs. However, Southworth and Ben-Joseph argue (2004) that the cul-de-sac has now come to symbolize all the problems of suburbia. Indeed, Lee and Stabin-Nesmith (2001) have recently re-examined the 1930s Radburn cul-de-sac development in New Jersey and observe many similarities with New Urbanism such as 'pedestrian-friendly environments, high-density and mixed land-use development, dependence on public transit and an extensive green park system' (Lee & Stabin-Nesmith, 2001: 179). They argue that not only is the Radburn model still viable, but it can be improved and could underpin a reformed Garden City movement. Whatever the planning attitude to the cul-de-sac in the world, in modern Anatolian cities cul-de-sacs are disappeared. It is not only because of development laws but also changes in people's house preferences. In modern Anatolian cities gated communities we called a kind of cul-de-sac become popular.

DIFFERENT KIND OF CUL-DE-SAC: GATED COMMUNITY

Gated communities that may be called a different kind of cul-de-sac with a new social construction of reality started to become popular in modern Anatolian cities. Gated communities were like the cul-de-sac with an entrance to one side, privacy space through the hierarchy and control but the gated community disliked the cul-de-sac neighborhood approach. A gated community is, in simple terms, a community surrounded by a fence and provided with a gate for entrance. Both cul-de-sac and gated community have an entrance only to one side and are connected to another larger public space. Gated communities represent an urban phenomenon that is spreading all over the world like in Anatolian cities.

The concept of "gated community"

The term 'gated community' refers to a particular organization of space in residential areas (Glasze et al. 2002). This phenomenon involves a group of residents who choose to live in a designated location surrounded by a protective system. They have security devices such as walls, fences, gates, barriers, alarms, guards and CCTV cameras. By and large, the infrastructure and services are of a high quality. They are designed with the intention of providing security to their residents and prevent penetration by non-residents, being conceived as closed places since their inception. Law reinforces their closure as private places, which distinguishes them from other places in the city. Their residents must follow a code of conduct concerning social behaviour and construction regulations.

Gated communities appear as homogeneous places in comparison to the heterogeneity of the 'open city'. Most of their residents are upper- and middle-class families. Urban violence and fear of crime are mentioned in the literature as the main reasons for moving to a gated community (Blakely and Snyder, 1997), (Caldeira, 2000), (Carvalho et al., 1997), (Landman, 2002), (Low, 2000), (Pinto, 2002), (Svampa, 2001). Many authors have referred to the process of choosing a gated community as an act of voluntary segregation, a conscious act and decision taken by an individual or family, contributing to the process of urban social segregation (Borsdorf, 2002), (Greenstein et al., 2000). Other authors say that gated communities

represent a special type of segregation (Carvalho et al., 1997), (Marcuse, 2001). However, the process of urban residential segregation to which gated communities contribute should not be considered as voluntary without considering all the causes that have an influence in its development. This leads to a debate about the room for action that people have regarding the decision of residential location. While there is no specific theoretical framework to analyse the phenomenon of the gated communities, the existence of structural and subjective causes of their arrival can be related to the main ideas of the structuration theory of Giddens (1984).

The borders of the gated community lead to the existence of two different worlds; one within the walls and the other outside them (Roitman 2005). Security is the most important motive within the structural causes and getting status and a better life quality appear as the subjective reasons for moving to the gated community. Though the image of the gated communities is one in which a high solid wall is interrupted by a single gate that is heavily guarded, most walls are not that solid, are interrupted by various gates, or are not even completely walled. Moreover, most are not guarded by private enterprises. Besides, the walls and gates usually do provide a reduction in automobile traffic, and there is the added benefit of making the neighbourhood safer for children at play and those who walk the streets. Gated communities are to be found in all parts of the world. Gated communities are often associated with prestigious high-cost housing, although they are not limited to upscale developments. One-third of the gated communities are luxury developments for the upper and upper-middle class, another one-third are retirement oriented and the remainder is mostly for the middle class, although there are a growing number of working-class gated communities

Social segregation in gated community

In recent years numerous papers, articles and books on gated communities have been published and in general gated communities is considered in the light of urban segregationist tendencies. Many of them emphasise the idea that the arrival of gated communities is closely related to urban social segregation (Roitman 2005). The structuration theory of Giddens (1984), in which agency and structure influence each other overcoming this duality, is suggested as a theoretical framework to analyse the process of urban social segregation in relation to gated communities. It is important to note that the perceptions and opinions of both the residents of the gated community. What lies outside the fence is a potential threat and thus should be handled with suspicion. At the same time, members of the community are keen to maintain friendly relations with their neighbours. They consist of neighborhoods closed by walls, barriers, fences and gates.

Gated communities contribute to a type of segregation that cannot be defined as either voluntary or subjective, but rather influenced by both (Roitman 2005). Researchers such as Wilson-Doenges (2000) have showed that gated communities are not such a safe place to live and there is no sense of community different from the one that could be in the 'open city'. Moreover, there is no guarantee that they will repel more thieves than they attract. Burglars know that the doors and garages are likely to be unlocked and houses are likely to have valuable objects inside, so once the main wall has been passed, there are no difficult obstacles to overcome. Despite

these positive effects, according to the literature the negative impacts of segregation are more evident and dangerous in terms of society as a whole. Social segregation might lead to feelings of exclusion and being rootless, and worsen problems of social disintegration. There is a large body of research that links segregation with poverty and the lowerclass (Massey & Denton, 1993), (Mingione, 1996), (Wilson, 1987). In addition, poor people who live segregated lives face less chances for upward social mobility. Following this argument, Blakely & Snyder (1997) argue that segregation has a variety of negative impacts, such as reduced opportunities, concentration of deprivation, greater vulnerability to economic downturns and separation and isolation not just from other members of society, but often also from jobs, adequate public services and good schools. On the other hand, it is important to note that although most of the time the bad effects of living in a segregated place, which is not only segregated but poor as well, are highlighted, living in a segregated but wealthy place like a gated community also has many drawbacks for its residents. Social segregation hardens and breaks the social fabric through the use of visible barriers that do not allow strangers to go inside the borders of the gated communities. It reinforces social differences and social divisions. There is a lack of contact with different people. The construction of social relations is influenced by the separation established between 'the insiders' and 'the outsiders'. 'The others', who are the people outside and especially the neighbours in the surrounding areas, are perceived by the residents of the gated communities as strangers and as potential aggressors. In this way the physical barriers are used to establish a distance, which is not only physical, but also social and symbolic. A gated community features the same characteristics as a defended neighbourhood, but is also gated and walled, frequently with a central guarded entrance. Within a defended neighbourhood road and other signs as well as a (closed) video circuit often suggest it's a private property, while this is not the case. The cameras and signs are meant to make outsiders understand that they don't belong there. Most gated communities not only make this known at the entrance, but also within the gates. While gated communities have legal authority to withhold access to outsiders, defended neighbourhoods don't have this authority. The legal aspect is important in relation to another aspect. 'Open' space (with the exception of private gardens) within a defended neighbourhood should be considered 'public space', while all space within a gated community should be considered 'private'. The private entity responsible for maintenance of the 'open' space is the homeowner association. However, public space thus becomes privatised or parochialised and accessibility is a major issue because *public* space is broken down.

RESULT

Cul-de-sac which is either a semi-private or semi public road for residential groups located along the road without reaching outside and providing people or animals one entrance was one of the most important elements in traditional Anatolian cities. Social realities created cul-de-sac. However the development plans forbid cul-de-sac with modernizm and new semi-private or semi public areas as gated communities have become popular in Anatolian cities. Gated communities have specific physical impact upon the urban built environment, such as the closure of streets like cul-de-sac. Cul-de-sacs and gated communitities have similar as well as different properties (Table 1) and (Table 2).

Table 1. Similar properties of cul-de-sacs and gated communities

Cul-De-Sacs	Gated Communities
Semi-private / Semi-public	
Privacy through space hierarcy and control	
Control mechanism for preventing crime	
Well designed for walkability	
Give sense of belonging	
A territorial area where residents feel safe and protected	
A safe playing area for childern	
Social space for adults	
Quiet, pedestrian-focussed environment	
Walkable neigbourhoods close to public transport	
Entrance to one side	
Social homogenity	

Table 2. Comparison with cul-de-sacs and gated communities

	Cul-De-Sacs	Gated Communities
Neigborhood relations	Close relations, eveybody knows each other	Inside gated community few relationships Outside of the wall no relationships
Family-Relative relations	One of the reasons for creating cul de sac is to be able to live within a big family	No big family relationship , No relatives in general
Housing preference	The reflection of social realities spontaneously	Social and physical environment is chosen consciously
Hierarchy	A kind of transition between public and private, open and closed, Provide soft gradual and hierarchy	This settlements creates transition problem with sharp-edges
Circulation pattern	Narrow roads with changing direction frequently and end with cul-de-sac creates a circulation problem	Inside gated community organized motor vehicle access system, however within the city context an interruption is created
Technology	No infrastructure and services	High quality infrastructure and services
Usage	Greeting, socializing sitting and relaxing with all neigbours	Greeting, socializing sitting and relaxing with selected neigbours
Rules	Religious and/or motal rules and rights are effective	Legislative rules and rights effective. Law reinforces their clousure as private places which distinguishes them from other places in the city
Rights	Public area turns into private area (fina)	Some parts of the settelement become a source of segration
Crime	There is no special precautions against crime, however social relationships provide security	Security devices provided include, walls, fences, gates, barriers, alarms, guards, CCTV cameras
Social homogenity	Low, middle, upper class families	Upper class families
Urban violence	Territory is defined so there is a reduction in violence but there is no control mechanism	Fear of crime is the logic behind gated community Be able to be safe from urban violence, a voluntary segration is created

After evaluating Tables 1 and 2, this study obviously highlights the need for further investigation, considering the owner of the house in cul-de-sac and gated communities. This paper not only provides a brief history of the cul-de-sac and gated community but also it calls for a more holistic approach to understanding the localized and contextual dimensions to housing preference. The paper highlights key issues for future research and calls for more inter-disciplinary debate and cooperation, particularly between environmental criminologists, planners and town centre managers.

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THE SOCIAL CONSTRUCTION ANALYSIS OF SUBURBS:
A QUALITATIVE RESEARCH IN TURKEY-ANKARA

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ABSTRACT

Migration from rural araes to urban centres is the reality of growing cities. The accumulation of numbers in the city results in the shortage of appropriate housing watching in the city thus, giving way to the expansion through the periphery. The aim of this study is to examine the social relationships in the suburban residential areas, which develop as an outcome of the urban growth. Residential satisfaction with housing and the living environment is an important factor for qualitative research. Here, the questions to be posed within the framework of this research are, how far people living in suburbian are satisfied with their social environment? Thus, in this study, answers to the above mentioned question is sought in the case of Ankara-Eryaman mass housing area. The social relationships and the way of life in suburbs are analyzed from a qualitative perspective. First of all, a literature survey was undertaken in order to understand the concept and process of suburbanization. Next, an empirical analysis of a suburban complex as a case study is included in order to be able to obtain first hand information on how the residents perceive the quality of their social environment.

Keywords: Suburb, Suburbanization, Urban Sprawl, Residential Satisfaction, Social Life, Social Construction

INTRODUCTION

This paper aims to analyse the social construction of middle class suburban areas in terms of a qualitative perspective. The methodology of this study is based on qualitative research methods. Objective and subjective domains of qualitative research is analyzed and rational for selecting the qualitative approach as well as the main criteria for empirical research. The social construction of suburbs is analyzed in terms of some physical and social indicators. These indicators relate to personal and socio-economic characteristics of residents such as income level and age (Figure 1).

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            │   SOCIAL CONSTRUCTION   │
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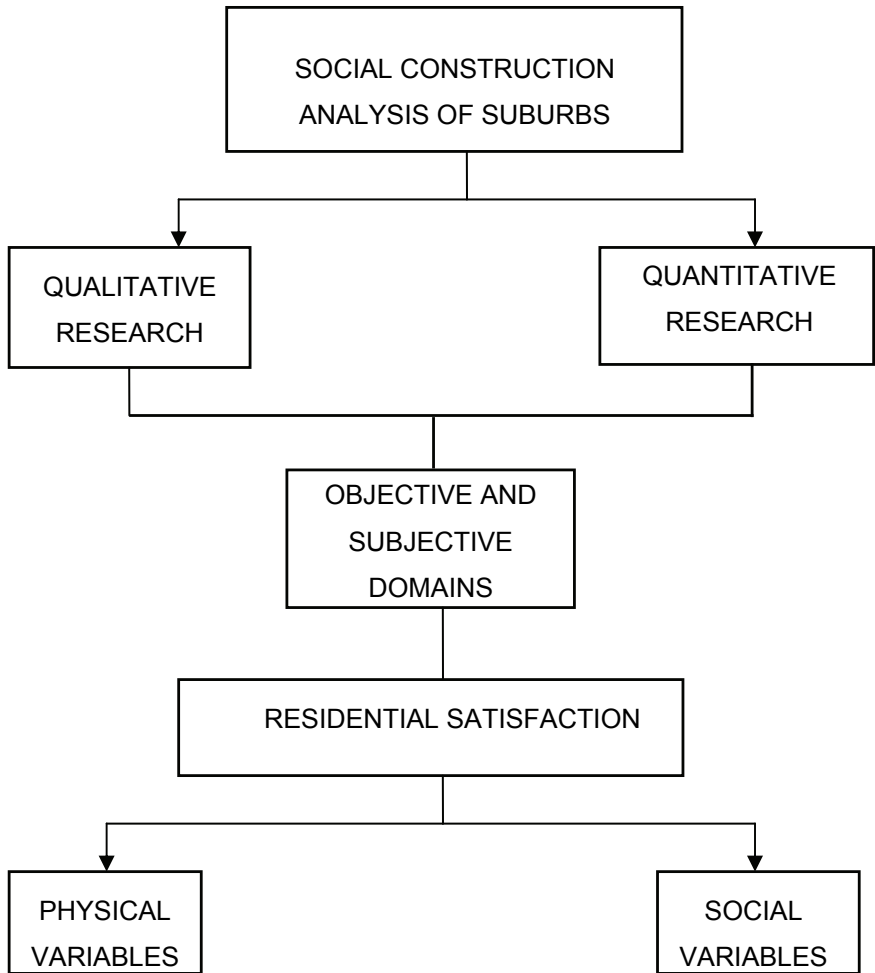
Figure 1. The Scope of the study (Source: Alkan, 1999)

The main focus is to obtain first hand information from the residents and their subjective evaluation of their living environment in order to understand how they judge the quality of their environment.

SUBURBAN DEVELOPMENT AND THE SOCIAL WAY OF LIFE IN SUBURBS

Suburbanization became significant during the second half of the nineteenth century. The concept of suburbanization has close relationships with "segregation". It refers both to processes of social differentiation and to the spatial patterns that result from

such processes" (Johnston 1994 in Erişen 2003:47). "Spatial characteristics of suburbanization are differentiation and decentralization. Among the reasons of decentralization the availability of cheap land, hence more space, better transportation facilities, the provision of infrastructure, technological developments, and more extensive use of land are the most stated" (Erişen 2003: 47).

The suburbs became the growth centers of metropoliten cities in developed countries during the 20th century. It became much easier to live outside of a city and commute into it with advances in the automobile and transportation (Wagner, 2002:8). Suburbia has a physical and a social content. Early suburbs not only represented an idealised place, but also an idealised way of life. The suburb was the humane alternative to dehumanizing aspects of the city caused by rapid   industrialization and   uncontrolled   change of physical and social structure. Thus the suburban way of life determined by an anti-urban image, negatively evaluating cities, especially in comparison with small, rural communities, which are seen as morally and environmentally superior.

Figure 2. Suburban sprawl in Colorado Springs, Colorado (http://en.wikipedia. org/wiki/File:Suburbia_by_David_Shankbone.jpg)
The Orange County suburb in Shenyank, China. h/t ata Photograph by George Steinmetz for National Geographic; (http://www.metafilter.com/ 71531/Simulating-a-Simulacra-China-does-Orange-County)

Suburbs have been criticized for the monotonous similarity, the ugliness of mass produced houses, destruction of the rural areas for the residential development, the common architectural style etc. (Erişen, 2003:55).

Also, the most important negative aspect of suburbs is that the majority of them have designed considering automobile oriented. Thus, suburbs are not overlapped with sustainable urban design criteria, especially planners of new urbanism movement have been criticized this type of settlement all around the world (See Figure 2 and 3).

Figure 3. Escape from Suburbia Beyond the American Dream (Canada, 2007); (www.partnersforprosperity.org/images/suburbia.jpg); East Hampton Suburbian Area-New York (www.easthamptonhistory.org/photos/a_ support_s.)

By the early twentieth century, dominant role of the central city on this glorified landscape has been acknowledged. The city was still the core and suburbs a residential property. Moving one's family to suburbs meant a residential decision and no more. Suburban way of life prior to the contemporary post World War II period, did not imply any abandonment of the city in other respects. Choldin (1985: 386) indicates the development that suburbia no more rejects the city in order to cope with the deficiencies of suburban life based upon familism, fostering a conformity, which would produce great homogeneity.

In choosing suburban location and a single family house with garden indicated that people express a widespread value for privacy and space. According to a theory of Bell (cited in Choldin, 1985:394), people moved to be with greater numbers of persons who were like themselves. A process of selection was at work. In Michelson survey (cited in Choldin 1985:394) people said suburban neighborhoods are more suitable for raising children.

A study by Gans (cited in Palen, 1995:88) in 1962, shows that neighbors are not much closely involved with eachother. The interaction is more intimate than a secondary contact, but more guarded than a primary one. Fisher (cited in Choldin, 1985:395) states that suburban dwellers, compared with ones in the city, are more interested in their neighborhoods and more involued with their neighbors.

In most cases, individuals an families have a fair degree of freedom in choosing the location of their residence an neighborhood. The house and neighborhood one chooses have implications for the quality of schools, the quality of the environment, the family members personal safety, the types and number of friends and neighbors, and the availability of parks and recreation areas (Schwab, 1982). As the review of literature, the flight to the suburbs of middle-class child-oriented families during the post-world War II period appears to be the result of people searching for a good environment in which to raise children. This lifestyle called *familism.* According to Schwab (1982), familism refers to a lifestyle that emphasises activities centered around home and children.

Gans (1967) found there were few differences that occurred in life-style that could be attributed to city-suburban differences. There were some differences, such as more sociability among neighborhood couples over back fences while doing lawnwork. Gans, however, suggested that the sociability that occurred within Levittown was not a result of suburban residence, but rather a direct consequence of the homogeneity of residents backgrounds, particularly in age and income.

It also deserves noting that the limitations of suburban life stressed by critics have not been echoed by suburban residents. National surveys going back several decades indicate that suburban residents have a higher degree of satisfaction with their communities than do city residents (Baldassare,1981). According to Baldassare, suburbanites are more likely to rate the cultural opportunities and activities in their areas slightly higher than do city dwellers. Suburbanites, additionally, are much more satisfied with a whole range of community facilities and services including schools, police protection, parks and community services. Residents of new fast growing suburbs tend to express somewhat lower satisfaction than longer term residents of more established areas.

Humman, in his study of the extent of community ideology and identity (1990), states three sets of imagers salient to the suburban ideology that are frequently volunteered by suburbanites:

First, suburbanites describe suburbs as *clean, quiet and natural places*. Residents view suburbs as small and quieter places with an easygoing ambience. They lack the frenetic pace and perhaps also the excitement, of the city. On the other side, the suburbs may not be country, but they have openness and provide access to natural things such as birds and trees.

Second, the suburbs are seen as a place of *domesticity*. Suburbanites view themselves as interested in home, family life and children. Suburbs are seen in the suburban ideology as "the best of both worlds". This is particularly true when the focus is on raising children. Children are believed to receive a good education in an environment where they have both freedom and security.

Third, suburbs are viewed as being much different from cities insofar as suburbs are *safe*. The safety of the suburb, in turn, is seen as making other values, such as sociability, family, and good rearing of children possible.
Joseph Zelan (cited in Palen, 1995) asserts that those living in suburbs have some minor differences in tastes from city dwellers, for example, preferring gardening and rating cultural affairs lower.

It can be stated that suburbia has some characteristic aspects, defining it as the sub of the city. It is at the same time, growing and changing entity. But this change is not on the values that made up suburbia, but on the quality of the environment on the way these values are defined as a whole. The suburban imagery that is created in minds, seems to be not a desire for a total quality of environment, but one which is concentraded on the domestic life, symbolized by the family house. It was the desire for privacy and controlled public relations characterizing the suburban way of life.

SOCIAL CONSTRUCTION ANALYSIS OF CASE STUDY AREA

Middle class housing units reflects the new shape of urban expansion in Ankara and also in other big cities in Turkey. Thus, physical and social way of life in Eryaman selected as a middle class suburb in this sense, constituted the content of the case study. The case study area is one of the settlement regions in the west corridor of Ankara-Turkey (Figure 4). The proximity of the settlement to the city center is 20 km. The case study area is consists of about 20.000 people, 4740 housing units and 5000 households.

The commuting time to offices located in the city center is approximetely one hour by bus and half an hour by private cars. One of the most problem is the area is transportation to the urban activities (Figure 5).

Figure 4. Air Photos of Eryaman Suburbian Area (Source: www.earth.google.com)

Figure 5: General View of Eryaman First Stage Settlement
(Source: www.panoramio.com)

Out of the population and housing units, in accordance with the objectives of the study 55 households are interviewed. The size of the sample is determined according

to stratified random sampling technique. Stratified random sample is found most suitable because research area have different types of dwellings. According to number of distribution of dwellings and sample population in the layout is given in Table 1. A five-point Likert-type scale was utilized for most items in this paper (5=very good or very satisfied; 1=very bad or very dissatisfied).

Table 1. Distribution of Dwellings and Sample Population

Dwellings Room Numbers	Number of Dwellings	Ratio %	Distribution of Households
1	392	8	6
2	1670	35	18
3	2713	55	28
4	85	2	3
Total	4740	100	55

Source: Alkan, 1999

Personal and Socio-Economic Characteristics of Sample Population

In the sample population, 29,1 % were born in Ankara others were born in out of the city. Of the residents, 56,4 % are female and 43,6 % are male. While the highest ratio is the middle age group, the lowest ratio is constituted by the old age group. About 47,2 % of the households in this study are owneroccupied and 65,5 % of households own private car (Table 2).

Table 2. Characteristics of the respondents

	%		%		%
Gender		**Income Level**		**Age** 20-29	12,7
Male	43,6	Low	5,5	30-39	43,6
Female	56,4	Middle	89	40-49	20
		High	5,5	50-59	18,2
				60+	5,5
Education		**Car Ownership**		**Housing Ownership**	
Literate	5,5	Yes	65,5	Yes	47,2
Primary school	5,5	No	34,5	No	52,8
High school	29				
University	60				

Source: Alkan, 1999

Middle income group is the dominant group residing in the research area. Also, the residents are in terms of employment status employees. The average level of education in the research area is high. In Sum, the average age group of households is middle age group. Although the dominant group of income level is middle income group, the average level of education is high in the research area (Table 2).

Physical Indicators

Physical indicators are evaluated by housing and housing environment satisfaction.

Apartment housing units of the case area can be seen in figure 6 and 7. Most of the residents of apartment dwellings (57,6 %) prefer to live in a detached house and all residents of detached house prefer to live in a detached house in this research. About 63 % of the households of apartment dwellings are not satisfied with their housing. Also, they want to live in bigger house and detached house with gardens. Most of the residents of detached house (89 %) are satisfied with   their housing. Thus, it can be said that there is a relationship between housing satisfaction and housing types and size (Table 3).

Figure 6. Housing Units in Eryaman First Stage Settlement
              (Source: www.bilgiemlak.com)

Figure 7. Housing Units in Eryaman First Stage Settlement
              (Source: www.panoramio.com)

About three – quarters of the people in this study are generally use their garden. Also, 61 % of the residents have children use the playground in the research area. In the sample population 65,5 % do not think to move from the site to anyplace. Most of the people who desire to move from this area, pointed out their reasons as to following: They need bigger house and they want to be close to their office and relatives. Also, of the residents 52 % want to live in a central area of the city in order to be close to their office and to cultural facilities. Residents stated that they

were highly satisfied with their housing environment. According to them, the accessibility of their housing to open and green areas and shopping center is good. In contrast, the accessibility of their housing to office, school and cultural facilities are not sufficient . Open and green areas are highly used by residents (Table 3).

Table 3. The using and evaluation of housing environment-perception of the respondents

	%		%
Housing satisfaction		**Reasons for a desire to move**	
Households of apartment dwellings		**from case study area**	
Yes	37	To live in a bigger house	32,1
No	63	To access office easily	28,5
Households of detached house		To access school easily	14,5
Yes	89	Because of traffic and noise	3,5
No	11	The desire of closeness to relatives	21,4
Desire to live in a detached house		**Reasons for a desire to live in**	
Apartment dwellings		**city center**	
Yes	57,6	To close office	52,7
No	42,4	To close social and cultural facilities	40,6
Total dwellings			
Yes	100	To close schools	3,6
No	-	To close shopping center	3,1
The desire to move another area		**Desire to live in city center**	
Do not want to move from the area	65,5	Yes	52
Want to move from the area	34,5	No	48
The usage of the garden		**The usage of the playgrounds**	
Yes	52,7	Yes	61
No	47,3	No	39

Source: Alkan, 1999

Taylor (1982) concludes from his survey research that physical deterioration and lack of nearby green space are strongly related to the dissatisfaction with the living environment. Widger (1982) and Nasar (1983) also confirms that satisfaction with a residential area depends largely on the aesthetic quality of the housing area. In Turkey, the absence of recreational areas like playgrounds for children, parks, sports areas and pollution are the two factors most of the residents complain about their region (Aydemir, 1991). Being in a distance to the city center and not having good neighborhood relations are the other factors affecting the dissatisfaction. According to Aydemir (1991), in addition to the quality of social and physical environment, centrality and accessibility are the factors affecting the residents' environment satisfaction. Educational buildings, commercial centers and socio – cultural facilities are designed sufficiently in Eryaman First Stage settlement area (Figure 8). According to objective data results, these services are highly enough for residents.

Figure 8. Shopping Center and Medical Center in Eryaman Firts Stage
            (Source: www.panoramio.com)

However, according to subjective data, residents pointed out that socio-cultural facilities are not enough. Also, they complain about accessibility to cultural services and schools. According to observations research area do not have sufficient cultural services such as cinema and theatre. Thus, residents in this research area satisfied with their environmental conditions generally. However, accessibility to office, relatives, schools and socio – cultural facilities is very problem for residents. Also, socio-cultural services are not enough for them (Table 4).

Table 4. Subjective evaluation of physical indicators

Residential Satisfaction of Physical Environment	Very Bad	Bad	Middle	Good	Very Good	Value
%	%	%	%	%	%	
Housing	1,8	7,4	43,6	32,7	14,5	3,5
Housing environment	1,8	0	32,7	52,7	12,8	3,74
View	5,5	7,3	16,4	30,9	40	3,90
Open and green areas	1,8	3,6	16,4	32,7	45,4	4,1
Shopping centers	7,3	5,5	3,6	20	63,6	4,2
Accessibility to office	39,9	5,5	5,5	23,6	25,5	2,6
Accessibility to school	10,8	10,8	13,5	24,3	40,6	2,5
Social and cultural facilities	23,6	14,5	21,9	20	20	2,9

Likert Scale Values: 5=very good or very satisfied; 1=very bad or very dissatisfied
Source: Alkan, 1999

Social Indicators

In the evaluation of social interaction, privacy, neighborhood relations and safety constitute the social indicators.
According to objective data results, most of the residents meet their neighbors everyday and a few days in a week. Also, half of the residents have neighbors in the same apartment or site. Moreover, about 6 % of the people interviewed meet their

neighbors at stairways and autoparks. Stairways and autoparks are the dominant meeting place of residents with their neighbors. According to subjective data results, about 88 % of the people interviewed consider neighborhood relations important. If neighborhood relations are summarized, these results can be found: About all residents in this research want to have relations with their neighbors. About 53 % of the residents meet their neighbors everyday or a few days in a week. People interviewed have generally neighbors in the same apartment or site. About 60 % of the people interviewed meet their neighbors at stairways and autoparks (Figure 9). While the dominant meeting place of residents is stairways and autoparks, they want to meet their neighbors at home or open areas (Table 5).

Figure 9. Housing Units in Eryaman First Stage Settlement
(Source: www.panoramio.com)

Table 5: Neighborhood relations of the respondents

	%		%
The importance of neighborhood relations		**Neighbor's location**	
		Same apartment	47,3
Yes	87,3	Same block	3,6
No	12,7	Site	43,6
		None	5,5
The frequency of neighborhood relations		**Neighbor's location**	
Everyday	20	Same apartment	47,3
A few days in a week	32,7	Same block	3,6
Once a week	5,5	Site	43,6
Once a mounth	10,9	None	5,5
Rarely	23,6		
None	7,3		
The usage of social services		**The frequency of social services**	
Open areas (Parks, playgrounds and sport complex)	49	Everyday	12,7
Shopping center	40	A few days in a week	27,3
Restaurants-cafes	11	Once a mounth	7,3
		Rarely	52,7
Experienced vandalism, crime and burglary	18,2	**Go out freely at nights** Yes	
Yes	81,8	No	96,4
No			3,6

Source: Alkan, 1999

According to objective data results, social infrastructure in Eryaman First Stage settlement area include in general the services to meet the daily or weekly needs. Also, shopping centers and open areas are used very often by residents. According to subjective data results, the degree of liveliness of social activities concentrates around the 2, 6 point in the scale (Table 6). Both objective and subjective data results show that residents are satisfied with social services of the research area. However, they point out that social services are not very active.

The first composite scale was designed to measure perceived neighborhood safety. People in the research area can walk around at night without fear of being attacked or bothered by strangers. People in this area can leave their personal property outside and unattended without fearing that it will be damaged or stolen. A second composite scale was used to measure satisfaction with the environmental characteristics of a neighborhood. This scale was composed of five items that pertained of the quality of the physical environment and   two that pertained to the quality of the people who lived in the   neighborhood. For those, pertaining to the physical environment, respondents were asked to indicate on a five point scale ranging from very dissatisfied to very satisfied. These items collectively represent characteristics of neighborhoods that influence perceptions of neighborhoods as nice places to live (Table 6).

Table 6. Subjective evaluation of social indicators

Residential Satisfaction of Social Environment	Very Bad	Bad	Middle	Good	Very Good	Value
	%	%	%	%	%	
Liveliness of social activities	29,2	23,6	14,5	18,2	14,5	2,6
Environment for young people	16,3	10,9	30,9	25,5	16,4	3,1
Importance of privacy	1,8	10,9	18,2	45,5	23,6	3,8
Sufficiency of housing privacy	3,6	14,5	21,9	40	20	3,6
Safety of living environment	0	7,3	18,2	43,6	30,9	3,9

Likert Scale Values: 5=very good or very satisfied; 1=very bad or very dissatisfied
Source: Alkan, 1999

Privacy is evaluated by only subjective data results. Because, this indicator show different pattern according to perceptions of people. Privacy is important for about three – quarters of the people in this research. Also, the sufficiency degree of housing privacy is 3,6 point. 40 % of the people interviewed evaluated their housing privacy as good. About one–quarters of the people are highly satisfied with their housing privacy. Thus, it can be said that privacy is not a problem in the research area (Table 6).

Experiences of property victimization were measured similarly by asking them, "Have you or anyone you know in the site ever had their home broken into and had something stolen from it?" The responses to both questions were dictohomized into "yes" and "no" categories. Thus, both objective and subjective data results show that this settlement is highly safe place for residents.

CONCLUSION

Suburbanization, by definition, is context as well as path dependent and has close relationships with the growth of cities. The rise of suburb brings about significant changes both in social context and the spatial order of the city (Mumford 1961: 549 in Erişen, 2003:111). Suburbanization is relatively recent phenomenon for the urban life of Turkey. This process has displayed different tendencies than that of Northwest Europe and North American suburban development pattern.

Turkish urbanization history begins with the urbanization history of Ankara, so suburban expansion of Ankara has significance in the history of Turkish urbanization history (Erişen 2003:111). In this sense, Eryaman Suburbian Area as a middle class housing unit of Ankara was selected for this study. Thus, the results of this paper is summarized under these headings:

* Suburban residents are satisfied with their living environment. Suburbs are safe settlements and also they have more privacy than cities. However, they are isolated from public and city life and social-cultural facilities. They do not have sufficient cultural facilities.
* Suburban residents are interested in their neighbourhoods and involved with their neighbours. However, neighbours are not involved with each other very much.
* Personal and socio-economic characteristics of the people is effective on their expectations from their environment.
* Age and class (income and education) are the most important characteristics in neighbourhood relations.
* There exists a relationship between housing satisfaction and housing type. Residents of single family detached houses have a higher degree of satisfaction with their housing than do residents of apartment dwelling.
* There exists an opposite relationship between the desire of moving to another settlement and environmental satisfaction.
* Accessibility to the center of the city and other services is one of the most important factor affecting the residents' environmental satisfaction.
* Social relationships are influenced by homogeneity with respect to a variety of personal characteristics.
* Residents' concerns with neighbourhood environmental quality as well as safety is one of the most important predictor of their social environmental satisfaction.

This study contributes to the literature about social construction of suburbs. Housing and living environment are the most important concepts in human life and they should be considered both from physical and from social aspects.

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THE CULTURAL EFFECTS TO SUSTAINABLE ENVIRONMENT:
THE CASE OF KONYA

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ABSTRACT

Sustainable land use planning needs both an in depth analysis of existing resource and an understanding of complex community structure and how natural resources are used sensitively in human ecology. Especially social analysis in community structure which are basis in "Gregarious Instinct" are concerned environmentally responsible behavior models (Hines and others, 1986), (Kaspoğlu and Ecevit, 2002). All kind of responsible environmental behaviors models are aimed to increase societal concern for environmental quality. Most socio-environmentalist studies are based on small indigenous population and investigate how culture affects the environment or how the surrounding natural environment has shaped that culture. Especially rural areas on which are urbanization under pressure at the nearest the major cities are important territorial areas for sustainable ecology. Mostly in the developing countries land use is commonly driven with renting concentrated practices. Anyway environmental quality is not hotspot for society. This is one of the important reasons of unsustainable land using. The observing areas are nearest the Konya Metropolitan Municipality which are names of Tatlıcak and Kayacık. They are in of Konya Metropolitan Administration. All of them are on the impress of Konya growth orientations. According to Konya Master Plan, Kayacık is under pressure of industrial zone growth and Tatlıcak is the edge of new central towns developing area and under pressure of housing zone growth. Proposed by Dunlap and Van Liere (1978) the New Environmental Paradigm's scale is selected for testing human ecological sensitivity to environment. The two differentiation cases using the social and environmental impact assessment analysis we will measure the full range of environmental attitudes for indigenous population as a part of natural ecological system. Our socio-environmental indicators based on a field survey, inquiry and official inventory.

Keywords: Human ecology, Sustainable environment, Rural society, Major city growth, Responsible environmental behavior, Social concern

INTRODUCTION

Despite the proposed non anthropocentric approach for the sustainable rurban land using, most of public and private enterprises have tended to overlook the fundamental natural ecosystem. For example recently for the land using of rurban is

adopted urban and rural continuum model as a spatial category. However both local and national land administers and politicians and citizens could have been caused a sharp rurban dichotomy on land using. This paper investigates the environmentally responsible behaviors of the local residents who live in urban and rural interface. Environmentally responsible behaviors refers to individual's knowledge about and attitudes toward environment and its problems, skills and motivation to work toward preventing the quality of environment and resolution issues (Hsu and Roth,1998). Especially from urban peripherals' ecosystems is not immune to the influence of community values and culture. So at this study is aimed to examine the content of beliefs associated with environmental concern on samples two different urban fringes belong to Konya metropolitan area. One of them sample area is name of Tatlıcak where is consist of majority immigrant resident, the other is name of Kayacık where is exactly rural suburb. In the American public the used of Floyd and Noe (1993) new environmental paradigm's scale is adapted on living residents in our sample areas.

RESPONSIBLE ENVIRONMENTAL BEHAVIORS

The development of the individual's responsible environmental behavior is the most important that are to investigate a general position about society and its resources existed among the public about the environmental attitudes toward pollution, land use, waste, or energy. The other important factor which was highlighted by UNESCO declaration, active participation of the general public is a key factor in preventing and solving the environmental issues of contemporary society (Hsu and Roth, 1998). Dunlap and Van Liere (1978) in their approaches related to the new environmental paradigm was emerging the general beliefs in society. These titles were "limits of growth", "the balance of nature" and "rights of man to modify nature" (Floyd and Noe, 1993). The new environmental paradigms signifies an ecological sensitivity to the environment, in anthropocentric paradigms also view man controlling nature.

ENVIRONMENTAL PHILOSOPHIES: THE URBAN AND RURAL INTERFACE ISSUE

The differences of approaches to environmental paradigms are based on the differences at the approaches to human. Therefore, in the most important different among various environmental philosophies is also related to whether being a part of anthropocentric attitudes or non anthropocentric attitudes. Anthropocentrism has believed that human is the most important creator in the universe. This means that the nature is valued only to the extent that it is of use to human (Naess, 1992). On the contrary, non anthropocentric view considers that nature also has its own value, independently of man's use of it. On the other hand there is an interface of these approaches, holistic approach is related to nature which consists of numerous memberships of human and the other biotic. Not being endless natural resource has got all kind of values, that's why; it is the most important vital resource. Therefore science is accepted an important tool for balanced ecology by Cartesian Paradigm. At the and of this paradigm, all kind of environmental problems can solve via technological and scientific developments (Rifkin and Howard, 1997). In contrast with on nature conservation from traditionalist notions to radical liberties notions to opposed nuclear power   at a board spectrum is dominated that environmental

problems can be merely solved with the holistic ecological approaches (Simonnet, 1990).

We have entered into a period the more risky than the previous generation. For instance global warming is being considered a man based event rather than a natural phenomenon. The available evidences show us that the human societies have a matchless and dangerous impact on the global environment (IPPC, 2008). For instance according to Earth Policy Institute whilst in the 1990s greenhouse reduction rate's benchmark was 60 percent, in 2005 by increasing this rate had reached 70 percent (Low, 2007). Scientists who belong to either multidisciplinary or separate their own branch, have been developed proposals to solve the climatic issue with global scale. Such as Pacala, S. & Socolow, R. (2004) and others propose 'stabilization wedges' to address the climate problem. These can be summarized in the title: "improved fuel economy, reduced reliance on cars, more efficient buildings, improved power plant efficiency, substituting natural gas for coal, storage of carbon captured in power plants, hydrogen plants, and synthetic fuel (from coal) plants, nuclear fission, wind electricity, photovoltaic electricity, renewable hydrogen, bio-fuels, forest management, management of agricultural soils and intensively managed to prevent urban sprawl".

As a result of environmentalist approaches on urban and rural interface have been focused to minimize the ecological impacts of urban growth (Miller, 2007). In the definition of an urban fringe has been approached as follows: certain land uses either have moved away from urban area or the majority of land using belongs to the agricultural land, woodland or rural use. Nowadays the rural and urban continuum model is adopted instead of sharp differences between urban and rural (Harrington and O'Donoghue, 1998), (Miller, 2007), (Figure 1). Actually this model there is in most of developed country in the world, for instance; European countries, Japan and North America. The transition zone that's called urban shadow or C Region (in the figure 1) it is not always clear where the urban area ends and the rural begins. Outside their own borders around the city also has a permanent effect on the population of surrounding rural areas.
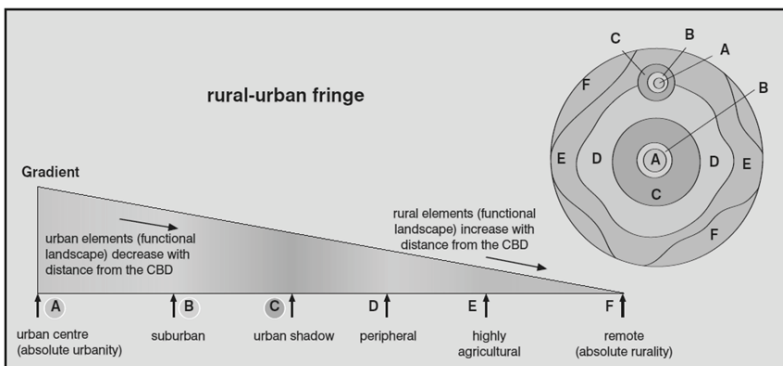
Figure 1. The rural and urban continuum (From Miller, (2007): He had been adapted from David Waugh (2000))

The "commuted transportation structure" is generally based on private transport, but some of them public based, for example south east UK (19996-2006) (Miller, 2007). May be this consumption pattern of land might have been a way of ecological land using. The edge of city must have been legally protected via greenbelt region, was even utilized part of its greenbelt to the west of Birmingham, in UK. But this type of land using was compensated for the loss of greenbelt by designating land beyond the edge of the new built-up area as future greenbelt. Despite typically urban areas are intensively managed to prevent urban sprawl and protect agricultural land in UK the interface between town and country, there could be non ecological land using between C and B regions.

MEASUREMENT THE PROBLEM IN SAMPLING AREA

Is The Growth of Konya Metropolitan Area Sustainable or Not?
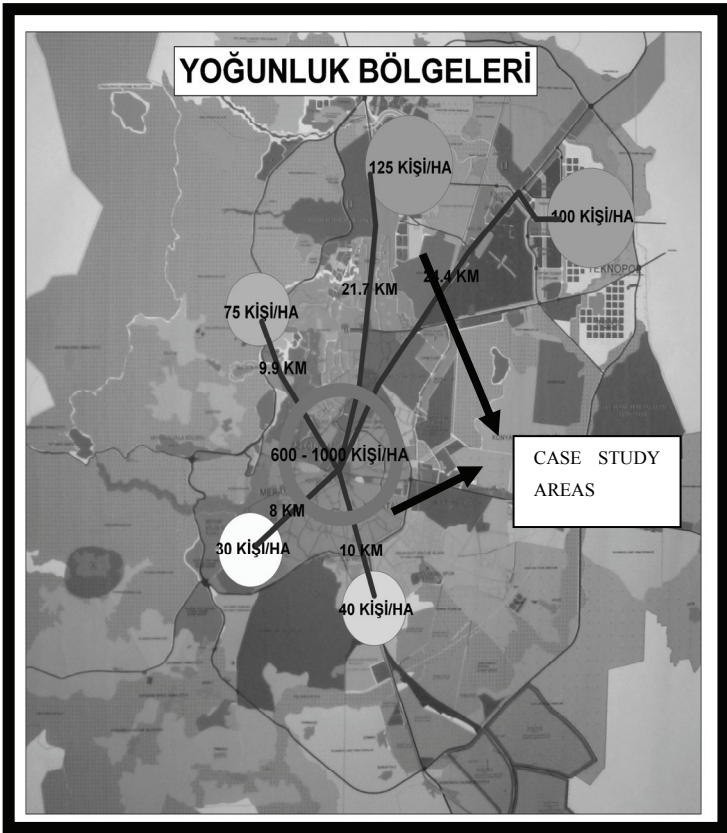
Figure 2. The last plan master plan at Konya and the sampling area

According to Konya master plan local industrialists sustained the expansion of the hearth of the urban periphery (Figure 2). At the edge of urban territory is started developing by urban real estate developers, the large industrialists and the middle and upper income urban residents have moved to the surroundings highways around. Since the beginning the decentralization process at the administrative statue in 1990's have impacted the growth of Konya by spreading development format (Table 1)(It can be seen sudden decrease of average gross population density on the last columns-see bold characters).

Table 1. Population density and urban areas depends on the size of gross changes (Çiftçi,1999), (Yenice,2005)

Population density and urban areas depends on the size of gross changes (Çiftçi,1999), (Yenice,2005)					
Plan Period (Years)	The Size of Urban Areas (in hectares)	The percentage increase in urban area (by years) (%)	Population	The percentage increase of population (by years) (%)	The average gross population density (persons /hectares)
1946	782.8	-	64 434	85	82
1966	1402	79	119 841	68	85
1983	4515	222	329 139	64	73
1999	15730	248	773 581	56	49

But as the sustainable urban form in urban literature compact urban growth is adopted (Beatley, 1999), (Frey,1999). This urban growth approaches is based on designing urban transition patterns within sensitively compatible to nature from the urban periphery to urban center. Other urban designing principles are: To preserve the rural area ecology, to optimize the service and supply costs of infrastructures, social sustainability, to supply sustainable public and private transportation system and using the sustainable energy resource etc.

When the structure of the compact that the level of Konya to compare with other world metropolitan urban, in terms of population density and place of business density Asian Metropolises was found compact in first degree, European metropolises were compact in second degree, Konya metropolitan area in Turkey was the same degree, the expansionist growth was seen in American Metropolises with the lowest density (Table 2), (Çalışkan, 2004).

Table 2. A comparison of the structure of the compact between Konya and other World Metropolises

Metropolis	Metropolitan Density	Metropolitan Density
	Population Density Ratio (person/ hectares)	The place of Business Density Ratio (person/areas)
The average of America	14.2	8.1
The average of Europe	49.9	31.5
The average of Asia	161.9	72.6
The average of Konya Metroplitan Area	49	-

Are There Active Participation Of Preventing And Solving The Environmental Problems Of Contemporary Konya Society? How Much Do They Approach To Their Environmental Issues From The Eco Centric Perspective?

The same questions were investigated by Floyd and Roe (1993) in south of Florida accompanied by new environmental paradigms (NEP) scale. A twelve item NEP scale was used Likert formatted to test how mankind behaves had affected the environment. The main goal of that investigating was to measure the environmentalists' point of views differences between Hispanic immigrant community and non-Hispanic community in USB. We also collected two different regions the data for this study. Especially having rural characteristics but in urban peripheral zone is chosen two different sample. The size of the sample area in both settlements separately in 10 % of the resident population has been identified as. One of them consists of the vast majority of immigrant communities which is name of Tatlıcak, the other one is shown that exact rural life way but it is a suburban area for Konya metropolitan city which name is Kayacık (Figure 2), (Table 3). According to Table 3 Tatlicak is consisting of 76 % migrant population and 18% indigenous population. On the other hand Kayacık is consisted of 80 % indigenous population and 14 % immigrant population. The migrations into Konya consist of primarily East Of Anatolia Region and county borough of Konya (Van, Erzurum, Batman, etc).

Table 3. Hometown Descriptive Analyses For Sampling Area

Tatlicak-Hometown Descriptive Statistics	N	Mean	Std. Deviation		Kayacik Hometown Descriptive Statistics	N	Mean	Std. Deviation
Memleketi	97	1.71134021	0.55825		memleket	41	1.097561	0.43617
Valid N (lis	97				Valid N (lis	41		
0:Missed, 1: Konya, 2. Non-Konya					0:Missed, 1:Konya, 2:Non-Konya			

	Memleketi	Frequency	Percent	Valid Percent			memleket	Frequency	Percent	Valid Percent
Valid	Cevapyok	5	3.311258	5.154639		Valid	Cevapyok	2	4.878049	4.878049
	Konya	18	11.92053	18.5567			Konya	33	80.4878	80.4878
	Konyadisi	74	49.00662	76.28866			Konyadisi	6	14.63415	14.63415
	Total	97	64.23841	100			Total	41	100	100

Each of sampling area has got female at average 70% rating, because of the survey was done in time for the daily working hours (Table 4). The group between the ages of 12 and 25 is in Tatlıcak more than in Kayacık, because of the number of sufficient survey haven't been completed for Tatlıcak, secondary school survey was to be done. The rate of 12-17 age range is average 16%, this ratio doesn't affect the average level too much. The second crowded age group in each of sampling area is 36-60 age range.

Table 4. Gender and age status of the subjects

		TATLICAK yasgurubu14					KAYACIK yasgurubu14			
		Frequency	Percent	Valid Percent				Frequency	Percent	Valid Percent
Valid	12-17	1	0.662252	1.030928		Valid	Cevapyok	6	14.63415	14.63415
	18-25	50	33.11258	51.54639			12-25	4	9.756098	9.756098
	26-35	9	5.960265	9.278351			26-35	2	4.878049	4.878049
	36-45	19	12.58278	19.58763			36-45	9	21.95122	21.95122
	46-60	13	8.609272	13.40206			46-60	15	36.58537	36.58537
	60>	5	3.311258	5.154639			60+	5	12.19512	12.19512
	Total	97	64.23841	100			Total	41	100	100

		TATLICAK cinsiyet13					KAYACIK cinsiyet13			
		Frequency	Percent	Valid Percent				Frequency	Percent	Valid Percent
Valid		54	35.76159	35.76159		Valid	Cevapyok	1	2.439024	2.439024
	1.00	29	19.2053	19.2053	Female		Kadin	11	26.82927	26.82927
	2.00	68	45.03311	45.03311	Male		Erkek	29	70.73171	70.73171
	Total	97	100	100			Total	41	100	100

In the sampling area profession distribution are the average 28% student, 11% self employment, 6% farmer (more Tatlıcak), 9% retired (more Kayacık), 7% worker, 2% livestock farmer (especially in the each of sample small cattle raising) and 14% housewife (Table 5). According to this results is showed us, Kayacık was chosen to settle due to natural beauty and the high sense of belonging (see hometown table).

Table 5. The profession of subjects

		TATLICAK meslegi15					KAYACIK meslegi15			
		Frequency	Percent	Valid Percent				Frequency	Percent	Valid Percent
Valid		54	35.76159	35.76159		Valid	Ogrenci	10	24.39024	24.39024
	.00	47	31.12583	31.12583	Student		Memur	3	7.317073	7.317073
	1.00	3	1.986755	1.986755	Clerk		0sci	3	7.317073	7.317073
	2.00	12	7.94702	7.94702	Worker		Serbest	5	12.19512	12.19512
	3.00	15	9.933775	9.933775	Self employment		Emekli	6	14.63415	14.63415
	4.00	4	2.649007	2.649007	Retired		Evhanimi	10	24.39024	24.39024
	5.00	6	3.97351	3.97351	Housewife		Ciftci	3	7.317073	7.317073
	7.00	7	4.635762	4.635762	Farmer		Besici	1	2.439024	2.439024
	8.00	3	1.986755	1.986755	Livestock farmer		Total	41	100	100
	Total	97	100	100						

The subjects' average 63% of sampling area has got the knowledge of writing and reading. The questionnaire average 18% is missing value (Table 6). The average 28% also of recent graduates is missing. The average 39% of giving answer belong

to primary school, 8% secondary school and 4% high school. Proportion of university graduates will not have ignored.

Table 6. Literacy and recent graduates as the school of subjects

TATLICAK okuryazarlik34							KAYACIK okuryazarlik34				
	Frequency	Percent	Valid Percent						Frequency	Percent	Valid Percent
Valid	54	35.76159	35.76159			Valid			16	39.02439	39.02439
Cevapyok	21	13.90728	13.90728				Cevapyok		16	39.02439	39.02439
Okuryazar	70	46.35762	46.35762				Okuryazar		23	56.09756	56.09756
Okuryazardeg	6	3.97351	3.97351				Okuryazardegil		2	4.878049	4.878049
Total	97	100	100				Total		41	100	100

TATLICAK bitirilenokul36							KAYACIK bitirilenokul36				
	Frequency	Percent	Valid Percent						Frequenc y	Percent	Valid Percent
Valid	54	35.76159	35.76159			Valid					
.00	43	28.47682	28.47682	Missing			Cevapyok		13	31.70732	31.70732
1.00	33	21.8543	21.8543	Primary school			0lkogretimbirinc		23	56.09756	56.09756
2.00	13	8.609272	8.609272	Secondary school			ilkogretimikincil		3	7.317073	7.317073
3.00	6	3.97351	3.97351	High school			Lise		2	4.878049	4.878049
4.00	2	1.324503	1.324503	University			Total		41	100	100
Total	97	100	100								

As to table 7 each of settlements is shown majority of low and middle incomes groups, but if home ownership and the comfort of home state are examined, it can be seen to be the opposite responses. The 44% of Tatlıcak's houses and the 66% of Kayacık's houses of properties belong to their users. Each of sampling settlements has got at first order independent garden houses average of 75% (but Kayacık has got almost all of them (95%)), (Table 8). And in Kayacık the 75% of houses consists of 3 and more than 3 rooms and the same as the 68% in Tatlıcak's houses consists of 3 and more than 3 rooms.

Table 7. The distribution of income groups and house properties as to subjects

TATLICAK aylıkgelirgurubu						KAYACIKaylikgelirgurubu				
	Frequency	Percent	Valid Percent					Frequency	Percent	Valid Percent
Valid	500 <	32	21.19205	32.98969			500 <	6	14.63415	14.63415
	501-1000	30	19.86755	30.92784		Valid	501-1000	24	58.53659	58.53659
	1001-1500	3	1.986755	3.092784			1001-1500	5	12.19512	12.19512
	1501>	1	0.662252	1.030928			1501>	1	2.439024	2.439024
	Cevapyok	31	20.5298	31.95876			Cevapyok	5	12.19512	12.19512
	Total	97	64.23841	100			Total	41	100	100

TATLICAK yasanılanevinmulkiyeti21							KAYACIKyasanılanevinmulkiyeti21				
	Frequency	Percent	Valid Percent					Frequency	Percent	Valid Percent
Valid	54	35.76159	35.76159	1:For hire						
.00	8	5.298013	5.298013	2:Home ownership	Valid	cevapyok	3	7.317073	7.317073
1.00	22	14.56954	14.56954	0:Missed		Kira	11	26.82927	26.82927
2.00	67	44.37086	44.37086			Kendisinin	27	65.85366	65.85366
Total	151	100	100			Total	41	100	100

Table 8. The building types of housing and the number of rooms of houses (The comfort of houses)

		TATLICAKodasayisi32			KAYACIK odasayisi				
		Frequency	Percent	Valid Percent			Frequency	Percent	Valid Percent
Valid	Cevapyok	19	12.58278	19.58763					
	1	4	2.649007	4.123711	Valid	Cevapyok	3	7.317073	7.317073
	2	6	3.97351	6.185567		1	1	2.439024	2.439024
	3	24	15.89404	24.74227		2	2	4.878049	4.878049
	4	34	22.51656	35.05155		3	21	51.21951	51.21951
	5	10	6.622517	10.30928		4	10	24.39024	24.39024
	Total	97	64.23841	100		5	4	9.756098	9.756098
Missing	System	54	35.76159			Total	41	100	100

		TATLICAKkonutbinaturu20			KAYACIK konutbina				
		Frequency	Percent	Valid Percent			Frequency	Percent	Valid Percent
Valid		54	35.76159	35.76159					
	.00	8	5.298013	5.298013	Valid	Cevapyok	1	2.439024	2.439024
	1.00	84	55.62914	55.62914		Mustakil	39	95.12195	95.12195
	2.00	5	3.311258	3.311258		Apartman	1	2.439024	2.439024
	Total	151	100	100		Total	41	100	100

1:independent garden house
2.apartment
0:missing

In both sampling area the 10 percent of population are selected randomly as a sample size to test the NEP items. Total 138 questionnaires were evaluated by the program SPSS 16. As proposed by Dunlap and Van Liere (1978) and applied by Floyd and Roe (1993) field survey had contained the complete twelve item. We also applied to our sampling area the same scale items analyses (Table 9).

Table 9. Distribution of mean and standard deviations between NEP scale items in Kayacık and Tatlicak

SAMPLING AREA'S NAMES	FREQUENCY STASTISTICS		The balance of nature is very easily upset EKOMERKEZCI 1	Human produces in nature disastrous consequences EKOMERKEZCI 2	Human must live in harmony with natureEKOMERKEZCI 3	Mankind is severely abusing the environmentEKOMERKEZCI 4	Humans have the right to modify the natureANTROPOMERKEZCI 5	Mankind was created to rule over the rest of natureANTROPOMERKEZCI 6	Plants and animals exist primarily to be used by humansANTROPOMERKEZCI 7	The number of people is increasing day by day environmentalistsEKOMERKEZCI 8	The more growth of industy is controlled, the healtier economy there areEKOMERKEZCI 9	The earth is like a spaceship with only limited resourcesANTROPOMERKEZCI 10	Humans needn't adopt to the natural environmentANTROPOMERKEZCI 11	There are limits to growth 0f beyond industrial ized societyEKOMERKEZCI 12
TATLICAK	N	Valid	97	97	97	97	97	97	97	97	97	97	97	97
	Mean		2.917526	2.42268	3.505155	2.164948	1.051546	3.298969	3.134021	2.391753	2.443299	2.896907	1.154639	2.4845
	Std. Deviation		1.532088	1.612678	1.19132	1.55242	0.584008	1.355275	1.49742	1.564959	1.689237	1.623297	0.565321	1.64008
KAYACIK	N	Valid	41	41	41	41	41	41	41	41	41	41	41	41
	Mean		3.146341	3.341463	3.780488	3.02439	1.609756	2.170732	3.390244	2.780488	2.560976	2.585366	1.439024	2.8293
	Std. Deviation		1.492665	1.334349	0.570622	1.293982	1.242539	1.412488	1.242539	1.491848	1.566027	1.5488	1.205172	1.53138

Note: Item scored from strongly agree (the value of 4), agree (the value of 3), disagree (the value of 2), strongly disagree (the value of 1) and neither (the value of 0) stated as in the original NEP scale.

Mean value for each item are presented in table 3. The results clearly indicate differences between the immigrant community and indigenous population field surveys. Immigrant community reported lower mean on three scale items (1, 2 and 4th items) indicating a strong orientation against the ecological model, but indigenous community against "mankind" trying to dominate the environment. The other difference belongs to 6th substance in terms of immigrant community which is higher than indigenous people, so opposed the 1, 2 and 4th items supported with this response ecological model. Both community do not find enough the environmental protection actions (8th item), but they opposed to controlled industrial growth for ecological order (9th). Furthermore each of sampling community believes to scientific research and development to deal with ecological problems (10th).

CONCLUSION

The growing of Konya Metropolitan as like in the form of Concentric rings have tended the expanded growth approach from the center to peripheral area. In each direction and low density this growth shaping is the anthropocentric understanding of the product. Furthermore, despite active public participation is important key factor in preventing and solving the environmental problems of contemporary society, the attitudes of a majority subjects from living residents at the sampling area are more favorable the opinion of "man over nature" by anthropocentrically dominated (1,2 and 4th items). While the majority subjects is participating to the environmental protection as ethical attitudes (11th), in practice they are favorable the industrial development. This dilemma can be explained by the lack of environmental education and the low income level.

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SOCIAL CONSTRUCTION OF GENDER IN AN OPEN PUBLIC SPACE

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ABSTRACT

Gender is defined as a socially constructed phenomenon and the differences between how men and women experienced space regarded as part of social construction and reflection of culture. Gendered space often means a space used particularly by men or by women. These spaces are gendered because the people in them are nearly all of one gender.

Landscapes that are used by both men and women are not neutrally gendered, even if men and women are there at the same time. Men's and women's experiences of same place can be quite different. These differences can be outcome of both physical attributes of space and/or social construction of society to which the users belong. However, a general attribute of genders experience of space is that women are more sensitive to spatial attributes and more selective about the use of public spaces than men. Proceeding from this fact some researchers come to a conclusion such as densely populated women users in an open public space reflect successful spatial attributes and functioning of that space.

In this context this study aims to determine how successful an open space is at functioning through analyzing the social construction of gender in there. Behavior settings with different spatial attributes in an urban park in Trabzon were observed and gender, and social groups (with whom they come) of users, the type of activities they did and where they located were determined by means of behavior mapping. By this way attributes of gendered space, such as if men and women have equal control on behavior setting, if both gender show any differences in activities they do were determined and social constructions of these settings in terms of gender were explained.

The findings of this study showed that men and women don't have equal control on behavior settings; some of them are territories of men and women tended to avoid these places. Also it was found out that men behave more relaxed and have more freedom in an open public space.

Keywords: Social construction of gender, Behavior setting, Behavior mapping, Public space

INTRODUCTION

Gender and gendered space

Gender is defined as a socially constructed phenomenon that refers to women and men's learned behaviors and attitudes, which are differentiated by sex. (Malach-Pines and Kaspi-Baruch, 2008; Rendell, 1999; Ringrose, 2004; Wesely and Gaarder, 2004) and the differences between how men and women experienced space regarded as part of social construction and reflection of culture (Massey, 1999). As Massey (1999) noted, "…gendering of space and place both reflects and has effects back on the ways which gender is constructed and understood in the societies in which we live." Gendered space often means a space used particularly by men or by women. These spaces are gendered because the people in them are nearly all of one gender (Sewell, 2003). As well as being gendered through physical occupation Rendell (1999) also expressed the production of space as gendered through representation like connecting soft, curvaceous interiors with women. Sewell's (2003) explanations on how different gendered experiences are created through a shared assumption (that a certain space is more appropriate for people of one gender than for those of other, such as knitting stores being appropriate for women) reflects the role of cultural imagination on the production of gendered space. She also stated another aspect of gendered space as the ways men and women feel within a space, and are treated in. Cohenour (2008) explained a different way of space being gendered as unequal access of women and men to privacy. These explanations show that gendered space can be produced through physical occupation, cultural imaginations, and representations.

The relationship between social construction of gender and gendered space

Landscapes that are used by both men and women are not neutrally gendered, even if men and women are there at the same time. Men's and women's experiences of same place can be quite different (Massey, 1999; Sewell, 2003). The researches aimed to explain these differences generally focus on two ideas. These differences can be outcome of both physical attributes of space and/or social construction of society to which the users belong. The former group focuses on women's fear of crime and tries to explain the physical attributes of open spaces that evoke fear of harassment and violence and/or coping strategies of women (Blöbaum and Hunecke, 2005; Burgess, 1998; Riger and Gordon, 1981; Wesely and Gaarder, 2004). The studies in this group emphasized that women feel the fear of crime denser than men. The attributes that perceived as threats in open spaces were listed as enclosure, entrapment, ineffective surveillance of surroundings (visual permeability), encounter with strangers, especially threatening and violent behavior by men. Strategies with coping fear in open spaces are listed as monitoring constantly environment for signs of danger, the avoidance of dangerous places; taking a dog, children, a friend, male partner or son in short not going alone, only using the main paths in the presence of other people; ensuring sightline are clear; avoiding denser shrubbery/wooded areas if alone, using the space during the daytime, modifying clothes and restricting activities (Burgess, 1998; Wesely and Gaarder, 2004). That's why a general attribute of genders experience of space is that women are more sensitive to spatial attributes and more selective about the use of public spaces than men. Proceeding from this

fact some researchers come to a conclusion such as densely populated women users in an open public space reflect successful spatial attributes and functioning of that space (Whyte, 1980). The latter group of researches (gender differences can be outcome of social construction of society to which the users belong) generally focuses on how cultural or social factors effect and produced gendered space, social/cultural reasons behind the difference of women's and men's experiences, imaginations of space or the relationships between the social construction of gender and the production of gendered space (Aitchison, 1999; Ardener, 1999; Massey, 1999; Sewell, 2003; Smyth, 2008). These researches address the gender roles attributed by societies to women as mother, homemaker, shopper, weak, defenseless, and passive while men as breadwinner, worker, strong and active and in turn how these roles reflected on use of urban public spaces especially inequality of access to public spaces for men and women such as women's place is home or shopping centers and men's place is office or city center, open public spaces (Ardener, 1999; Massey, 1999; Sewell, 2003). The gender roles attributed to women exerted high level of social pressure on them and as consequences of this women's access to public spaces is limited. As mentioned above this social pressure can be outcome of two factors: social constructions of gender roles and individuals' concerns for personal safety. For gendered construction of public space these two factors are related. Wesely and Gaarder (2004) explained this relationship as:

> "Gendered constructions of public space inform women's assessments of vulnerability and fear in these spaces. In general, women have not been taught to be comfortable in outdoor/public space but instead have learned the private, domestic realm is their domain…women in a public arena may feel vulnerable to unpredictable invasions of her physical self... These unpredictable invasions cumulatively contribute to women's geography of fear in public space… 'Good girls' know that they should be at home rather than in the woods; otherwise, they might deserve what they get. Messages like this are social control mechanisms that maintain women's geography of fear in the out door…"

The researchers have seen gender constructions, particularly the socialization of an idealized 'hegemonic masculinity' the reason of women being discouraged from public spaces and the gendered construction of space as a major obstacle for women in outdoor recreation (Wesely and Gaarder, 2004). It was argued that women should have an equal control over the spaces they shared with men, rather then remaining powerless (Sewell, 2003). Analyzing the evolution of downtown San Francisco's public spaces from men's place to men-women shared places, Sewell (2003) concluded that sharing public space with members of the other gender helped make shared participation in public life more imaginable. She also stated that as women shared central public space with men, the idea of sharing power and responsibility became more imaginable. This shared experience of public space helped to change their imagination of that landscape and also of appropriate gender roles. Because of this important attribution to social processes, with examining gendered public spaces, the built environment and its role in social change and gender construction can be understood and successful planning decisions can be made in order to prevent constitution of gendered public spaces.

Social construction of gender in Turkey and women's status in public spaces

In Turkey studies on gender roles and women's social status indicates similar facts as foreign researches such as women's gender roles as mother, homemaker, housewife and men's role as family leader, breadwinner. The social values, constructions of gender and traditions in Turkey impede women's being at an equal status with men in society; constrain their social life and freedom; that's why almost all gender studies strongly address women-men inequality in Turkey (Akın and Demirel, 2003; Demir, 1999; Dinçkol, 2005; Ereş, 2006; KSGM, 2008a; KSGM, 2008b). Particularly women's limited access to education, employment, politics, health; low social-economic status in comparison to men, were emphasized (KSGM, 2008a; KSGM, 2008b; Taşkın, 2004). However studies on women's access to open public spaces are quite deficient. Government's year 2008 report on "Women and Environment" (KSGM, 2008c) introduced three views on women environment relationship: women as effecting environment, women as being affected by environment, women as not being present in the process of environmental policy making and planning decisions. While explaining these views in detail generally environmental problems like pollution, rapid urbanization were cited, women's relationship with and access to public spaces, the reflections of the constructed gender roles in Turkey on the women's use of public spaces, how they fell there, or imagine these places were completely neglected.

A recent research on public space-gender relationship in Turkey, which was conducted in Trabzon showed that women's access to public spaces were limited due to social pressures and their economical status (Yılmaz, 2006). Also it was found out that women stated the problem of safety in first place, particularly some physical features were cited as evoking fear of crime. Similarly another article about women's social status in Trabzon stated that women's use of spaces outside home and opportunities for sharing social life are restricted by social constructions (Üstün, 2009). Even though there are new opportunities afforded by urbanization these are not usable for women. Üstün (2009) also determined that in order to access public spaces women's path crosses the domain of masculinity (wearing or behaving like men). Another finding is that cafes, parks, waterfronts can be used by women only in day time. In night time these places become inappropriate for women. And the most frequent reason for being outside home is shopping that's why the most used outdoor spaces are shopping centers.

These findings reflect similar status for Turkish women as foreign studies. But still the most important problem is insufficient researches about women-public space relationship in Turkey. Detailed studies on the gender differences in the use of and reflections of gender roles on public spaces, questions like how women use public spaces, what they do there, with whom they come were left unanswered. In this context this study aims to determine the status of women in public space, also how successful is an open space at functioning through analyzing the social construction of gender in there.

With the findings from literature review what is expected to be found in this study are as follows:

Depending on the construction of gender roles in Turkish society and problem of women-men inequality, compared to men, women users are expected to have limited access to public spaces and opportunities for different recreational activities,

Women are expected to go public spaces with friends, family or children rather than alone,

Finally women are expected to avoid using places with limited visual access or to be there with large groups of people.

METODOLOGY

Behavior setting approach

Barker has created behavior setting theory as a method for analyzing the relationship between the naturally occurring behavior and its ecological environment. Barker (1968) stated that naturally occurring, ecological environment has structure and parts with stable relations between them. He also emphasized that by observing a single part, or considering the parts separately as in psychological experiments this structure can not be discovered (Barker, 1968; Schoggen, 1989). If the parts of a social context are pulled out, rearranged, or otherwise treated as discrete units, then the context itself will be destroyed (Georgiou and Carspecken, 2002). Behavior setting theory was developed by Barker in order to fill this gap and introduce an efficient tool for analyzing ecological environment.

Similar to the other basic units in science like cells for the biologists or planets for the astronomer behavior settings are the basic units for behavioral scientists (LeCompte, 1974). Physical environment and behavior are seen as an inseparable whole and consists of one or more standing patterns of behavior and milieu, by this way behavior setting provides opportunities for analyzing both social and physical attributes at the same time. LeCompte (1974) noted the items for data-collection by using behavior setting survey as following: people (who goes here and why? who has control over setting?), size characteristics (how many person-hours spent here?), objects (what type and how many behavior objects are used?), and action patterns (what activities happen here?). In light of this information, behavior setting approach was used in this study.

Four behavior settings with different spatial attributes in an urban park in Trabzon's centre which is easy to reach and used frequently, were chosen. These behavior settings were determined by using cognitive mapping and questionnaire techniques in a previous study (Mumcu, et al., 2007, Mumcu, 2009). Two of these setting are (coded as behavior setting A and D) in the centre of the park and heavily used. Also these two setting were found out to be the safest areas in the park (Mumcu, et al., 2007). Other settings are (coded as behavior setting B and C) located far away from the centre of the park and because of the topography changes there, visual access to central parts of the park is partly or completely blocked. In this study these setting were observed.
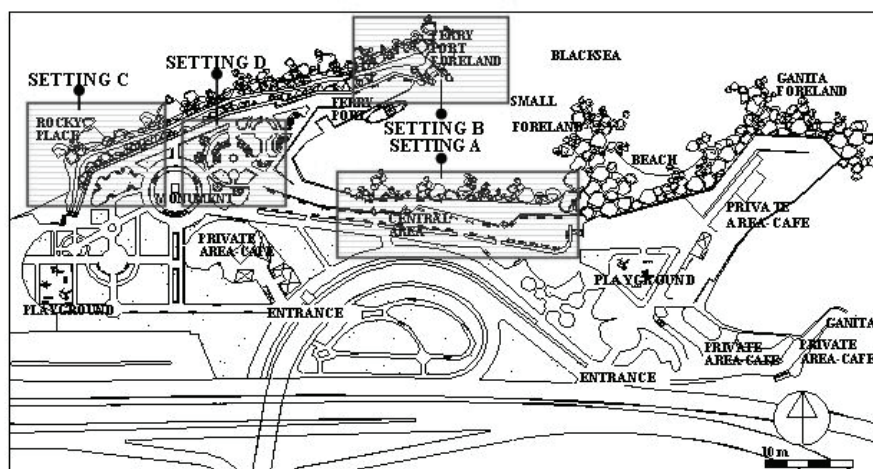
Figure 1. Behavior settings chosen for observation

Data collection

At the first phase each of the settings was recorded with a video camera (Sony DCR-TRV33E) for a week (weekdays and weekends) in July, 2007; between the hours 5 pm and 7 pm. Especially the period of the day when working hours ended were chosen, thinking that it's still day time and there will be more people to observe.

At the second phase the videos were coded on the plan of the settings. Each of the user's location, gender, and social groups (with whom they come), the type of activities they did and where they located was noted. By this way behavior maps of the settings were produced and attributes of gendered space, such as if men and women have equal control on behavior setting, if there are gender differences in activities they do were determined and social constructions of these settings in terms of gender were explained.

At the third phase the data gathered from behavior mapping were analyzed statistically by using software and the differences observed between genders were tested.

RESULTS

The frequency of genders and the distribution between/within the behavior settings

Totally 4195 users were observed in four settings. 55.5% of users are man; 37.3% of users are woman and 7.6 % of users are child. Chi-square test was conducted and

this distribution was found to be statistically important (x^2=1452.573, 2 df, p<0.01) which reveals men's dominancy in the park. Cross tabulation analysis and chi-square tests were conducted to see genders' distribution between and inside the settings (table 1). Woman users were observed the most in setting A (55.6 %) and D (20.6%) which were found to be the safest place in the park in a previous research an the least in setting B. the results of the chi-square test showed that the distribution is statistically meaningful (x^2=130.458, 6 df, p<0.01); in other words settings' physical attributes are effective on the genders' distribution between settings. This reflects the fact that while users making decisions about entering a setting gender is a directing factor.

Table 1. The distribution of genders between/inside the settings

		Gender			Total
		Woman	Man	Child	
Behavior Setting A	Count	870	1169	167	2206
	% within setting	39.4%	53.0%	7.6%	100.0%
	% within gender	55.6%	50.5%	52.5%	52.6%
	% of Total	20.7%	27.9%	4.0%	52.6%
Behavior Setting B	Count	107	432	41	580
	% within setting	18.4%	74.5%	7.1%	100.0%
	% within gender	6.8%	18.7%	12.9%	13.8%
	% of Total	2.6%	10.3%	1.0%	13.8%
Behavior Setting C	Count	265	405	54	724
	% within setting	36.6%	55.9%	7.5%	100.0%
	% within gender	16.9%	17.5%	17.0%	17.3%
	% of Total	6.3%	9.7%	1.3%	17.3%
Behavior Setting D	Count	322	307	56	685
	% within setting	47.0%	44.8%	8.2%	100.0%
	% within gender	20.6%	13.3%	17.6%	16.3%
	% of Total	7.7%	7.3%	1.3%	16.3%
Total	Count	1564	2313	318	4195
	% within setting	37.3%	55.1%	7.6%	100.0%
	% within gender	100.0%	100.0%	100.0%	100.0%
	% of Total	37.3%	55.1%	7.6%	100.0%

Behavior maps of genders distribution inside the settings (figure 2, 3 and 4) revealed out interesting results. While women and men in setting A distributed evenly (figure 2) setting B (figure 3 and 4) produced a gendered place. In this setting women were located only where the central parts of the park can be seen without any hindrance (the inner part from where park's centre can be viewed directly and the higher parts). The back side where it's impossible to see and be seen by the rest of the park was completely avoided by women and used by only men.
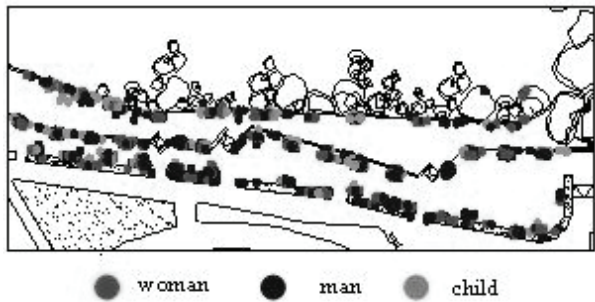
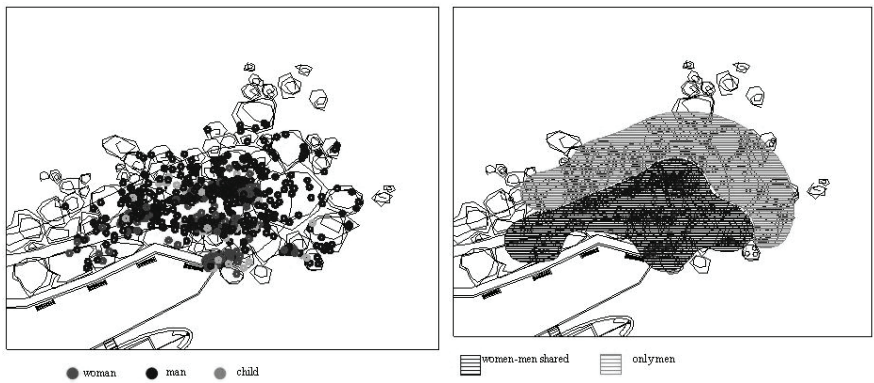Figure 2. The distribution of genders in setting A

Figure 3, 4. The distribution of users in setting B (a) and the gendered places (b)
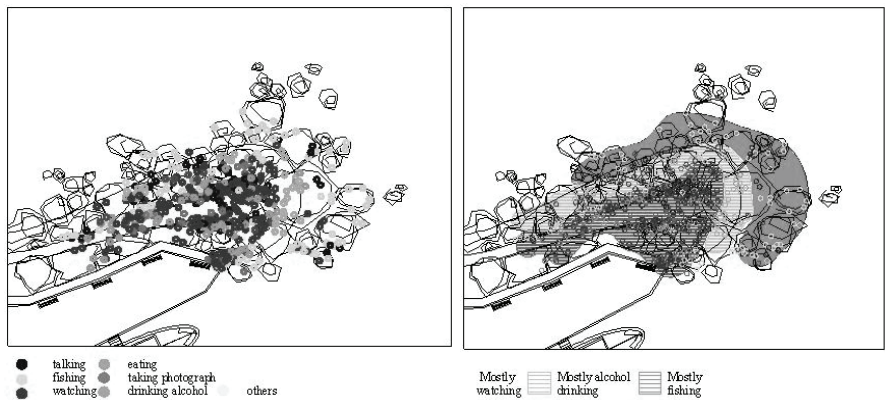
Figure 5, 6. The distribution of behavior patterns inside setting B

25 types of behavior patterns were identified. Men displayed nearly all of these activities except knitting; however, some of the behavior patterns were never displayed by women (drinking alcohol, lying-sleeping, fishing, talking with fishers, singing etc.), which reveals again social pressure on women and oppositely men's freedom in public spaces. The chi-square test showed that these distribution is statistically important (χ^2=533.186, 48 df, p<0.01).

In order to examine the relationship between the setting attributes and activities, behavior maps of settings were analyzed. It was found out that in the central parts of the park (setting A and D) drinking alcohol was never displayed and where the rest of the park can not be seen were the appropriate places for drinking alcohol (figure 5, 6). When behavior maps of setting B for genders and behavior setting compared it was found out that women never entered to the zone of drinking alcohol in other words these places were strongly avoided by women. Also the other setting where drinking alcohol was displayed showed the same tendency.

Social groups of genders

Users were coded depending on with whom they come to the park as following; alone, couple, only women (two or more), only men (two or more), mixed (two or more women and/or men and/or child). These data were analyzed by means of cross tabulation analyzes in order to clarify the tendencies of women-men about with whom they used public spaces.

Table 2 shows the distribution of gender groups. The difference between women and men's going alone is salient. Only 4.3% of women came to park alone, however this percent reached to 19.5 for men. Sometimes women and men showed similar tendencies; both genders came with their fellows mostly but in the second place women were observed in mixed groups and men alone. These results show that women have tendency for going public space in groups which consists only women or both women and men while men's tendency was going with fellows or alone. The chi-square test showed that this distribution is important (χ^2=3085.735, 8 df, p<0.01).

Table 2. Genders' distribution in groups

		GRUP					Total
		Alone	Couple	Only M.	Only W.	Mixed	
Women	Count	68	370	0	593	533	1564
	% within gender	4.3%	23.7%	.0%	37.9%	34.1%	100.0%
Men	Count	451	370	1197	0	295	2313
	% within gender	19.5%	16.0%	51.8%	.0%	12.8%	100.0%
Child	Count	2	0	0	0	316	318
	% within gender	.6%	.0%	.0%	.0%	99.4%	100.0%
Total	Count	521	740	1197	593	1144	4195
	% within gender	12.4%	17.6%	28.5%	14.1%	27.3%	100.0%

DISCUSSION

The results of this study supported the findings of previous researches. In general inequality problem for women also exists for accessing and using public spaces. The salient difference between the number of women and men users reveals this problem which was mentioned by previous researches (Yılmaz, 2006; Üstün, 2009).

The findings also showed that men and women don't have equal control on behavior settings; some of them are territories of men and women tended to avoid these places. This is a typical reflection of women's low status in society and also fear of violent behavior by men against women. Especially the places where visual access to central parts is blocked were avoided by women. The same tendency of women was mentioned by other researchers like Burgess (1998) and Wesely and Gaarder (2004) and explained as a way of women's coping strategy with fear of crime. Apparently women stay away from the places where effective surveillance can not be achieved and is difficult to get/call help in case of emergency.

 Alcohol consumers are also another fact that contributes women's fear of crime. In the park it was observed that women never come near to places where alcohol is consumed. Burgess (1998) explained this as a result of male ideology that claims men can lose control of themselves trough excessive sexual desire and/or alcohol, therefore not be responsible for their actions. Another coping strategy mentioned in literature review and observed in the study area is women's tendency for not being alone in open public spaces. General tendency of women going public spaces in groups and being observed mostly in the safest places are other findings that reflect women's fear of crime.

 Examining behavior patterns that were displayed by women and men revealed out the restricted freedom of women in public spaces. This may be out come of either coping strategies or social pressures that social construction of gender caused. Also it was found out that men behave more relaxed and have more freedom in an open public space.

CONCLUSION

In this study we tried to clarify the social position of Turkish women in open public spaces which is a neglected research subject in the field of environmental design and planning in Turkey. The relationships between the social construction of gender and women status in open spaces were tried to be explained. The results showed that women-men inequality also exists in social life of open public spaces. Especially the environmental attributes that contribute to women's fear of crime or that serve to men's environmental preferences are major factors of this fact.

In summary all the findings address the same social fact that although some improvement were acquired about women-men inequality in last decades, there are still important problems that women have to overcome. The inappropriate environmental features of open public spaces contribute negatively to the social status of women. But by creating equally shared public spaces as Sewell (2003) emphasized the idea of sharing power and responsibility can become more imaginable and this shared experience of public space will help to change society's imagination of that landscape and also of appropriate gender roles.

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NEIGHBORHOOD SATISFACTION: TWO NEIGHBORHOODS IN ISTANBUL

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ABSTRACT

Interest in the neighborhood has been increasing. For most people, residence and the neighborhood in which it exists is the largest consumption item of a lifetime. Urban neighborhood is defined as the bundle of spatially based multidimensional attributes associated with clusters of residences. Implicit in the definition is the notion that, depending on the attributes present, the type and even existence of the neighborhood can vary across urban space and so does neighborhood satisfaction. Neighborhood satisfaction is a concern for researchers and planners. This paper attempts to be a contribution to the literature of neighborhood via two different neighborhoods in different districts of Istanbul. The neighborhoods are categorised as traditional and modern and a measurement of satisfaction is undertaken. Respondents from the two locales are asked for their subjective assesments of a set of domains associated with neighborhood satisfaction. As far as Istanbul is concerned, with a rapid increase of population, she is producing a human load and hence new cultural geographies. So, it can be said that, there are different cultural Istanbuls as well as geographical ones. The results indicate significant differences among the residents of the two neighborhoods.

Keywords: Neighborhood, Satisfaction, Subjective assessment, Traditional, Modern

INTRODUCTION

Since 1950s, rapid growth of Istanbul due to rural migration, increased the gap between different districts of the city. While some of the modern districts gained comparative advantage, the traditional ones started to loose population due to deteoriation of urban environments. So, districts of Istanbul and their neighborhoods are going through continuous social and cultural changes.

A neighborhood based planning approach is increasingly seen as an essential part of a comprehensive planning process that informs citywide policy, clarifies priorities and provides support for the neighborhood level details of plans (Martz, 1995). Much activity is focused on measuring quality of life via the development and implementation of subjective and objective indicators. According to Michalos, a life that is qualitatively good may be measured in quantitative terms with statistical data

broadly referred to as social, economic and environmental indicators (Michalos, 2007).

Increasing concern for the future of cities and for the satisfaction of the urbanites, has led in recent years, the emphasis given to the study of the city in many respects. The specific role of cultural differentiation in the prediction of satisfaction of residents with their neighborhoods is a continuing issue in social and behavioral science and urban planning literature. In the context of the built environment, this can be interpreted as a concern with the degree of congruence between urbanites and their urban environments (Michelson, 1977).

What a person or community makes of the conditions of his or their neighborhood is a function of how the conditions are perceived and what is thought and felt about those conditions. People's perceptions, thoughts, actions and feelings have an impact on their own and others living conditions. The basic component of a satisfactory life from very old times to today, across almost all cultures are familiar to most of us. People whose lives are characterised by external goods (e.g. wealth, security, good friends, good relations, good natural and built environments) besides goods of the body and mind, have commonly regarded as enjoying satisfaction with life (Michalos, 2007).

A clear definition to "what the neighborhood is" is not yet achieved. All extant definitions suffer from common shortcomings (Galster, 2001). Another question raising from the issue is "Does neighborhood still matter in the 21st. century?" Forrest says it does, but how much it matters depends on who you are and where you are (Forrest, 2000).

The urban environments referred to in this paper are place-based with diverse geographical, cultural and other component features. It seems that people sharing the same place would have common interest. A basic definition of a place-based community would be a network of people sharing some common place, so as to be Besiktas and Umraniye neighborhoods of Istanbul in this paper.

Most of the research on the percieved quality of residential environments is restricted to western experiences. Little research has been done in the developing countries. Istanbul with 12 million inhabitants (Census 2007) is a very special city that happens to belong to the developing world. So, this paper attempts to be a contribution to the relevant literature.

METHOD

During the Winter of 2008, a questionnaire, containing 30 neighborhood satisfaction items (Table I), was administered to a sample of residents from the central neighborhoods of two districts of Istanbul, so as to be one from the Anatolian side and the other one from the European side. The items included the standard questionnaire used by Topcu and Evcil in 2007. All item responses were in the form of a traditional five-point Likert-type format ranging from "very true" to "definitely untrue" with a midpoint of "undecided". Respondents were drawn from random starts with a total of (N:100) by "People and Environment Course" students of Bahcesehir

University, Faculty of Architecture and Design. Items were scaled consistent with Topcu and Evcil's previous work. They were subjected to descriptive analysis.

The first sample is drawn from a traditional district namely Beşiktaş. Beşiktaş is an old waterfront district of Istanbul located on the west coast of the Bosphorus. It has 8.375 m. long coast line to the Bosphorus. Beşiktaş was a small settlement when Istanbul was conquered. It developed due to its connections to the Ottoman Navy. In Sulaiman the Magnificient's reign (1526-1566), Admiral Barbaros Hayreddin lived in a waterfront house in Beşiktaş. He had a mosque and a set of schools, from elementary to higher education, built in Beşiktaş. He is buried in Beşiktaş, as well. His residence and the importance he attributed to his district contributed to the formation of a tradition in Beşiktaş. All the admirals resided in Beşiktaş after him. Since the 16th. Century, Beşiktaş has served as a center with its well-built environment and respectable residents.

In the 19th. century House of Throne moved from Topkapı Palace to Beşiktaş waterfront palaces. A new era opened for Beşiktaş, untill the fall of Ottoman Empire. Beşiktaş has been a privileged district of Istanbul due to Royalty and Higher Stately Officers residing there. A district, well kept and clean. Some of the 19th. century residential buildings still exist. The first Bosphorus Pier was built in Beşiktaş before World War I. After 1957, as with the opening of Barbaros Boulevard and expansion of Beşiktaş Street, historical texture of Beşiktaş has been ruined. An Armenian and Greek population traditionally lived in Beşiktaş and had their religious facilities.

Today, Beşiktaş is a dense residential and commercial district with lots of high-rise buildings and a number of Universities such as Bosphorus University, Yıldız Technical University, Bahçeşehir University and Galatasaray University. Beşiktaş is also a central point in conjunction with Üsküdar, Kadıköy and whole Bosphorus.

In the Republican period, Beşiktas has shown a pattern of increase in population except for 1985-1990 period. Younger population dominates in Beşiktas. Before 1980, there was a domination of male population, which was equalized then after. Females dominate when it comes to the age group over 30 years. Another special cultural feature in Beşiktas is that, literacy is 95.2 % in the age group over 6 years. This is higher than Istanbul average, which happens to be 90.2 %. 89.5 % of the literates have attended formal schooling. The percentile distribution of educational levels are such as, 37.7 % has completed primary education, 15.7 % has completed secondary education, 26.9 % has completed lycee or equivalent and 19.7 % has completed higher education.

Population at work, age 12 years and over, represents 45.9 % of the districts' total population. The remaining are veterans, housewives and students who are not involved in work circles.

Beşiktas shows an urban pattern all over the district with very modern and elegant neighborhoods such as Levent, Etiler and Bebek, where living standards are much higher than Istanbul average. It has a total of 21 urban neighborhoods.

As for the cultural heritage, Dolmabahçe Palace, Yıldız Palace, Ihlamur Palace, Yıldız Park and its chalets, Maritime Museum, Paintings and Sculptors Museum are

in Beşiktas. Some 5 star hotels and numerous health facilities are located in Beşiktas (Avcı, S. 1994).

The second sample area is Umraniye, located on the eastern half of Istanbul. It is surrounded by Kartal, Maltepe, Uskudar and Ataşehir districts. It is one of the districts of Istanbul that has no connection to the sea.

Ümraniye has both urban and rural neighborhoods. 4 of its 18 urban neighborhoods are rather new, which have been settled in 1994. Sarıgazi rural area is known to be the oldest neighborhood in Ümraniye. According to some records it had been a settlement since the time Istanbul was conquered. Founder of the neighborhood had joined the conquering forces. For a long period the neighborhood stayed as a silent agricultural area. Since 1950s whole district received enormous rural migration. The central neighborhoods of Ümraniye district are not as old as Sarıgazi neighborhood. After the 1877-1878 Ottoman-Russian War, the district was settled by some of the migrants from the Balkans. The oldest building in the district is the Cevher Aga Mosque built in 1897.

Ümraniye had a population of around 1000 people in 1950. In the following decade the population multiplied itself to 7000. Being close to the new highways and important junctions made Ümraniye a catchment area for new migrants.

Ümraniye which happened to be a rural area of Üsküdar until 1980s, became an independent district within easy reach to the rest of Istanbul by way of the Bosphorus Bridge and its circular roads. Majority of the new migrants chose this district for settlement due to the existence of their fellow villagers. With the opening of the second bridge on the Bosphorus, the distict proliferated. The circular roads almost cut the central area of the district in half in north-south direction. This makes it easy for the settlers of this district to go to work in other districts.

Literacy is 87.9 % in the district which is below Istanbul average. 81.3 % of the literates have attended formal schooling. The percentile distribution of educational levels are such as, 73 % has completed primary education, 12.8 % has completed secondary education, 11.2 % has completed lycee or equivalent and 3 % has completed higher education.

In 1990, those living in the central neighborhoods were 33% born in Istanbul. Majority of the migrants are from eastern middle Anatolia and migrants from mid Black Sea regions follow.

Some parts of the district are covered with forests. Existence of water springs and picnic areas attracts Istanbul residents' attention in the holidays (Aksel, A. 1994)..

Table 1. Items of the questionnaire

1. It is hard to find real friends in this neighborhood.
2. This neighborhood is peaceful and orderly.
3. This neighborhood lacks real friends
4. People give you a bad name if you insist on being different.
5. Few people here make enough money.
6. I feel that ı belong to this neighborhood.
7. Nobody here seems to care about how the neighborhood looks.
8. Parents let the children do whatever they want, if they are out of their way.
9. Municipality serves this neighborhood poorly.
10. There is not enough going on here to keep me busy.
11. This house is good enough for my needs.
12. This house is better than the ones I've lived before.
13. Buildings in this neighborhood don't look as good as the ones where I lived before.
14. Job opportunities in this neighborhood is the same as elsewhere.
15. Life in this neighborhood is dull.
16. I would rather live in a different neighborhood. This one is   not the place for me.
17. This is a good place to live.
18. The green areas make this neighborhood a nice place to live.
19. I would rather have more neighbors around. Neighbors are far away here.
20. Shopping facilities are perfect around here compared to other neighborhoods.
21. Medical facilities here provide all sorts of treatments.
22. Public facilities here are well maintained.
23. Less crime takes place here compared to other neighborhoods.
24. There will be good job opportunities for everyone in the future in this neighborhood.
25. Nobody cares about the neighborhoods' opinion.
26. Nobody here rents their houses to singles.
27. Elderly here are well looked after.
28. People in this neighborhood don't take care of their gardens
29. I like this neighborhood because it is close to relatives.
30. I am satisfied with my neighborhood.

RESULTS

There are more people in Ümraniye (17 %) who think that, **it is not hard to find a real friend in this neighborhood** than in Beşiktaş (13 %).

More people in Beşiktaş (43 %) think that **there are no leaders in this neighborhood,** than Ümraniye (22 %).

44 % of the people in Beşiktaş think **they do not give you a bad name if you insist on being different,** while 36 % think the same in Ümraniye.

More people think that few people **make enough money here** in Ümraniye (80 %), than in Beşiktaş (40 %).

More people in Ümraniye (50 %) think they **belong to this neighborhood** than Beşiktaş (38 %).

More people in Beşiktaş (54 %) neighborhoods disagree that **parents let their children do whatever they like as long as they are out of the way** than Ümraniye (44 %).

Both in Beşiktaş (50 %) and Ümraniye (50 %) people think that their **houses are good enough for their needs.**

More people in Ümraniye (46 %) think that their **present house is better than the ones they lived before,** whereas 42 % in Beşiktaş.

While 30 % of the people in Ümraniye say that **life is boring here**, only 12 % in Beşiktaş has a similar perception and 48 % in Beşiktaş think **it is not true that life is boring here.**

While 16 % of the people in Beşiktaş think they **would rather live somewhere else**, 28 % of Ümraniye residents think they would rather live somewhere else.

More people in Beşiktaş (30 %) think that **there are no neighbors**, than Ümraniye (16 %).

While 36 % of the people in Beşiktaş think there are **excellent shopping facilities in their neighborhood**, 30 % think the same for Ümraniye.

More people in Beşiktaş (45 %) think that **medical facilities provide all sorts of treatments** than in Ümraniye (40 %).

More people in Beşiktaş (40 %) think that **public facilities are well maintained** than in Ümraniye (28 %).

More people in Beşiktaş (48 %) think that **less crime takes place in the neighborhood** than Ümraniye (26 %).

While only 12 % of the people in Beşiktaş think that **there will be good job oppurtunities for everyone in the future in this neighborhood**, 28 % think that there will be in Ümraniye.

More people in Ümraniye (25 %) think that **nobody rents their houses to singles in this neighborhood**, while 10 % think the same in Beşiktaş.

In Ümraniye 38 % think that **the elderly are well looked after here**, while 42 % thinks the same in Beşiktaş.

More people in Ümraniye (34 %) prefers to live in this neighborhood due to the existence of ralatives while 18 % in Beşiktaş.

More people are **satisfied with their neighborhood** in Beşiktaş (54 %) than in Ümraniye (48 %). While there is not a single respondent who says I am not at all satisfied with my neighborhood in Beşiktaş, there happens to be 8 % in Ümraniye who are not at all satisfied with their neighborhood.

CONCLUSIONS

Items such as, **"I feel that I belong to this neighborhood"; "This house is good enough for my needs"; "Medical facilities here provide all sorts of treatments"; "Elderly here are well looked after"; "Less crime takes place here"** have got more positive responses in both neighborhoods, which suggest an overall satisfaction with the quality of life in the neighborhoods.

Items such as, **"This neighborhood lacks real leaders"; "Few people here make enough money"; "There will be good job oppotunities for everyone in the future in this neighborhood"** have got more negative responses in both neighborhoods, which apparently is an indication of dissatisfaction.

One item that proved to be significant in previous works done by (Topcu and Dökmeci, 2003) and (Topcu and Evcil, 2007) **"People give you a bad name if you insist on being different"** is apparently loosing its significance. It used to get more positive responses so as to indicate that heterogenity was not tolerated. According to this study, degree of tolerance is growing towards positive.

"Being close to relatives" is still a reason for choosing to live in that neighborhood, in Ümraniye. People living in Beşiktaş do not seem to be interested in the existence of relatives in choosing the neighborhood for living. Thus, this study suggests that satisfaction from family ties is particularistic and dependent upon cultural milleu of the neighborhood.

In the 21st century, innovations in communication have brought us a new world and we need further research to fully understand the relationships between individuals and their neighborhoods.

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ARCHITECTURAL AND ENVIRONMENTAL IDENTITY AND QUALITY SATISFACTION IN THE PUBLIC HOUSING AREAS, ISTANBUL HALKALI EXAMPLE

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INTRODUCTION

Today, developing architectural and environmental awareness among the people that use the estate and the other that influenced by it; along with increase in the level of quality expectations, have played a major role in creation of better physical environments. In this context, the expectations of the users of house estate and the ones in their close radius is an important pointer for their life styles, expectations, social, cultural, physiological and psychological needs. In case that the users of public estates do not accommodate the social and technical facilities which can maintain the quality satisfaction in architectural and environmental aspects at an optimum level, and have not succeeded in integrating with the other urban functions and social-technical background; a healthy social and physical environment and dependently, urbanization can not be enabled.

METHOD

As the working method; first the hypothetic and conceptual frame of the subject has been investigated, the definition of the problem has been made, and the subject has been tried to be placed inside a hypothetical and conceptual frame. For measuring the users' satisfaction, the hypothetical models have been studied to determine the model to be applied and, subjects and facts to be included. Accordingly, the "Halkalı Public House Estates Area", which have subjected to current public house estate applications in İstanbul Metropolitan Area, was chosen as the sample area to carry out the field study. A survey research has been carried out in a total number of 7 districts; that include an area of 7158 houses, built in the years 2003-2009. In the 7 house estates in the Halkalı Public House Estates Area; which accommodates a population of 27 558 people when calculated by the data of transportation, which has been measured16.9 km through an aerial viewpoint and 20.3 km by routing, and data of İstanbul's household average by 2000 DİE outputs as 3,85; a survey quotation have been applied parallel to the population included.

The people to be included in the survey have been determined completely randomly, by visiting random houses, according to the area's quotation; and 220 surveys have been performed. The results of the surveys have been studied, and the findings have been described in the conclusion.

THE HYPOTHETICAL AND CONCEPTUAL ENVIRONMENT

First of all, the hypothetical and conceptual frame of the subject will be propounded. In this context, the problem will be examined under the titles "house, house estate, and surroundings", "architectural and environmental quality", and "architectural and environmental identity" respectively.

House, House Estate and Surroundings

The "Functional City Planning", which have been tried to be placed on a hypothetical basis with the CIAM movement that appeared in the first half of 20.century; have been structured on a basis of four main urban function; housing, working, relaxation (appraising the spare times) and transportation. The focus of the city planner's interest is housing/lodging (Conrads, 1991:93-117). The modern architecture and planning conception, which is still dominant today, sees the "person-house" relation as a need for housing and continuously examining the subject in terms of economic state, physical health and social planning facts. This conception have been ignoring if the house satisfies the user's physical, cultural, socio-psychological etc. needs and expectations.

Residence is a concept which includes the house which people live in, the neighborhood and social environment, and also the build up area. Residence is about its user's social status and place, as well as both the user's and societies symbolic, aesthetical, social, cultural, economic and physical values. "House" is the place where important events in a person's life take place, where a person feel free of his/her work, feel relaxed, close and warm, also it's the most central place a person lives in, the place where family relationships and events occur, a place where the time and place, born and death concepts exist, and a place where the person base his/her roots and feel connected (Tognoli, 1987).

Residence is the house, apartment, etc., inhabitancy, abidance where people live in (TDK, 2009). It's the housing built for one or more families to live inside, that satisfies the basic needs of human life such as sleeping, cooking, sheltering from hot and cold, cleaning, and toilet (Keleş, 1980).

House estate can be defined as a housing unit which has a minimum of 1000 residences, and 5000 people in areas governed by metropolitan municipalities; and have a minimum of 400 residences and 2000 people in the other areas (Anon, 1989:11). Also, it can be described as residence aggregate ness, a high scale housing project that satisfies a large number of people's housing needs, performed by house construction partnerships or public or private establishments such as house banks (Keleş, 1980); or a body of residences in pre-planned particular residential area, formed by means of credit assistance or contributions given by the government

to the people (Tdk, 2009a). Residence and house estate are primary members of human accommodation and built-up environments (Suher, 1996:6-12).

A.C. Doxiadis, points out that, human, room, and residence are the smallest and the simplest unit in the Existic units, at which he classifies the human residency. The Existic units are aligned, according to population and area size respectively like the following: person/anthropos (1 person-3m2), room (2 people-15m2), house (4 people-50m2), house group (40 people-0.005km2), small neighbourhood (250 people-0.03km2), neighborhood (1500people-0.2km2), small polis (town-10 000 people-1.2km2), polis (city-50 000people-7km2) etc. ... world city/ecumenopolis (Doxiadis, 1968). Today, when we look at the volume of public house estate applications; we see that these gatherings correspond to "small neighbourhood" or "small polis" units at the Existic units; and sometimes like in the Halkalı, Kayabaşı, etc. examples, these house estates can be as large as "cities"; which increase the importance of the subject.

Residence is the place where the individual expresses himself/herself and consciously or unconsciously, the residence expresses the "social identity" of the user; residences are material expressions which forms the bases for construction of social variables (Lawrence, 1987). Residence includes psychological and social needs as well as the physical ones. It is the only place where individuals control their environment effectively; it is a place for self expression. It maintains privacy, and promotes safety sense and a place for the development of social and neighbourhood relations. That is the reason why house estates should contain solutions for making the life of the group and individual riches; and should be suitable for people's social roots (Taut 1982:62).

Description of the environment concept has been studied in different areas of science. Environment, is the total of natural, social and cultural outer conditions that affect the development of life (Akarsu, 1975), group of outer elements affects an organism or a part of it (Karol, 1998), the outer geographical and biological surrounding between people and the culture it created (Acıpayamlı, 1978), the total of elements regarding to climate, biology and society that affects people, change their material and spiritual development, determining their formation of life (Keleş, 1980), the total of all the objects, powers, and stimulations that has affect on individual's life (Enc, 1974), the total of elements that can effect the biological, social, and cultural life of an individual, a cultural group, or a society (Ozankaya, 1975), the ambience where beings born into and continue their lives (Oğuzkan, 1974).

The environment examined here is the defined exterior locations that locate themselves inside the built-up environment, urban locations and architectural exteriors that consist of public, governmental or partly governmental areas, and contain the outer environment of the residence. Architectural exterior are locations that came to life naturally or consciously in the close range of the buildings and shaped by the relations between buildings; satisfy particular needs of people like housing, relaxation, gathering, walking around; as well as some technical services like parking lots, children playgrounds, etc (Bala, 2006). An Urban location is a concept which consists human relations and facilities required for these relations, and limited by vertical-horizontal elements (Gür, 1996).

While the public areas which includes house exterior are referred as the places like ways, rest stops, open and green spaces, etc (Keleş, 1980), it is pointed out that the urban social facilities include commercial and service-provider institutions and social bodies such as schools, health and sport facilities, libraries, kindergartens, theatres, conference halls, police stations, post offices, houses of worship, and environmental editing like playgrounds, recreation fields, city furniture's, center surroundings, as a whole (Anon, 2002).

The resident environment is a very rich concept; which consists of the house lived in, cultural and social environment, psychological environment, and also physical, built-up environment. House exterior, is a basic living space in order to satisfy individuals' lifestyles, expectations and social, cultural, physiological, psychological, aesthetical, symbolic and social needs. Rapoport, states that individuals, neighbours and the facilities in the house estate form the house estate system; and also points out that life styles, family type, social relations, socio-cultural contents like gaining identity, freedom, etc.; are all relative to residence concept (Rapoport, 1977). It is argued that the house types results from the wide-ranged socio-cultural facts related to climate, material and building style; there are extremely huge differences between house types, and a description that points out only one result is not enough; and the culture concept must be examined under the behaviour literature (Rapoport, 1969).

Personal Living Space behavioral example researches that are carried out in the field of psychology have been asserting that the architecture and environmental residents are influential in a person's behaviour (Gosling, Craik, Martin, & Pryor, 2005a). Having stated that PLS is related with the meaning and function of the residence (Smith, 1994:21, Case 1996:1), requirements suck as affords privacy, refuge, security, continuity, a medium for personalization, self-preservation will gain their places in the PLS and at the same time, house exterior will provide common spaces (Gosling, Craik, Martin, & Pryor, 2005b:52). It is also stated that the establishment of a buffer zone/environment where the flow between public and personal life is performed; is extremely positive in terms of supporting lifestyle (Gehl, 1987).

For Barker who is a pioneer of ecological psychology, which is a field based on people-environment behavioural skills, places shape people, and people shape places in their own ways. Every place that our lives go through, create a unique situation by setting up a behaviour setting. This behaviour setting can be thought as a topological ground at which cultural behaviours and actions shaped; and characterized by the interaction between the physical features of the particular place and cultural variables. At this angle, our behaviours are not direct results of the places we live in, and at every place, there is a small or large advantage space. People edit the area they live, create a personal space inside, so it is possible to adapt the behaviours to this cultural - locational state. Place type, the people inside and their social roles act as a whole (Barker, 1968). Through this hypothesis, environment is a repetitive action-behaviour pattern that supports certain actions and behaviours; and consists of behaviour units defined by a certain time line, a certain piece of the environment, and a compatible relation between them (Lang, 1987).

Gibson points out that different environmental patterns support some behaviours and limiting some others by emphasizing "affordances" which are the perceived, and defined - because of their functional importances - skills of the environment (Gibson,

1979:36-42). Gibson's "environmental supporters" concept and Barker's behavior-milieu synomorphy in the "behaviour units" hypothesis (Barker, Wrigt, 1955:55-57) are concepts that are close to each other. There are omni-directional relations between Environment (physical environment, social structures, and cultural patterns), psychological progresses (perceptions, understandings, approaches, features related to personality or background), behavioral progresses (strategies to cope with the environment, reactions to environment) (Gürkaynak, 1988).

Architectural surroundings, or environment, is a concept that has physical dimensions as well as social, cultural, psychological, and visual ones (Lynch, 1960). For this, the acknowledgement of "hyper dimensionality" of the arguments regarding to urban spaces matters is very important for the "quality" of created spaces. For Taut; the exterior surrounding of the residence has a great importance for the residence, and it can increase or decrease of it. Relaxation and comfortableness are concepts that are more valid for the outer surrounding than the residence itself (Taut, 1983:54).

Residence has a bidirectional function as a gradient between inner world and outer world in a person's life. Because people shape their inner world relations, matters in their houses which are the places accepted as primary freedom borders of them, the importance of house exterior prevails in the socialization, particularly interacting with the outer world process. The users have a tendency to have a residential environment where they feel home. Because the communication between individuals who do not share a common space, behaviours like tendency to drift apart from others, the feeling of sharing less, and poor neighbour relations have observed coming to surface (Baytin, Çivi, & Kalpaklı, 1991).

Architectural and Environmental Quality

It has been seen that; the change in the valueing processes and statuses in the people's economic and social lives affect their expectations from the house, from the environment and the city they live; and as a result of this differential in the society, it is obvious that the relation between the city pattern, style and the structures that have been formed in the city and residences are also subject to a change which his not only physical, but also have economic, social affects to the people's lives and affect their life qualities (Hoşkara, 2008). For some researchers, house estates developing in the city perimeters offer and alternative living space to the traditional apartment pattern in the city centers, as well as providing environments that are more aesthetical, more safe when compared to traditional living spaces, and also social interaction fields which have the capability of strengthening the neightbourhood, friendships, while increasing the feeling of belonging (Çubukçu, 2006).

The features of the residence surroundings are one of the most important pointers of life quality and the results of the life quality researches directly reflect on the resident exterior design. Well-planned, and well-organized residence environments increase the life quality, while routing the people to live there at the same time (Türkoğlu, 2007). While arguing about the architectural quality that affects living quality Taut, refers architecture as a branch of art and points out that architecture should enable the chance of a better living, along with its technical, functional, and measurement matters (Taut, 1983:71).

The results of researches that carried out in order to measure the user satisfaction in different house estates, on different cities in different countries; show that the success of the house estate depends on; spaces between residents, planning of the open spaces and the quality of these open spaces rather than the quality of the residents' inner features (Cooper & Sarkissian, 1995:3; Süer,& Sayar, 2004). According to the Personal Living Space, behavioral pattern researches that have been carried out recently, it has been revealed that people's behaviours interact with the architectural and environmental quality of their surroundings (Gosling, Craik, Martin, & Pryor, 2005a).

It has been understood that, the use and popularity of exterior fields which belong to built-up environments are mainly connected with the location and accessibility of that field and the details in its design; and there is a connection between design, usage, and location; and the success of the exterior field is equivalent to its usage (Cooper & Francis, 1997). Also, it is emphasized that successful open spaces; should have organized, clean, and eligible transmissions, as well as design solutions which correctly sized (Cooper & Francis, 1997). It is also emphasized that eligible urban open spaces are the ones, that enable people to set up a control over them, with the opportunity to feel home; places that can form the flow between public-partially public-private locations (GLC, 1978).

To install an eligible urban environment and to increase living quality, it is vital to increase the living quality according to environmental quality elements. Environmental quality elements can be examined under three groups; which are, the elements that planner or designer can not sustain control upon (climate, topographical and other natural features, pollution levels, urban services, crime rates, safety, cleaning and conditioning, taxes), the ones that planner can control but designers can not (the status of the area, the perceived density , social facts, estate ownership, rental, etc), and the ones that designers can control (identity, density, appearance, general image, green spaces, residence types and details, non-residential usages, privacy) (Rapoport, 1985). All these three groups have affects on living choices (Pulat, 1995a).

The environmental family concept is related to every types of facilities, services, and space usage standards that come along with the urban life and have the value to form a data to design, as well as the visual features of the environment. But, it is understood that the building type for which the environmental quality is the lowest is houses as it is the furthest from control (Gür, 1984). In this context, it is obvious that governmental organs usually interested in numeric growth and goals rather than a sustainable, eligible estate development policy which primarily focuses on environmental quality (Şahin, 2007a).

Architectural and Environmental Identity

Generally, the meaning of the word, identity is variable. Identity has correspondences like, the total of conditions that enable someone to be a particular person via some sort of impression, quality and specialities or skills, the total of features of an object that enables it to be determined, the certain, indigenous way of thinking and living in a society, including language, traditional aspects and rules, social values and rules.

(TDK, 2009). As it can be seen on this definitions, identity can be related to two different situations, which are personal identity or group identity. The expression of identities belonging to individuals and societies is possible by language, behavioral style, clothes, habits, architectures, etc. Different than traditional cultures, modern cultures enable people to express individual identity more. In the developing, continuously communicating societies and individuals, the problem of identity arise. The thing that shapes the identity of individuals and societies are what they generate. Rapoport describes identity with two definitions; one of which is, the stable status of something in changing condition and situations; the other is the status of being something (Rapoport, 1981).

Identity definitions have been made by different situations in different environments; and classified under three titles; individual identities, social identities (sub-group identities) and structural environment identity. There are certain scales in structural environment identity. Those start with the cities and narrowed down to resident settlement, resident close surroundings, and resident and room identities. City identity, residential settlement identity, residential identity and residential identity are affected by ownership, place ownership, freedom space, user attendance, privacy. The primary elements of the identity can be listed by expansion of social environment and physical environmental identity. Social environment identity/cultural identity; include sub-identities suck as social cultural identity, historical cultural identity, user identity-designer identity. Physical environment identity consists from natural environment identity and structural environment identity. Structural environment identity; have been expanded as city identity, residential settlement identity, residential identity, and house identity (Ilgın & Hacıhasanoğlu, 2006:59-70).

It is necessary to point out some side inputs that form the identity to form the link between an abstract concept like identity and house estate topology. In spite of the reparative residential planning's and materials, the reason why this system is referred as simplicity, flatness, and do not meet the role of "beautiful" in the traditional residents is without doubt the creative abundance, which is a result of plentiness in union. In the assistance of life experience, through a frame of a basic acceptance; the variety that the user adds without damaging the continuum at every plan figure repeated with minor differences have enabled the residential identity to prevail as a concept (Aybar & Başkaya, 2005a).

The studies about the symbolic meaning of the estate have analyzed the function of the estate as a personal and social symbol, with the assistance of cultural values (Rapoport, 1969; Cooper,1974).

Some researches point out that symbolic meaning had given to materials used in residential surroundings and exterior parts; which are very effective in the definition of identity. All the materials used in houses and the surrounding environment have been given a communicative role apart from their actual functions and come to surface as symbolic elements. The communicative purposes of the material have been used as a communication medium by the designers and act as symbolic elements. In the arguments related to architecture, the definition of "environment without identity" can be described with two different meanings just as the identity itself. First of them is, the environments which exhibit the same appearance without it's user; colorless,

repetitively produced environments, and the latter is, environments that inhibit a negative complexity, configured ill-assortedly (Aybar & Başkaya, 2005b).

Today's house estates, which have created with the same units over and over, can be estimated to have a negative identity and have more like a schematic character. In most of the house estate solutions that have been carried until today, functionality and utilitarianism have been the primary focus, and the satisfaction of the individuals' physical needs have been the key fact. For the designers who argue the modern doctrine, creative solutions, different than traditional ones are possible with technological background in the estate solutions where functionality has primary emphasis. In these solutions, there are no continuous as function and technology formats the house estate. For the individual who continues the cultural persistence with the abstract meanings given to objects, examples of modern house estates do not mean the same thing. (Aybar & Başkaya, 2005a). In the traditional society, when it is take into consideration that environment is shaped with a blend of expectations from both the culture and the users, it is likely to see that bureaucrats, technocrats and designers will act on their own personal instincts and favours, centered by their identities, rather than the society's or individuals' in the production of house estates.
At the western culture, personal identity is more apparent and for this reason, estate in an element where the individual symbolizes himself/herself (Rapoport, 1981). Even if an architect formats the design around his own favour, individuals drive themselves forwards and have the chance to show their own identities with the use of some minor tips. Modern estate users revise their houses, inside the frame of their needs that had been ignored by the designer, or the needs subject to change due to time (Tosi, 1990). While making these revisions, they try to reflect their own identities, in order to personalize the place they live in (Lawrence, 1987; Rapoport, 1980; Appleyard, 1979).

The interpretations, personalization of the environment have been performed by interfering the stationary, mobile or partly-mobile structural elements advised by the designer. Even though interference to the structural method or the structure itself is not very common, they are the most harmful interferences to the structural body. Partly mobile elements (roof and exterior coating materials, pergolas, colors, window-door metals, shutters, mail boxes, etc.) are the elements which are subject to change the most. At the house estates, the fact that identity and communication is given by means of partly mobile and mobile mediums, and as the presence of a garden triggers the feeling of personalization, and also enables it at the same time, the garden is emphasized as an element about this matter (Rapoport, 1981).

Every estate producer in the public or corporational field finds it essential to protect the same plan and frontage details. The users of these, such flatly configured examples, start the identification, adaptation and conversion progress as soon as he/she moves in. In the applications, during the process of identification, interference resulted from functionality take the first place. But, in the house estates produced by big companies or government, the user is not free to interfere or personalize because of the strict site rules. But, in the house estates produced by smaller firms, interference that mostly because of usage, and secondly for aesthetical reasons, interferences can be performed, and the user is enabled to go through a personalization period with the material he wants (Aybar & Başkaya, 2005b). The definitions of privacy and freedom space in the self identification, the definition of

public and personal spaces are important. It is also stated that the materials requested by the user, in the completion progress of the estate is also a sign of identity, class and living stile. (Sadalla & Sheets, 1993). Self identification can be positive or negative; for the users who live in house estates where they are not allowed to perform self identification because of some architectural and authoritative decisions, living in a flat, colorless environment can be seen as another dimension of negative identity (Rapoport, 1981).

In the traditional societies, the estate perception have been shaped with the assistance of cultural ideologies which arised in centuries, and found it's identity, along with it's usage. But with the emergence of new ideologies and the determination of the applications according to these ideologies by means of technology in house estate styles in our age, the identity problem in the house estates have become inevitable. Mankind have always given a cultural meaning to things he created, no matter if it is traditional or technological. The requested thing in the house estate, have been this social values. But modernism, rejecting the cultural preservation have ignored the identity of the individual and the society in the house estate applications. Hence, people have been made to live in a house estate, designed by somebody else for a social group which they have not contributed; houses they are not able to show themselves as individuals. On the contrary, Mumford states that the buildings have to reflect the physical pressures of the time they were built, requests and aliveness of their age and, if they are not describe the culture of the age correctly, the roles of buildings are hardly ever maintained (Mumford, 1941:112-113).

THE CONCEPTUAL MODEL FOR ARCHITECTURAL AND ENVIRONMENTAL IDENTITY AND QUALITY SATISFACTION IN PUBLIC HOUSE ESTATE

Taut points out that every single person try to edit the environment he/she lives in, in accordance with the direction of his/her life, and this editing process is not only limited with aesthetical facts or appearance, but also a matter of functionality, utilitarianism and amenity. (Taut, 1983:64). In the relation between people, structure, and environment, user satisfaction has been an important fact (Weidemann, & Anderson, 1985). Lawrance emphasizes that the need of the user include; physical requirements like stability, durability, structure and; social/psychological requirements like order, law, limit, addiction, protection, fear, worry, avoidance from trouble, etc.(Lawrence, 1987:159-161).

For Maslow, the human requirements can be listed hierarchically as Physiological, Safety & Security, Love & Belonging, Esteem or Ego, Self-actualize, Know & Understand and Aesthetic (Maslow, 1970). Having re-defined these requirements in the scale of estate and environment Cooper, emphasizes the fact that the user's needs related to house and environment are; safety, socialization, self expression, housing, comfort and aesthetic; and states that one level should be the basis of the next one (Cooper, 1975:130-146).

It has been asserted that the house surrounding is not only about the elements created by structural and built up environment, but also socio-economic situations. While some of the researchers who approach the house estate satisfaction in a more

psychological manner, have stated that satisfaction is related with the emotional elements; the others provide definitions where perception is more appatent (Amerigo, 2002). During the researches in the field of environmental psychology, models explaining that physical environment has affect on people, while at the same time is an area of self expression (Gosling, Ko, Mannarelli, & Morris, 2002).

During the researches about social interaction satisfaction; subjective criterias like privacy, crowd, interaction, territorial efficiency; and objective criterias like sincerity, personality, publicity, density, neighbourhood, etc. have been used (Pulat, 1995b). In this context, during the research studies aimed at user satisfaction in house estate; residential requirements, room number, room sizes, functionality features and advantages by means of apartment typologies (Dülgeroğlu, & Aydınlı, 1994; Dülgeroğlu, 1995), indoor climatic comfort conditions, quality concept, pleasure with visual affect measures, complacence, airiness, order and freedom measurements (Aydınlı, 1995), also heat, sound, scent, storage and measurements like perceptive appraisal (İmamoğlu, 1995) are used. About this matter, Preiser also expresses the criterias related to basic user requirements as; psychological comfort and complacence level, health and income level, functionality and efficiency level (Preiser, 1983:84-91). There are researches carried out, showing that the facts which affect the choices of individuals in terms of residency, and resident environment features, in the field of estate are; the quality of the neighbourhood, view, living standard, infrastructure, the direction that the resident faces, price, paying method, comfort, ease of transportation and neighbourhood relations (Tunbiş, Kıran, & Baytin, 1999).

For Altaş, the quality parameters of the environment, parallel to building creation process, are; design/planning quality, design compliance quality, handling quality and functional compliance quality (Altaş, 1995). User habits and tendencies, structural environment elements and the quality of the facilities have been resulting in different environment qualities. The elements of environment are gathered under two basic titles; which are physical elements (the identity of the environment and the general appeal, interaction with nature, view, topography, architectural approach, variety and abundance, density, noise level, transportation, management, handling and conditioning, symbolic qualities, aesthetic and beauty), and social elements (the social image and prestige of the environment, neighbour relations, the variety and quality of services provided around, crime rate, and creditableness, social features, social homogenous and social composition) (Rapoport, 1977).

In the attempt of accomplishishing the environmental quality, supporting the monopole elements and reaching an agreement upon different studies of necessary crtierias for accomplishment, Lynch, Aksoy and Hillier (Tekeli, 1994:606–607) conveys the accomplishment rates as following; habitability, easy legibility- learning and estimating, the visual pleasure, having been given a meaning by associative perception and the balance of the public and private residencies. It can be assumed that open urban areas that includes the necessary criterias for accomplishing the social and physical elements fully or partially, can increase the environmental quality (Şahin, & Arslan 2007b). For this reason, in the guide ness of previously explained hypothetical and conceptual facts, a frame with the following order and style have been created and carried out in order to examine the architectural and environmental identity and quality satisfaction.

- Design and planning
- Location layout
- Accessibility
- The quality of open urban areas and organized recreational areas
- Social facility areas
- The functional quality of structures in the house estate area
- The physical quality of structures in the house estate area
- Aesthetical, plastic values and visual affect
- Social environment and neighbourhood relationships
- Social image, status and symbolic qualities
- Identity
- Safety
- Environment and health

FIELD RESEARCH AND FINDINGS

In the field research, the surveys have been applied and examined according to hypothetical model, and the definitive titling hierarchy.

Design and Planning

One of the most important decisive points of the user satisfaction is residential areas that designed according to functional, aesthetical and social favours. According to the findings of the research, %73.4 of users find the architectural design of his/her residence nice, %74.8 find the architectural design of the residential area nice, &46.7 find the design of the open areas in the residential area nice, %45.3 think that designing and planning is carried out according to social favour-requests, %39.6 find the contribution of the user to the house estate field possible and %37.6 think that his/her residence has a design which is suitable for making changes in time.

Location Layout

In Location Layout and the use of field; criterias such as location choice, density, closeness, height, direction, view, organization of environment and facilities have been used to determine the satisfaction. &78.1 of the house estate users find the location layout and the use of field positive, %87.5 find the density of the buildings positive, %68.7 states that layout plan is directive, %90.6 think there are enough space between buildings, %42.2 find the height of the building positive, %81.2 state that the residencies in the estate are have enough view, %62.5 find the streets and pavements directive, %79.6 think that size of the estate are is enough for the people number lives and %59.4 say they do not find the vehicle density too much. %56.2 of the users say they are pleased with the organization of the open urban areas, %34.3 state they are pleased with the organization of the urban facilities.

Accessibility

One of the primary criterias of satisfaction in house estate is the accessibility of the users to the urban functions in their daily lives. %48.4 of the users say that they can reach public transport stops easily, +43.6 say the same for city center, %18.7 say that they can reach the shopping malls easily, %37.5 state they can reach working areas easily, %21.9 says the same for daily shopping places, %54.7 for primary schools, %32.8 for high school, %23.4 for higher education institutions, %40.6 for management facilities (municipality, district governorate, court house, etc.), %51.6 state that they can reach the dispensary easily, %12.5 state the same for cultural facilities, %13.7 for relaxation and entertainment places, %15.6 for the sport facilities, and %84.4 stated that they can reach to park and green fields easily.

The Quality of Open Urban Areas and Organized Recreational Areas

The outer surrounding of a residence has great importance for that residence itself and has affect on the value of the residence. Comfort and amenity concepts are important for the outer environment of the house, as well as the inside. It can be seen that the success of a house estate is directly related with the criterias like spaces between the buildings, the organization of the open areas and the interaction of their planning with a quality; the amount, quality and organization of open areas, as well as the services provided. &68.7 of the estate users state that they find the open areas enough, %59.4 stated that he/she is happy with the green fields and parks, %71.8 say the same for the children playgrounds, %14.2 state he is happy with the sport fields, %56.3 for walking and relaxation fields, %89.1 for pavement and perimeter walks, %76.6 of the users are happy with the parking lots, %73.4 is happy with the vehicle ways, %42.9 of the residents stated that he/she is happy for the services provided by the open areas, %56 find the material quality and choice used in the open areas good, and %46 state he/she is pleased with the lighting of open areas.

Social Facility Areas

In the concept of functional city planning, as in the Halkali example, subject of field research; the urban facility areas, the variety and the quality of the services provided in the environment which should be located in areas that have a population higher than 5000; is a key fact in determination of the user satisfaction. %43 of the users in the field say that they are pleased with the health facilities, %44.2 states that they are pleased with the education institutions, %18.8 state the same for the social facilities, while %10.3 state they are satisfied with the entertainment facilities, %14.6 says that they are happy with the shopping facilities.

The Functional Quality of Structures In The House Estate Area

The residence buildings' capabilities of satisfying the functional needs such as housing, functionality, beneficial ness and comfort etc. thoroughly is a key element in living quality and satisfaction. %77.6 of the users find the indoor spaces enough,

%87.4 thinks that the residences are generally suitable for his/her functional needs and utilitarian, %74.7 thinks that there are enough room for every family member %83.5 of the users are pleased with the comfort and space provided in the residence, and %80.8 of the residents are happy with the direction and interaction of indoor elements with each other. %52.6 of the users tell his/her resident needs a modification currently and %42.6 find their resident is suitable for any modification in time. %73.9 of the users say that he/she has a connection with the outdoor visual elements and view.

The Physical Quality of Structures In The House Estate Area

The satisfaction of the resident is also related with the technical, constructional, climatic comfort, noise, lightness and physical quality criterias like that. %31.6 of the users are happy with the material quality and selection likewise %52.6 is happy with the material quality and selection of the exterior fronting. % 80.3 states that buildings get enough daylight, %74.1 say buildings insulate noise enough and %66.3 is happy with the summer/winter climatic insulation (insulation of heat, water, damp, etc), likewise %71.2 is happy with the quality and selection of the material used in the carrier system. %58.6 states that they are happy with the material selection and quality of the commonly used areas in the building. %34.7 is happy with the constructional elements and details generally while %55.2 says they are pleased with the electricity, gas, plumbing, etc. basin.

Aesthetical, Plastic Values and Visual Affect

The criterias, stated by Maslow among the humanitarian needs, and emphasized by Cooper among the resident and environmental requirements; such as aesthetic criteria, architectural genre, variety, abundance, beauty and the visual pleasure it gives, etc. are among the affective elements in user satisfaction. %63.2 of the users state that they find the estate area beautiful, %61.7 says the same for the building they live. Only %43.8 of the users think that the building they live in is someway different than the other one, and %51.6 state that they find the fact possible that the buildings in the house estate are the repetitions of each other. %61.9 think the house estate contributes the city value and beauty, %54.3 thinks that the style and the amount of buildings in the area is positive, likewise %62.6 of the users find the color and pattern of the buildings are beautiful. %20.3 of the users state that there is a variety among the outer fronts.

Social Environment and Neighbourhood Relationships

The primary objective criterias that determine the user satisfaction in house estate are social interaction, neighbourhood, dependence, privacy, interference, territorial efficiency, sincerity, individualism, publication, cooperation. %30.2 of the users know the people living close to them, %34.9 says they can build neighbourhood relationships, %61.6 states they are happy with the neighbourhood relationships in the house estate. %20.3 is happy with the social actions and events take place in the residential area, and %68.5 expresses that he/she can do individual activities

(walking, relaxation, running, bicycle riding, sports, etc.) in the residential area. %39.5 of the users state that they can cooperate with their neighbours when they need help, while %77.8 is happy with the privacy they have in the area.

Social Image, Status and Symbolic Qualities

In the use satisfaction in the house estate, symbolic qualities, values, respects, status, image etc. is also important. %41.3 of the residential area users think that they earn prestige (respect) because of the residential area, and %66.9 of them thinks the area and the building suits their social status. %50.1 of the users think to buy another place in the area, likewise %64.7 of the users think that the residential area and the resident they live in are suitable for their economic status.

Identity

When examining the residential and environmental satisfaction of the individuals; some criteria that define the identity suck as reflecting the culture of the age, having bonds with the traditional culture, reflecting the cultural features of the society, referring to individual values, and simplicity. %57.8 of the resident users think that the residential area and the building they live reflects current era, and%12.6 thinks that it has traces of social (traditional architecture) history, and %37.5 thinks that it is suitable for the social culture. Again, %32.7 of the residential area users thinks that buildings reflect their lifestyles, %39.3 thinks residential are reflects the society's lifestyle (socio-cultural habits), likewise %38.1 think that the residential area and buildings are simple.

Safety

Safety needs are included in human needs of Maslow, and residential and environmental needs in Cooper. The safety criteria are accepted as one of the important facts that determine users resident choice and residential satisfaction. %46.8 of the users in the field think that there is security of life, likewise %41.2 is happy with the security of residential area and buildings against burgling and theft. %87 of the users expressed that the building is secure in case of earthquake; likewise %74.5 thinks that the fire security is enough.

Environment and Health

Factors about environment and health, such as physical and mental health conditions of the residents, a green environment, air quality, dust, smoke, eye pollution, the energy saving of the buildings and environment etc. are also effective in the determination process of the user satisfaction. %51.6 of the users think positive about the material and standards used, %89.9 thinks that the residential area do not cause eye pollution, likewise %76.6 of the users think that the air quality in the environment is good. %74.7 thinks the open areas are contributing to a greener

environment, likewise %40.6 expresses that the buildings are designed so that they consume less heat and electric power.

EVALUATION OF FINDINGS AND CONCLUSION

The users of house estate usually find the architectural design and planning positively well. On the contrary, absence of contribution and joint in the development process of such house estate by government reflects that social favour and requests are ignored. The users mainly pleased with the location layout and field usage, structure, people and vehicle density, organization of open urban areas and direction of streets. But, structure height and disaffection about organization of urban facilities points out the fact that designers, managers and technocrats should focus on these subjects.

In spite of the fact that open urban areas and organized recreational areas generally found enough, there are conclusions that can be referred as complaints, in the fields of services provided by open areas, necessity for sport fields and insufficient lighting. These findings point out the fact that open area planning and organizations consist of parking lot, vehicle and pedestrian ways and play grounds only. The need for both the variety and abundance of places where users can come together and perform social action and events have also been expressed by the survey.

The currently made survey have also expressed the fact that, the means individuals' access to the urban functions in the daily life, which is one of the primary criterias in people's satisfaction and living quality about house estates. This finding exhibits the point that there are not enough social urban facilities in the public and private house estates set up in the city perimeters; just the chance to access to primary schools in a limited way.

It appears that house estate users are mainly pleased with the size of the residence, the space and comfort, the functions, directions and interactions of structural indoor fields and interaction between outer environment and view. But, there is a big percentage who thinks that their residences need modification. These findings exhibit that generally the residential setting, design, and inner-outer residential interaction is positive but probably will require modification in the future.

The survey also shows that the users are positively happy in the matters of carrier system, noise, climatic comfort, commonly used fields in the building, and basin while relatively less satisfied with the physical indoor quality, structural elements and quality of the details. This situation results from the fact that; the bidding is given to the firm which offers the lowest price, and the developing is carried out with typical projects. The buildings are not developed by a sufficient and skillful architecture, but by typical projects taken and applied incorrectly; and the due to use of cheap labor force and material, the conclusions like the previous one occur.

Users express that residential area and buildings contribute to the city beauty, and find the color and pattern relatively beautiful. But, the residential area and buildings are thought to be non-unique and simple, like the other buildings in the city. A really wide percentage thinks that the fiction and design of the exterior frontage has lack of

variety. The lower satisfaction with the aesthetical value and the visual plastic affect, lack of variety in the exterior frontage of houses are again conclusion of the fact that these residential areas had been developed by extremely unskillful, technocratic typical architectural projects.

Despite the fact that the users express their satisfaction generally with the privacy provided by the residence, and neighbour relationships, it can be seen that there is not a formed neighbour relationship, cooperation or social environment. This shows that neighbourhood relations are out of the table in blocks that have so many floors and many apartments that keeps residents away from communicating each other. Apart from that, another obvious finding is there are not enough places for social actions, events to be created in the environment. It is clearly exhibited that, social communication mediums and "neighbourhood residency" concept has not been formed.

The users have shown a relatively satisfied approach towards the concepts of social image, status, and symbolic qualities. But, the percentage of the ones who think that the particular residency field earns him/her additional prestige (respect) is relatively low.

The attained finding also tells us that the users think that the residential field and buildings reflect the current era's culture, but are ordinary structures that do no reflect social history, tradition, social culture or individuals' socio-cultural habits. This conclusion reveals the fact that house estate is an issue related with identity but there is still lack of a sufficient and careful approach, design process and high-grade design.

The research findings reveal that users are happy with the fire and earthquake safety, but not satisfied with security of life and property. And this finding leads to the conclusion that users do not feel safe in this area.

The data attained shows that the users are satisfied with points included in terms of environmental and health criterias; such as the compatibility of the residential area with the users mental and physical health, a green environment, the air quality, eye pollution, etc. But it can be understood that users are not happy with the energy saving. Although these results draw a healthy portrait in terms of environment and health, it must be pointed out that these structures are not designed to consume less heath electric energy.

As a result, it is apparent that the house estates developing in the city perimeter, when compared to the current apartment and neighbourhood pattern in the city centers as an alternative, fail in maintaining the feeling of belonging, and sustain a more safe place where the users might have opportunity to strengthen their neighbour and friendship relations by means of interaction areas; along with these points, the house estates also fain in forming a more aesthetical environment, helping it's users to develop a self identification, and personalization.

Users' level of education increased, satisfaction has been reduced. Raise the level of education, the individual's perception about the housing and the environment,

appreciation, and it no longer depending on the level of awareness that is understood to affect the perceived level of satisfaction

The human factor in the design process of the house estate, must not be examined only physically-locally, but also be examined in terms of psycho-social needs. When providing individuals with houses, the place of the individual in urban life, his/her status must be taken into account, and adjustments should be made so that the person can have both places to interact with others, or be alone when he/she wants. These adjustments, in location-related aspects, must be started from an environmental scale, and moved through the providing of open spaces, common socio-cultural facilities; followed by the aggregation of the buildings, indoor structural organization and functional - physical quality control. Setting out from the truth that individuals stand up for the environments which contributes to their existence, the establishment of users ability to contribute to residences and the environment will be very important for a more creative society.

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CONSPICIOUS LIFE CULTURE AND GATED COMMUNITIES

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ABSTRACT

The main objective of this paper is to discuss the effects of conspicuous life culture of current gated communities. People define their social class and statue by their possessions. The survey we conducted on the residents of two gated communities in Istanbul helps demonstrates this.

Keywords: Housing, Gated community, Conspicuous consumption, Conspicuous leisure

INTRODUCTION

A gated community is a housing development which differs from other residential areas with some qualified factors. They are mostly surrounded by a closed perimeter of walls or fences, guarded 24-hours by CCTV (closed circuit television) and private security groups. They are built for the middle and upper income groups in big cities. They provide different luxury activities such as swimming pools, tennis courts, community centers, social clubs, playgrounds sport facilities etc.

In literature, the gated communities are mostly defined to be residential areas, where entry is restricted to residents and where 24-hour security systems are provided, as well as leisure-time activities. In Istanbul, many housing developments happen to provide security, central administration, certain services and activities. However, among others, the gated communities also differ with their barriers built at the periphery in order to isolate from public use, as a means of security system, in addition to the systems such as CCTV. This is the most criticized feature of the gated communities, since such isolations may trigger social fragmentation.

The studies (Firidin; 2006, Berköz; 2008) conducted so far show that the gated communities are preferred for their convenience, their well groomed environment and security they provide, as well as the homogeneity in terms of income level, social activities and prestige. The factors that effect the formation of gated communities also explain why they are preferred (see Table 1).

Status anxiety appears as an important motive in determining people's lifestyles. Displaying their lifestyles is a way of expressing their status. Many sociologists (Veblen, 1899/1934; Baudrillard, 1970/2003; Featherstone, 1987; Douglas and Isherwood, 1979/1996, Ritzer, 2001) have developed definitions for status anxiety. Veblen's 'The Theory of Leisure Class' is one of the oldest books on this subject. Veblen discusses that people need to display their wealth through leisure activities or through consumption in a conspicuous way. The two common concepts 'conspicuous leisure' and 'conspicuous consumption' appear to be used in the commercials of gated communities.

The objective of this paper is to argue whether the gated communities, as a consumption good, fulfill the consumers' needs - especially in the context of conspicuous leisure and conspicuous consumption. For that purpose two gated communities in Istanbul are surveyed. As the pioneering sectors of industrialization, commercial, technology, education and entertainment centers are located there, the senior employees in these sectors also need these type of housing in Istanbul, besides other cities. In this report the gated community examples are chosen which are located in Istanbul as it is a pioneering city, though the gated communities has also started to be seen in other cities. The socio-demographic structure, social status, relations with the neighborhood and the city are examined in the survey, in reference to Fridin's (2006) study, where she criticizes social and spatial segregation. The gated communities chosen for this study are located in two developing regions in Istanbul and they are comprised of apartment blocks surrounded by social activity centers.

Table 1. Factors that effect the formation of gated communities

Factors That Effect The Formation Of Gated Communities

- ● Effect of globalization on socio-economic dynamics of the societies.
- ● Development of new elites and their life-style
- ● Being different from others
- ● Fashion (changing tastes and values)
- ● Security, safety and fear of crime
- ● New form of urbanism where public space is privatized.

THE GROWTH OF GATED COMMUNITY IN THE WORLD

There is a growing literature on the gated communities in the USA (Blakely and Snyder, 1997; McKenzie; 2005 and Le Goix, 2005) but this development can also be seen all over the world, even in the developing or underdeveloped countries (Leisch, 2002; Grant, 2005; Roitman, 2005; Baycan Levent and Gülümser, 2007). In the case of England (Atkinson et al, 2005), Turkey (Baycan Levent and Gülümser, 2007, Berköz, 2008, Güzey, 2007, Evrim and Kozaman, 2006), Argentina (Roitman, 2005), USA (McKenzie, 2005), Canada (Grant, 2005) and Indonesia (Leisch, 2002),

researchers examine their countries' conditions which affected the development of gated communities from different perspectives. Generally, some researches have arguments supporting gated communities, while others are against to them (see for detail Gooblar, 2002). Additionally, some countries' local governments such as Canada, Austria and New Zealand, do not support gated communities because of their strong public planning policies.

Le Goix (2005) examines the literature in three parts:
1- Gated communities emerged as a physical expression of post-industrial changes and commoditization of public space.
2- Gated communities developed as an urban pathology. They cause social segregation.
3- Gated communities emerged as a new urbanism where public space is privatized.

The social change in terms of fragmentation and individualism in the post-industrial period form a basis in the emergence of gated communities. According to Glasze (2005), the idea of individual freedom is the starting point of gated communities.

Another point of view is to define gated communities as an urban pathology because they cause social segregation, which has also strong connection with income inequalities. Atkinson and Blandy (2005) stated that social diversity in a community is lost because of the growing number of gated communities. Residents of this type of communities need to go out very rarely because all services are located within the borders of the community. As a matter of fact, these developments discouraged mixed and balanced communities (Atkinson et al, 2005). Besides, the social segregation comes to scene as a result of the emergence of new middle class characterized by high level of consumption (Güney, 2007). This new emerged class imitates the upper income class and that forms the basis of Veblen's trickle-down theory.

According to Le Goix's classification, on the third part of literature, researchers claim that public spaces become privatized in gated communities because they create physical barriers to prevent access and they dissociate a lot of local government responsibilities from the rest of the community such as security, entertainment, maintenance and recreation (Güzey, 2007). In other words, in these private neighborhoods, 'the open spaces and the common services are managed and regulated by a self-governing organization.' (Glasze, 2005, pp.223)

In all around the world, the emergence of gated communities began in the 1970s. There is a consensus that the development of gated communities is considered as a part of urban spatial and social segregation (Berköz, 2008 and Le Goix, 2005). One of the main reasons behind the emergence of this kind of development is the need for security and fear of crime (Gooblar, 2002). Especially in Africa, Asia and Brazil, the number of gated communities increased rapidly to deal with the uncertainty and risky environment occurring outside the walls (Gooblar, 2002 and Atkinson et al, 2005). 'Many middle and upper-class home buyers, fearful of crime and disenchanted with government, are in search of a privatized utopia offering security, a homogeneous population and managerial private government' (McKenzie, 2005:187). On the other hand, Barnes (2009) express that, not only fear of crime but

also race plays role especially in the case of the US in preferring to live in a spatially-separate communities.

In the proliferation of gated communities, exclusivity and prestige are also important factors. Almost one third of gated communities in the US constitute luxury communities (Blakely and Snyder, 1997). Despite the abundance of contrary opinions (Glasze, 2005) lots of gated communities appear in London and Surrey for super-rich and influentials (Atkinson et al, 2005). But as a common interpretation global socio-economic changes, marketing strategies of developers and new lifestyles also play role in the development of gated neighborhoods in the world (Baycan Levent and Gülümser, 2007).

CHARACTERISTICS OF GATED COMMUNITIES IN TURKEY AND ISTANBUL

The construction of the first gated communities in Turkey dates back to 1980s, in parallel to the economic transformation (Güzey, 2007). From the mid-1980s, the effects of restructuring have been perceived in all aspects of the country. The liberal economic conditions became prominent with outward-looking development strategy and as a result of this, foreign capital came to Turkey for large investments in partnership with Turkish investors. The gross national product per capita (see for details State Institute of Statistics http://www.die.gov.tr) has rapidly increased due to this rapid transformation and "the demand to consume more products in a more leisurely environment has created a new consumption style" (Erkip, 2005:90-91) even in housing sector.

In the Turkish case, the major factor affecting the emergence of this new housing is not the fear of crime. Even in the metropolitan areas, the crime rate are lower than the European cities (Özkan and Kozaman, 2006; Baycan Levent and Gülümser, 2007). The main reason can be the fear of earthquake and new elites' needs such as security, good amenities for the whole family (Özkan and Kozaman, 2006) and their choice to escape from the dense and heterogeneous life of the city (Berköz, 2008). Besides, the effects of globalization can be seen on the preference of A-class people's new housing type as an imitation of the American lifestyle, which have also been pumped by the mass media (Özkan and Kozaman, 2006). Almost the same transformation can be evaluated in Ankara, the capital city of the country (Güzey, 2007).

The pattern of gated communities in Istanbul can be examined in four different types according to housing layout (Baycan, Levent and Gülümser, 2007):
 1- Vertical gated development (gated towers)
 2- Horizontal gated development (villa towns)
 3- Gated apartment blocks
 4- Mixed type gated development/gated town

Detailed explanation for each type can be found in the research paper by Baycan, Levent and Gülümser (2007). Besides this categorization, gated communities in Istanbul can be identified according to their location in the city. Accordingly, some of them are built in the periphery, while the others are located in the center. Generally the gated communities need to be built on big parcels, so the suburbs of the city in

both European and Asian sides are preferred. The gated communities which are located in the center are called residence and they provide luxury services and high security provisions. Mainly upper income level people, expat managers from big companies and artists live in those residences. On the other hand, families with children do not prefer residences, as they do not provide outdoor facilities, such as gardens and playgrounds. They preferably live in apartment blocks or villas where there is enough space provided for the mentioned facilities.

Both types of gated communities (villas or apartment blocks) are growing in number in the northern part of Istanbul. This is mainly because of the availability of vacant and big land in the city's north. Another reason might be the effect of the earthquake fear, as the northern part is known to be the most earthquake-resistant region in the city.

Finally,

> If gated communities in Istanbul are compared with other examples in the world, they carry some reflections. For example, because of their reason for development and the amenities available, they can be classified within the categories of lifestyle and prestige communities from the typology of Blakely and Snyder..... (but)...the typology of Luymes is based on the security level of gated developments does not have a large spectrum in Istanbul (Baycan, Levent and Gülümser, 2007:16).

GATED COMMUNITIES AND VEBLEN'S THEORY OF CONSUMPTION

The design of residential areas can not be considered without their surroundings. In addition to serving as a sheltering facility for the households, the housing units must also fulfill their other fundamental needs. Through the research paper named *A Theory of Human Motivation* published in 1943, Maslow ranks the humans' needs (Maslow Hierarchy of Needs) as Self Actualization Needs (full potential), Esteem Needs (self respect, personal worth, autonomy), Love and Belongingness Needs (love, friendship, comradeship), Safety Needs (security; protection from harm), Physiological Needs (food, sleep, stimulation, activity). Tailoring this hierarchy for the residential design, Cooper (1975) ranks the needs as sheltering, security, comfort, socialization and self-expression and aesthetic.

The needs re-categorized by Cooper are very much fulfilled in today's design of gated communities. The housing units together with their surroundings in gated communities are designed to meet all the needs of individuals. In this type of communities, the security need is met via security guards and cameras, the comfort need is fulfilled through wellness centers, house cleaning, dry cleaning, vale parking services privatized to individuals or houses, while there are shopping malls, sport centers - swimming pools, (indoor or outdoor) fitness centers - movie theatres, kids' playgrounds for socialization and self expression needs. Gated communities, with all the facilities integrated, also serve for the individuals' need for self expression and status.
Regardless of the choice of categorization, prestige and social status are of great importance among the needs of individuals. The housing should not be considered only as a means of fulfilling the physical needs. The contemporary living standards

suggest that being accepted as a member of a community would be possible by the individuals' possessions. Gated communities are safe and privatized areas separated from the rest of the public areas by walls and their residents immediately become members of a community formed behind those walls. In other words, by possessing a housing unit in that community, individuals acquire a social environment that would contribute to their social status.

Thorstein Veblen (1899/1934), as a sociologist who analyses the relation between class differences and consumption patterns, argues that wealth by itself would not be an indicator of status and in order to serve as a sign for status, wealth should be used in a conspicuous way. In his book *The Theory of Leisure Class*, written in 1899, he says that a small number of new rich in America followed the lead of the European aristocrats, trying to imitate them through the goods they consume. On the contrary, a similar attitude was not valid for the European aristocrats. Veblen's trickle-down model, though belongs to an era of more than a century ago, helps explaining the roles of the social classes in the emergence of new products in today's marketing world. In Veblen's theory, imitation appears as a motive. As the lower classes try to emulate the leisure class, the leisure class starts to search for change.

Veblen argues that when the individuals start defining their identity through their possessions, they need to display this wealth and consume them persistently for the sake of their symbolic benefits. For that purpose, symbolic and conspicuous consumption appear as motives for consumption, aside from the fundamental needs. Odabaşı (1999:18), a marketing theorist, highlights the importance of consumption in acquiring status and explains symbolic and conspicuous consumption as follows:

> Conspicuous consumption is based on comparing oneself with others. Consumption acts as a mirror that reflects to outside world who and what we are. Leisure activities and the consumption of related goods and services may be the examples to that. On the other hand, symbolic consumption is the most common type of consumption today, in terms of the identity formation. It is defined to be the consumption type of the post-modern culture. This consumption type becomes evident through paying a high price to goods for their symbolic benefits.

However, in his study Veblen also underlines the importance of the leisure activities in displaying wealth. For the sake of expressing wealth, individuals do not only consume conspicuously, but also involve in leisure activities –sports that provide status, such as golf, polo, etc., cruises or similar trips- and disseminate information about their status to their surroundings. In essence, through leisure activities, individuals spend their wealth for pleasure. In some sense, the leisure activities also show that one does not need to spend time for making money.

The two means which were described in 1899 by Veblen as necessary to display wealth are met in today's gated communities. The location, format, the quality of construction, the interior attributes and social surroundings serves for conspicuous consumption, while the facilities built within the communities for social or physical activities serve for conspicuous leisure. However, taking part in these gated communities, by itself, is a conspicuous attitude. Therefore, the activities mostly cross the borders of the residential area, through boat trips, club memberships such

as golf, etc. According to Ritzer (2001), leisure activities have changed in shape in today's hyper-consumption world; casinos, cruises, theme parks, entertainment, 'retailtainment' appear as today's conspicuous leisure.

Yanıklar (2006:145) also argues that the activities mentioned by Veblen in 1899 have changed form.

> The leisure activity is not enough any more for individuals as a means of displaying pecuniary wealth in big cities, where everybody is stranger to one another and where secondary relations dominate. As the features of city life necessitated a more explicit way of displaying power and wealth, conspicuous leisure has given way to conspicious consumption practice.

Yanıklar's ascertainments for our contemporary world overlap with the gated communities and the activities contained in their consumption areas -in particular vertical gated communities, shopping malls, food courts, sports centers and theater/movie theaters. In the gated community, individuals may also satisfy the conspicuous consumption need.

GATED COMMUNITIES AND MASS MEDIA

Veblen had written the trickle-down theory more than a century ago, when there had been no such thing as 'mass media' or 'mass advertising'. However, in the contemporary world, the effect of mass media or mass advertising on displaying individuals' status or the formation of their status can not be ruled out. As a matter of fact, these instruments motivate people for mass consumption.

Gated community commercials often tell about a lifestyle. They promise that the individual would belong to a certain social environment thanks to the activities provided within the community and that the children would safely run in the garden and participate in different activities. The price range or the payment schedule is not underlined in the gated community commercials which target the leisure class. Generally, the declaration of the architectural style, or the characteristic design of a famous architect and the lifestyle would be enough. On the other hand, the gated community commercials that target the middle class would also emphasize the price range and the payment schedule, besides the social activities and constructional attributes. While the gated community commercials that target the upper class give information about the specialized sports, shopping malls/centers specialized for high income groups; the commercials that target the middle class speak of the close distance to shopping malls or sports centers and their distance to the city centers or transportation convenience.

Çizmeci and Çınar (2007) state that in terms of marketing, the housing would differ with its immovability, expensiveness and relatively longer production process and emphasize the importance of bank loans in encouraging home sales. After all, unlike other goods, it is not possible to change into a new house in each season. Houses are different from other status-signal goods which can be moved to any place. They are real property and one needs to show effort in order to display the possession. However, as a distinct property from other goods, they create a lifestyle and offer

immediate membership to a community. Therefore, social environment and lifestyles are highlighted in the basis of residential real estate commercials.

REVIEWED GATED COMMUNITIES IN ISTANBUL

In the establishment of the gated communities, socio-economic factors, seeking safety against the fear of crime and earthquake, as well as the desire to express social status –appeared with the emergence of new elite- play important roles. Living in a secure community that is far from the crowd of the city and that includes sports facilities, shopping centers and other social activities, as well as living in a neighborhood of similar socio-economic status, started to become appealing for the upper and upper-middle income level groups. Fridin (2006) defines gated communities as the 'world of privileges' and explains the three major aspects of this world as the safety, privileged life and the protection of the price of the real estate from falling in countries like Turkey, where the economic conditions change frequently.

The concern for status, which is the subject of this study, comes after the necessity of a safe environment in the survey based studies that analyze the reasons behind preferring gated communities (Berköz, 2008; Fridin 2006). Berköz's (2008) findings on the surveys that aimed to pinpoint the customer satisfaction in the gated communities suggest that most of the families living in gated communities were mostly inclined towards moving to suburban areas from city centers, with the safety being their primary concern. In a crowded metropolis like Istanbul, the fear of earthquakes adds atop of the security issues. The earthquake angst appears as an important motive, after the disastrous earthquake ten years ago that had hit Istanbul, as well. In Berkoz's research, 'prestige and economic value' ranked as the fifth among the factors that determine the satisfaction, with the first four factors being the location of the residential estate for investment, neighborhood and satisfaction with social relations, access to the center/shopping centers/friends/ recreation areas. Based on Fridin's survey (2006) in Gokdeniz community, where upper-middle income groups live, prestige ranked below security and a well groomed environment, among the reasons to prefer the community. Similarly, in her survey conducted in Villa Belde, which is also a community where upper-middle income group lives, prestige takes a back seat among the motives.

Against this backdrop, these communities are built along with all type of facilities – including the materials used in planning, architecture, and interior design - to meet the target group's need for prestige. Besides, in the advertisings of those communities, social life and emphasis on status should be on the foreground. The study of Veblen in 1899 on the necessity to display of prosperity via conspicuous consumption and conspicuous leisure helps the marketing strategies of these communities. The gated communities are designed in way to fulfill the necessity of conspicuous consumption, while the facilities built in the communities for the leisure activity are designed to satisfy the necessity of conspicuous leisure.

In this paper, through the surveys conducted in two gated communities in Istanbul, the social status, as well as the relations to the city and districts is questioned, using the questionnaire form of Fridin's (2006) study. Eksioğlu Beşyıldız is one of the

communities chosen for the survey. This community, which is designed for upper-middle income group, is located in Çekmeköy, which a developing area with a growing number of communities built and it is in the Anatolian side of Istanbul. The other gated community is Kemerlife 21, which is also designed for upper income groups and is located in a developing area (Göktürk) of the European side of Istanbul. Kemerlife 21 is introduced via the name of its designer (Architect Emre Arolat), while the former gated community is advertised by its security, resistance against earthquakes and abundance of green areas available– sports and social facilities. (See Table 2)

Out of the total participants in the survey conducted for Ekşioğlu Beşyıldız 194 are counted as valid in evaluations, while the number of valid sample is 30 in Kemerlife. The survey covers almost 70 % of total residents of both gated communities. The survey results show that majority of the residents in both communities do not have the intention to move out (84.96 % in Ekşioğlu Beşyıldız and 73.33 % in Kemerlife 21). Accordingly, we may conclude that they are mostly happy about the life in gated community. The lower ratio in Kemerlife 21 may be explained by the fact that 46.67 % of the respondents are renters (50 % are the home owners). In Ekşioğlu Beşyıldız, 21.60 % of the surveyed sample is renters, while the 78.41% is the homeowners. The majority of the respondents being homeowners express the importance of gated communities' property values.

In both communities, driving is pretty common for the head of the family and their spouses. 77.73 % of the heads of the families in Ekşioğlu Beşyıldız drive, while the ratio is lower at 47.99 % for the spouses. In Kemerlife 21, 66.67 % of the heads of the families drive, while the ratio declines to 46.67% for the spouses. These results are an indication that they are high income groups and there is only limited use of public transportation. At the same time, even though in this situation, the residents may be expected to have their leisure activities outside of the communities, spending leisure time at home is very popular in both communities. This ratio is 60.38 % in Ekşioğlu Beşyıldız, compared to 46.67 % in Kemerlife 21. The indoor shopping centers are also favored for leisure activities, with the ratios coming at above 30% in both gated communities (35.19 % in Ekşioğlu Beşyıldız, 33.33 % in Kemerlife 21). Note that based on an earlier research (Firidin, 2006, Özkan ve Kozaman, 2006), prestigious shopping centers appear to be the most commonly preferred areas by the people living in gated communities for their leisure activities outside the community. The shopping centers offer many leisure activities such as cinema, theater, gym and they are also located in city centers, both of which make them preferable. In addition, the close friendships are mostly left behind the walls of the gated communities and the rareness of the relations within the community turn the shopping centers into a popular meeting area in the city centers. In Ekşioğlu Beşyıldız, 53.79 % of the respondents and 66.67 % of those in Kemerlife 21 claimed their best friends live in another district. The ratio of within-community friendships remains lower (30.67 % in Eksioglu Besyildiz, 10 % in Kemerlife 21). Glancing at the frequency of neighbors seeing each other in the community suggest that participation in social life is quite high. The ratio of the respondents that never see each other is 1.03 % in Ekşioğlu Beşyıldız and 10 % in Kemerlife 21. The ratio of seeing each other 2-3 times a week is above 30 % (36.09 % in Ekşioğlu Beşyıldız and 33.33 % in Kemerlife 21). Based on these results, the desire to socially become a part of the community seems mostly accomplished. Although these communities select residents according to their

economic levels, the common social life inside the communities can be considered as successful.

Table 2. Provided Services in the Surveyed Gated Communities in Istanbul

	SERVICES	Ekşioğlu Beşyıldız 4th Stage	Kemerlife 21
SECURITY	CCTV cameras	●	●
	Entrance with security cards		
	24 guards and alarm system	●	
SPORT AND LEISURE	Swimming pool	●	●
	Fitness center		●
	Sauna		
	Tennis court		
	Squash		●
	Basketball and football	●	
	Golf club or riding		
	Sport Center		
SOCIAL ACTIVITY	Cafe-bar		●
	Restaurant		●
	Tot lot	●	●
	Areas for barbecue	● (summer parties)	●
	Social club		●
SHOPPING AND ENTERTAINMENT	Shopping center		●
	Cinema-theatre		
EDUCATION	Kindergarden-nursery		
PUBLIC SERVICES	Gardening	●	●
	Garbage collection	●	●
	Garage	● (open)	●

CONCLUSION

In today's world, the values acquired by individuals serve as their evaluation criteria for their lifestyle. In order to evaluate one's life style, there is a need to consume products or activities conspiciously and symbolically. With the help of mass media and mass advertisings these prestigious houses are converted into desirable objects. Although the main motivations behind their formation are indicated as security, what determines their values in a social perspective, are the community that is belonged and opportunities provided by them.

Gated communities provide high security, prestige and homogeneous environment for middle and upper income levels. Meanwhile they cause social and spatial segregation.

The results of questionnaire indicate at the frequency of social relations which often show the value of the community. The majority of survey participants unwilling to move out of the walled community can be considered as a sign of their satisfaction

with their lifes. This result demonstrates a homogeneous group within the community but at the same time displays a segregated one from the city.

Since the beginning of this century, house has attained a new status as an investment tool, because a part of consumption cycle and can be alter according to vogue. At this point, it is worth to remember the famous operetta of Cemal and Ekrem Bey brothers' Lüküs Hayat (Luxury Life) in 1933. They explain with irony the elites' adoption of the western lifestyle. Back then, the vogue was to leave the lifestyle of mansion (konak) and to start a new lifestyle in an apartment. Similarly, living in a gated community can be evaluated as today's fashion of the new elites.

Since the beginning of this century, house has attained a new status as an investment tool, since it is a part of consumption cycle and can be altered according to vogue. At this point, it is worth to remember the famous operetta of Cemal and Ekrem Bey brothers' Lüküs Hayat (Luxury Life) in 1933. They explain with irony the elites' adoption of the western lifestyle. Back then, the vogue was to leave the lifestyle of mansion (konak) and to start a new lifestyle in an apartment. Similarly, living in a gated community can be evaluated as today's fashion of the new elites. Besides, gated communities can be claimed to help forming an orderly structuring in Istanbul, where 70% of the buildings are unlawful buildings. However, as a result of this structuring, city's north, which in essence belongs to whole people living in the city, is covered with gates, walls and fences in a way that makes it impossible for the rest of the public to use these areas. Both this isolation and the social imbalances in the gated communities' relations with their environment is concerning.

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SUSTAINABILITY

INTERIOR DESIGN FOR SUSTAINABILITY

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ABSTRACT

Interior design for sustainability is the process of designing elements of interior spaces that takes into account all the dimensions of sustainable development. Nowadays, in interior design methods recyclable and reusable techniques are used by some designers. This study aims to develop advisable recover methods and producing techniques for the interior design by analyzing the wastes ecologically. And ecological approaches to interior design are examined by means of some important design examples. In addition to recycling centred design methods are introduced in this paper.

Keywords: Sustainability, Waste management, Furniture design, Ecology, Interior design

INTRODUCTION

Interior design is a profession concerned with anything that is found inside a space: building elements, finishes, textures, lighting equipment, furnishings and furniture. All of these elements are used by interior designers to develop a functional, safe and aesthetically pleasing space for a building's user (http://en.wikipedia.org/wiki/Interior _design). Interior designers frequently collaborate with several professions to ensure that their designs are safe and meet construction requirements. In today, environmental engineer is one of them.

For users, interior design elements especially furniture make the architectural space into a useful and personal place where human activities can take place with comfort and convenience. For the designer, interior design elements are a key activity and all furniture types exist in an almost infinite variety of materials and constructions, sizes and styles. Many design methods, which defined as philosophy of design, are used within the context of interior design by designers. Choosing intelligently among them demands studying the characteristics of each material, the different construction techniques, styles and finishes. Nowadays, one of these important design methods is determined as "interior design for sustainability" by qualified person in the field of design. The term "sustainability" can be difficult to define for the contemporary designers and manufacturers. So, we must receive priority consideration the term of "sustainability".

ENVIRONMENTAL MOVEMENT AND SUSTAINABILITY

Nowadays, our planet has encountered some environmental problems which have resulted from the industrialisation such as air, water and waste pollutions, energy crisis. Thus, our planet has met new two concepts: Environmental movement and sustainability.

The word "sustain" has been in the language for thousands of years. It comes from the Latin "sustenare" meaning "to hold up" ie. to support. From there it evolved long ago to mean to keep something going or extend its duration, with an overtone of providing the support or necessities that made the extended duration possible eg. a sustaining meal. These days, for commonest non-specialised use of the word the closest synonym is "maintain" (Sutton, 2004: 4).
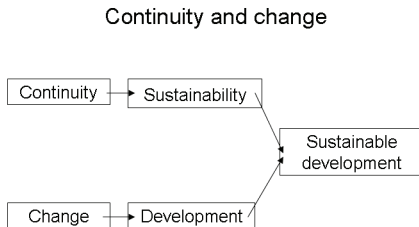

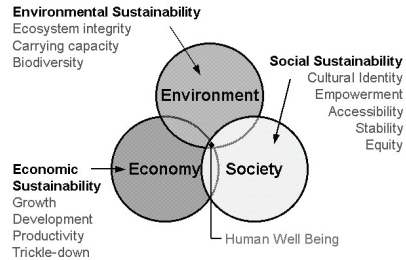Figure 1. Sustainability and sustainable development

Figure 2. The representations showing economy and society bounded by the environment: Three Pillars (http://www.arch.hku.hk/ research/BEER/sustain.html.)

Sustainability is a dilemma about continuity, development and change of life (figure-1). There are many things about life that we want to sustain or maintain and many that we want to change (Sutton, 2004: 7). So it makes sense to create the notion of "sustainable development" that combines desired change and desired continuity - for example we might change exploitation, unhappiness, poverty, destructiveness, etc. and sustain the rest of nature, trust, tolerance, honesty, happiness, health, etc. The dilemma of sustainability was influentially described in the Brutland report in 1987 and this term is the ability to maintain balance of a certain process or state in any system (Ramos & Silva, 2004: 1-5). It can be defined as the ability of an ecosystem to maintain ecological processes, functions, biodiversity and productivity into the future. The dimensions of sustainability are often taken to be: Environmental, social and economic, known as the "three pillars" (figure-2) (http://www.arch.hku.hk /research/BEER/sustain.html.)

Sustainable design, which was defined in the Brutland report, has emerged as a guiding paradigm in the creation of a new kind of built environment: One that "meets

the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987). Sustainable design evolved from a variety of concerns, experiences and needs:

- Energy efficiency gained importance during the 1970s oil crisis,
- Recycling efforts in the U.S. during the 1970s became commonplace and came to the attention of the building industry,
- In the 1980s, the "sick building syndrome" and "waste management" concepts emerged and concern for human health and productivity became important issues, and then they have been developed by some governments (Green Building Council, 2003, http://www.usgbc.org/, Bhamra & Lofthouse, 2007: 1).

Because wastes have become serious environmental problem in many countries, sustainable design mainly relates to waste management. Waste is an unwanted substance. It is also referred to as rubbish, trash, garbage, or junk depending upon the type of material and the regional terminology (Bilitewski, Hardtle, and other, 1996: 7). Waste management is the collection, transport, processing, recycling or disposal, and monitoring of waste materials (Demirarslan, 2005: 43). Firstly, we need to define these environmental terms. The term of waste management usually relates to materials produced by human activity, and is generally undertaken to reduce their effect on health, the environment or aesthetics. In this paper solid wastes are taken in hand in view of interior design for sustainability. Waste management includes of some steps: prevention, minimisation, reuse, recycling, energy recovery, and disposal. The waste hierarchy mainly refers to the 3Rs of "reduce, reuse and recycle", which classify waste management strategies according to their design ability.

Recycle means to process old, used items in order that the material can be used to make new products. Examples of things that are often recycled are glass, plastic, papers, aluminium cans, and batteries. Reduce refers to lessening the amount of items or resources that are consumed, using only amount that is needed, and looking for alternatives that will lessen our use. And reuse means extending the life or repurposing an item rather than discarding or throwing it away. Recycling is the processes of collecting, processing, remanufacturing, and reusing materials instead of discarding them. This helps conserve raw materials and energy that manufacturers would otherwise use in producing new products. Recycling also reduces the amount of material going into landfills and helps lessen the pollution that may result from waste disposal. Reducing our consumption of materials and reducing the waste of materials also add to the conservation of our natural and economical resources.
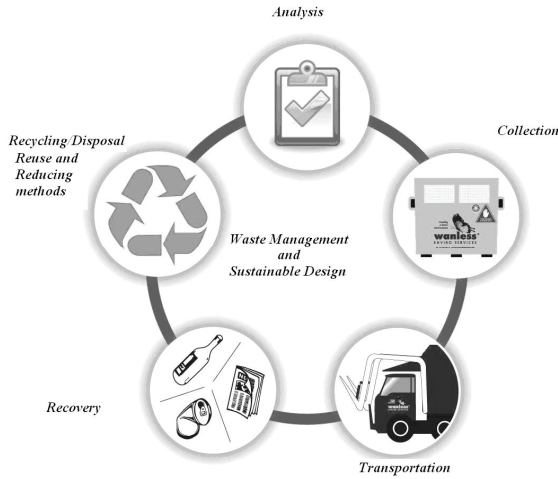
Figure 3. Waste management.

SUSTAINABILITY AND INTERIOR DESIGN

The environment pollution has reached her threat on a global scale, being on the verge of attacking the human kind and its vital space needed for living. One of the most important pollutants for environment is human activity. The human kind, looked as a living organism, produces waste during its existence. During the industrial and daily activities of the human kind result solid waste as: furniture, household items, cloths, etc. Much kind of these wastes are biodegradable and others are directly looked as toxic waste for the environment. According to percentiles, the quantity of the solid waste produced by the human daily activity are: 55 per cent paper, 9 per cent metallic waste, 14 per cent food waste, 5 per cent textile waste, 4 per cent wood waste, 9 per cent glass waste, 1per cent plastic waste, 3 per cent different waste (Dumitraş,2008: 56). Researchers forecast that the volume of the human waste will grown higher that their weight, because the role that will play the products packed in paper or glass. It is estimated that the human waste/capita will rise with: 1,5-2 kg paper waste, 0,5-0,7 kg plastic waste, 0,6 kg glass waste, and 3-5 per cent furniture wastes are derived from the existent waste. And so, the concept of sustainable design will become a vital issue to design world. For example, we have seen in Germany more than 1 million tons of waste from furniture each year. And Germany government has noted that Germany will not allow any disposal of furniture on waste dump sites in the future (Tischner, 2008). On the other hand, building construction and demolition waste in Canada is 9 million tons per year, representing one-third of all solid waste (Lee, 2008).

By starting from this statement, design for sustainability is defined as the process of designing goods and services that takes into account all the dimensions of sustainable development, and particularly environment, economics and social factors (Fiksel, 1996: 13). Sustainable design is not issues often considered by interior

designers in general practice. In today's environment it is essential to monitor and explore how the many component parts of architectural space can be designed to achieve a greater eco-friendly whole. In this context, sustainable interior design is defined as design interior spaces of future. And sustainable interior design involves a combination of values: aesthetic, environmental, social, political and moral. Five principles of a sustainable interior design: Healthful interior environment, ecologically benign materials, environmental form, and good design. These principles are about using one's imagination and technical knowledge to engage in a central aspect of the practice designing and building in harmony with our environment. In this study, the concept of interior design for sustainability is examined for the purpose of waste management and recycling of different materials. Especially furniture and other interior design elements, which are designed within the context of sustainability by some designers, are examined.

WHY IS THE INTERIOR DESIGN FOR SUSTAINABILITY?

Buckminister Fuller once said, "When you build a building, you rape the earth" (Lee, 2008). Designers of buildings, especially architects and interior designers, have an enormous impact on the environment, both present and future. Through designing the buildings and interior spaces, and the selection and use of materials, an designer's decision has enormous impact on the environment. Interior designers therefore consume more resources then any other profession. Interior designers should use the design method *"design for the environment"*, that is, to consider not just the manufacture but all the later phases in the life cycle of the new product including its use and disposal. Today's interior design concepts, manufacturer and furniture designers promote the use of waste management and sustainable design principles to preserve natural resources. As mentioned above, the saying reduce, reuse, and recycle known as 3R is a reminder of the vital need to protect our environment. Interior design for sustainability aims at integrating environmental aspects into product and design.

Since the late 1960s when Victor Papanek (Papanek, 1971: 6) first blamed the design profession for creating wasteful products and customer dissatisfaction, there has been a growing feeling in many environmental circles that design and manufacture is responsible for many of the man-made stresses imposed on the planet. As an interior design element, furniture and interior design elements (doors, windows, cupboards etc.) are very important issues for liveable environment. Generally, most of the negative environmental impacts of them occur in raw material and production, as well as end of life phase. In use phase most of them require material and energy, here emissions are relevant. Transportation and packaging are also critical. The other very important issue is the longevity of furniture, the longer a piece of furniture lives a useful life, the better in environmental terms. In sum, material extraction, material processing, manufacturing and transportation, using and wastes are important pollutant impacts for liveable environment in producing and using of furniture and interior design elements (figure-4).
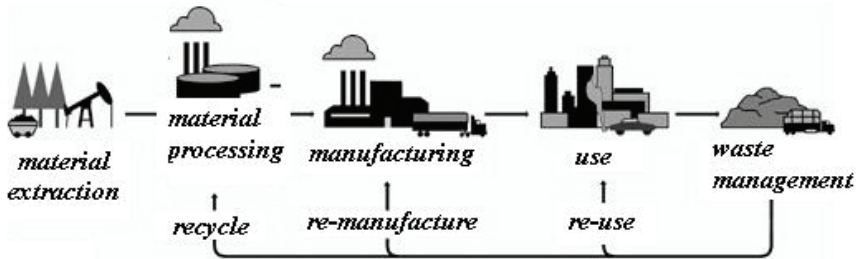
Figure 4. The lifecycle of interior design elements (Tischner, www.econcept.org).

In other word, some pollution steps have occurred during production and using flow of interior design elements. For example, in forest and furniture industries, the amount of wastes should not be condescending. According to percentile, in a furniture factory the quantity of solid waste of products is 30 per cent (Demirarslan& Demirarslan, 2008: 115). Some of regulated wastes of furniture industry are acids and acid solutions, alkaline and alkaline solutions, arsenic, cytotoxic wastes, copper compounds, timber preservative effluent and residues, wool scouring effluent and residues, textile effluent and residues (http://www.oodlesofpartsplus.com/ recycling_news_2.htm). Because some wastes include of materials such as glue, paint and varnish, their using as raw material has limited. In recent days, manufacturers and designers of interior design elements have used sustainable design methods to reduce of impacts of pollutants resulted from using and manufacturing of them. These are;

- Eco-design aims at integrating environmental aspects into product development and design.
- Design for 3R aims at closed loop economy: using natural resources including energy as intensively as possible in the economy. For this purpose, designers and manufacturers have commonly used the waste hierarchy refers to 3R: Reduce, reuse and recycling.

The goals of these methods are;
- smallest amount of inputs: materials and energy
- smallest amount of outputs: waste, emissions and harmful substances
- And best fulfilment of needs and best offer of service /function. In this way, it is possible to gain of environment- friendly interior design product (figure-5).

Figure 1. The goals of sustainable design methods in interior design

In addition, interior design element is a domestic solid waste. According to researches of Turkish Statistical Institute, in Turkey the quantity of domestic solid waste per capita 187 kg /year, the total amount of domestic solid waste is 12 megaton (Demirarslan &Demirarslan 2008: 115). 12 per cent of them are recyclable wastes. In this context, concepts of environment pollution, recycling and disposal of solid wastes have become an important issue for sustainable environment. Disposing of these domestic solid wastes such as to the garbage dumps has caused some pollution: soil, ground and water pollutions. Because, these wastes are stored in mattamore, they cause to loss of ground. In the Regulation of Hazardous Wastes Control, when it was firstly published in 1985 and was secondly published in 2005, the wastes of furniture manufacturing are determined as hazardous wastes (Demirarslan, 2005: 71). For these purposes as a design method, interior design for sustainability is used by contemporary designers.

THE METHODS OF INTERIOR DESIGN FOR SUSTAINABILITY

The evaluating of interior design elements in terms of solid waste management and the using of 3R methods in design of interior design elements are very important steps in interior design for sustainability. In this respect, before all else, important design principles of interior design proposed by us:

- Multi functionality and usability: Function is the main factor of design of interior design elements. As an ecological approach, using of multi-functional interior design elements causes to reduce of solid domestic wastes.

- Efficiency: An efficient functional design is often an important early goal for a sustainable design will inevitably have a major impact on the final building form. For example, on commercial building projects such as new offices or retail developments, interior designers often play a central role in spatial analysis based on the eventual use of the building. If a building can be designed to a high degree of efficiency then the amount of floor space required to house the activities within can be minimised. In recent years more and more companies have opted to go open plan because users, when properly informed about the benefits, actually prefer this as apposed to cellular working. Decisions such as this, although made primarily to reduce rental and energy costs, do have a significant positive green effect and should be identified as an additional benefit. A reduction in the required floor space will reduce the amount of land, materials, energy and waste required to build and run the building during its during construction and lifetime.

- Fit- out not new building: Fitting-out is a term used to describe the non-structural interior design of an existing building. A fit-out can have many advantages over new-build not least in terms of the projects environmental impact. The use of an existing building envelope is in effect recycling the majority of materials and energy used during the original construction. However, fit-outs often have a much shorter design-life than the base-building and therefore care should be taken in the selection of materials and construction techniques to maximise flexibility, recycling opportunities, simplicity of demolition and disposal.

- Materials: The choice of materials in any design dramatically affects the effect it will have on the environment. This extends right through from the energy used to extract, process, transport, construct, maintain, use and eventually dispose or recycling the material. A second important factor during these stages is the polluting effect the materials have on the environment and us. Many of the materials used in interior design, outside of the common range of materials used in interior construction, are chosen for their decorative or luxury characteristics. Interior designers often work on schemes where something is required in addition to the base-building materials already selected. Much of the time an additional or enhanced budget is allocated to finance these often more expensive finishes. Generally, the reason why these materials are more expensive is often because they are scarcer, consume more energy and create a greater amount of polluting by-products. Many unsustainable materials are still used in interior construction and it is a particular responsibility of the interior designer to pay close attention to the characteristics of the conventional and special materials they are proposing or specifying. It is often expected by occupiers that interior design areas will be 'something special'.

- Simplicity: For an ecologic interior design element, designer should consider an ergonomic form by usage of more little material. And designer should abstain from ornamentation. Consequently, these design cautions will behind on constitution as solid waste of interior design elements. Designer should use natural material in interior design instead of composite and artificial materials. The amount of solid waste in Turkey are 4 per cent plastics, 2 per cent glass, 2 per cent metal, 11 per cent paper and cardboard, and 10-15 per cent of them are recyclable. 48 per cent is paper- car board, 27 per cent is glass, 14 per cent is metal and 11 per cent is plastic material of these recyclable materials (Halkman and Atamer., 2000: 1029). So, using of recyclable materials in interior design is preferred by environmentalist designers. In addition to, using of some furniture components are reduced by designers intending to reduce of constitution of solid waste.

- Flexibility: The flexibility of interior spaces is likewise a key issue in sustainability. If buildings are designed to allow a greater degree of flexibility occupiers can adapt the space according to their evolving needs without reconstruction or regularly moving to new premises. Additionally, flexibility will mean the interior spaces can accept a variety of occupants during its life without extensive constructional changes with the potential to increase useful lifespan. Because of ever- changing household needs, interior space and its equipment especially furniture should be considered flexible. In this context, modular, portable, sectional and flexible furniture design has become an important issue.

- Life of Using: The world- shaking consumption policies are effective factors for using of furniture and in accordance with changing decoration styles households frequently change their furniture and household items. Hence, constitution of solid wastes has occurred. For this purpose, different mass production technologies have been used and cost analyses have been ascertained. In this respect, detail drawings of interior design elements should be considered by designer.

According to these methods of interior design for sustainability, the context of recovery of furniture and daily use- household items which have been used in interior

spaces have become an important concept. Within the context of recovery of interior design elements;

- Reuse of interior design elements or remanufactured interior design elements
- Recycling of materials

And now, we should explain these methods:

- Reuse of interior design elements or remanufactured interior design elements: Furniture can be very bulky (figure-6). The disposal of furniture more rapidly increases the rate at which landfills will reach their capacity. In this method, existing furniture or household items are taken in hand once again and are designed as new furniture. Reuse or remanufactured is to use an item more than once. This includes conventional reuse where the item is used again for the same function and new-life reuse where it is used for a new function. Colour, fabric and other elements of furniture or interior design elements typically become worn or outdated over time. This method involves disassembly, cleaning, repair and replacement (figure- -7). As a result of changing of household needs or ever- changing design movements, end-of-life furniture or household items cause some environment pollutions as solid wastes. Especially, in some The European Union countries as England (Municipality of Trondheim) and Germany (Municipality of Oberhausen) end-of-life furniture and items are collected by municipalities and several non- governmental organizations (Demirarslan& Demirarslan, 2008: 118). And then they are restored and allocated to demanding person in an effort to reduce of solid wastes. Hence, furniture as solid waste is used as original form. In this situation, reducing energy consumption and solid waste amount in furniture production is possible. In this purpose, municipalities in Europe Union put the law in operation about collecting and reusing of furniture and household items.

In 1930's Alvar Aalto used this design method for Artek Company by means of environmental approach (figure-8). Nowadays, Tom Dixon has used same design method for same furniture company, too. Reusing furniture conserves natural resources by extending the life of resources already in circulation, such as aluminium, steel, plastics, and synthetic fibres. Reusing is the ultimate form of recycling, and provides both societal benefits and added value to existing components. Reused furniture is stripped to its bare parts, reassembled, and made to resemble a new product - all at lower costs. Moreover, reusing furniture creates resources for lower-income families, non-profit organizations, and other needy causes.

Figure 6. Furniture is a solid waste as garbage.

Figure7. A Couch made from two out of date chairs designed by: Rachel Avivi, a new chequered wardrobe made from a old wardrobe (Demirarslan& Demirarslan, 2008:120).

Figure 8. A new armchair design made from old plastic chairs and mat, designed by Humberto and Fernando Campana, design for reusing furniture, designed by Tom Dixon.

- Recycling of materials: In this method, interior design elements are designed by using of different solid wastes. Recycling is the breaking down of the used item into raw materials which are used to make new items (figure-9, 10, 11). By taking useful solid wastes and exchanging them, without reprocessing, reuse help us save time, money, energy and resources. In broader economic terms, reuse offers quality products to people and organizations with limited means, while generating jobs and business activity that contribute to the economy.

Both methods of them conserve labour and manufacturing energy, particularly the energy required for production when metals are kept out of the smelting process. They also reduce the pollution caused by the manufacturing process. In particular, carbon monoxide (CO), carbon dioxide (CO2), sulfur oxides (SOx), nitrous oxides (NOx), volatile organic compounds (VOCs), and particulate matter are all reduced by recycling furniture. Lower levels of these contaminants achieve a reduction of global warming, acid rain, photochemical smog, and other forms of air pollution.

Figure 9. Stools and chairs made from old bicycle items designed by Andy Greg, and a TV unit made from old packing designed by Tom Ballhatchet.

Figure 10. An armchair, pouffe and coffee table made from wooden packing designed by Ezri Tarazi, and "Whiggle Chair" made from waste card board designed by Frank Gehry.
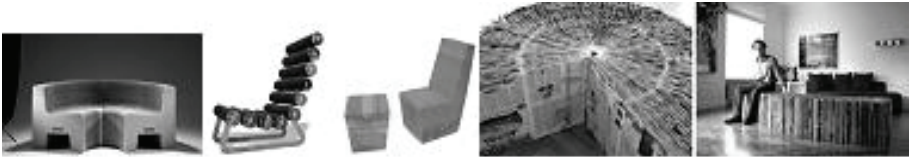
Figure 11. Some furniture design examples made from low-cost recycled materials.

Figure 12. A kitchen made from polyurethane wastes designed by Milestone design and an interior of a shop made from paper wastes designed by Elina Drossou (Demirarslan& Demirarslan, 2008:125).

Figure 13. Transparent ceiling of recycled doors, New York, by Japanese artist Tadashi Kawamata

Figure 14. An interior design of office space made from paper box (Demirarslan & Demirarslan: 125)

Today's recycling of materials or remanufactured interior design elements have generally been preferred as office furniture by companies and office offers corporations a way to manage their supply of furniture once it's been used, while

giving companies an attractive alternative to purchasing new products. Not only does remanufactured furniture look as good and perform as well as new office furniture, but companies can expect an average savings of 30 to 50 per cent just by buying recycled (figure-12, 13, 14). Remanufacturing creates multiple lives for everything from machinery to consumer products, and it can save companies 30 to 70 per cent over original costs. In addition, remanufacturing typically uses only about one-fifth of the energy required for first-time manufacturing. The new business model of today integrates environmental responsibility with environmental opportunity to produce economical value. Within this model, recycling of materials and remanufacturing are applied as strategies for investment recovery, rather than waste-disposal management (http://www.oodlesofpartsplus.com/recycling_news_2.htm).

CONCLUSION

According to Masuteru Aoba, an art director who devotes himself to ecology, design must be take into account resources, environment, energy, convenience, beauty, and should be reasonable, as well; it must consider recycling (Aoba, 1990). In addition to, many designers like Buckminister Fuller, Victor Papanek have related in recycling. Victor Papanek and Fuller also argue for the recycling of the waste products of Western society, and for simple, low-tech applications for the third world. While Papanek and Fuller appeals to recycling, according to Ezio Manzini, design can not change the world but is capable of giving form to a sustainable society. By give form he means to visibly amplify new types of demand and behaviour, together with proposing sustainable criteria for quality. According to Mierle Ukeles, who is an American artist, "the design of garbage should become the great public design of our age" (Press, Cooper, 2003: 137). According to all of them, we can categorize the process of interior design for sustainability in two groups: Reusing and recycling (figure-15).
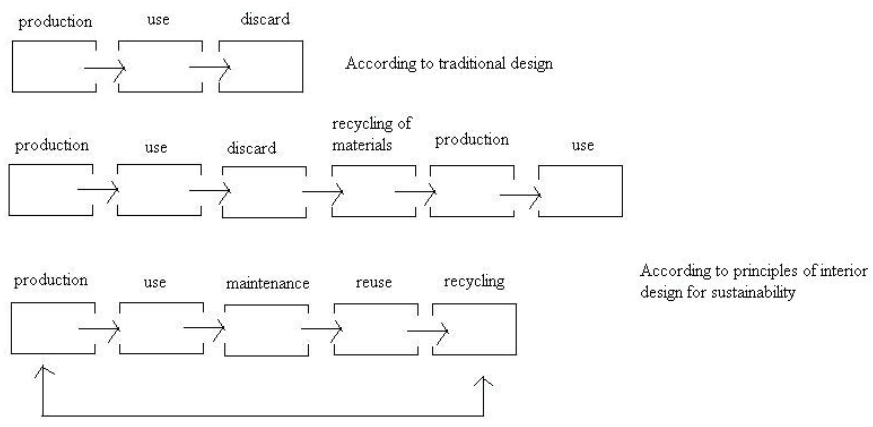

Figure 15. We can categorize the process of interior design for sustainability.

Interior design for sustainability is an effort as well as a reaction to the crisis that our future is facing. This crisis is the depletion of our natural sources because the population and our use of earth have exceeded its sustainable limits causing damage to eco systems and biodiversity. In this context, the aim of sustainable interior design is to minimize environmental impact. This crisis may be solved by taking certain measures such as using ecologic materials and by using less harmful products and processes in our design. Such sustainable buildings and interiors may be designed that are not harmful to their occupants or to the larger environment. Interior design for sustainability applies in every field of interior design from accessory to space. This research paper investigates the use and appropriateness of sustainable methods (figure-16).
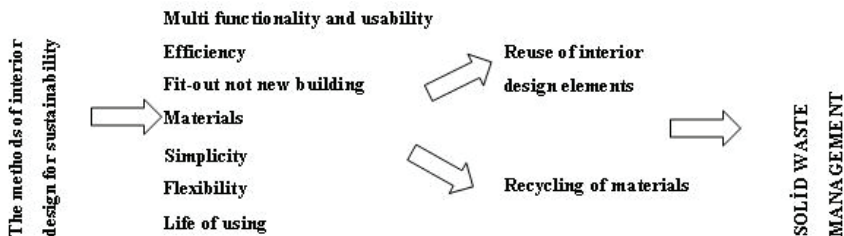

Figure 16. Interior design for sustainability.

As is understood, benefits of interior design for sustainability;

- minimises adverse impacts on the environment, during construction and in use, whilst enhancing the natural surroundings;
- maximises the positive contribution to living activity through the whole life of the interior spaces;
- helps to encourage productivity through being flexible for future use, building cost-efficiently and improving people's living environment;
- save money
- conserve resources
- conserve energy and reduce air pollution
- divert material from disposal
- Implement social responsibility.

According to Victor Papanek, "design, if it is to be ecologically responsible and socially responsive, must be revolutionary and radical in the truest sense. It must dedicate itself to nature's principle of least effort. That means consuming less, using things longer, recycling materials, and probably not wasting paper printing books" (Papanek, 1971: 8). The designer must be conscious of his social and moral responsibility. For design is the most powerful tool yet given man with which to shape his products, his environments, and by extension, himself; with it, he must analyze the past as well as the foreseeable future consequences of his acts.

So, designers will consider these environmental design methods in their interior designs in future for a liveable environment. Accordingly, some principles are accepted in interior design education:

1- Design studios should touch on more real life problems.
2- A fabric of many voices in studio instruction should be developed.
3- In the student's education designer should be accepted as a team player.
4- Interior design education should have an interdisciplinary/ collaborative approach among designers, sociologists, ecologists, etc.

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THE NEW DEVELOPMENTS IN SUSTAINABLE SHOPPING MALLS

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ABSTRACT

This article is based on the developments and design principles of sustainable shopping malls. The use of energy systems in lighting and ventilation, recycled, reusable and local materials in interiors and green roofs are contemporary issues for the sustainability of the shopping environment. The use of these sustainable design principles is important for designing healthy building interiors. Thus, the aim of this paper is to examine the latest innovations about the design principles of sustainable shopping malls. Hence, placing an emphasis on staff and shoppers comfort and providing them a sustainable environment in order to accelerate the time spend in those areas.

Keywords: Sustainability, Environment, Architecture, Commercial building, Shopping mall

INTRODUCTION

Every building in our environment should be evaluated according to its greenery, water and waste systems, construction systems, urban planning and finally interior design and materials. By this way we can understand the extent of sustainability of the buildings. "Sustainable Development" concept has been widely recognized since 1987. The focus has primarily been on economics and environment. The health issues and the social values created by the micro and macro-environments that form cities are not usually considered by most business and urban design sectors, although the majority of policy oriented efforts, such as Agenda 21, Health for All and WHO Healthy City projects, have included and emphasized the desire to consider these factors in addition to creating economic sustainability. Hancock (1996) suggested a concept model of sustainable development in the WHO Healthy City project, which is based on the equilibrium, liveability, and sustainability of relationships between environmental, economic, and social factors as well as integrating healthy sustainable development.

Today, we can see many environmentally sensitive large-scale buildings. Designers express the new scale of sustainable technologies by imaging entirely new types of living and working interiors and interiors that feature multi-level gardens, healthy

materials, amorphous shapes, and high-tech techniques. Over the past five to ten years the field of commercial architecture has developed abundant expertise and understanding of the benefits that a good environment has a positive effect on the users of the space. This is inherently related to sustainability, especially in the case of interior environment. Lighting, thermal comfort, noise and air quality have main effects on the users of these kinds of buildings. It is acknowledged that the choice of internal materials can have a significant effect on the quality of environment. The aim of this article is to examine and to understand the nature of sustainable design understanding and sustainable interiors in shopping malls and to present sustainable design guidelines architects and interior architects can use and discuss while designing sustainable shopping malls. Finally, the study is intended to call attention to the importance of using sustainable design principles and the need to establish sustainable architectural design as a tool in sustainable shopping malls. New examples of environmentally friendly shopping malls will be examined and analyzed in this article as chosen samples around the world.

SUSTAINABLE SHOPPING MALLS

Nowadays, the environmentalists accept that the rapidly growing economical structure needs more constructions everyday. However, they argue that, this could be achieved by employing natural or with least processed materials. When speaking about buildings with least environmental impact, we mean the sustainable ecological buildings. Although it has been believed that we should not construct huge buildings that disturb the eyes; the most important thing is not the size of the building itself but the design and location of the building and questioning the environmental impacts of the building to the built-environment (Williams, 2001).

Recently, in the context of sustainability, architecture seems to act as a container of changing circumstances, where individuals and groups play an important role in the creation of their habitats, and at the same time it provides opportunities for long term flexibility and adaptability. So today's architecture must be capable of sustaining changes and must be based on long term user needs. However, architecture does not contain just the foundation and outer walls; besides this, the complete design infrastructure of urban planning, interior, landscape, materials, product and energy efficiency systems are part of the sustainable architecture (Crowther, 1992:89).

Malls are one of the commercial centres that have been social gathering places for their communities in cities. People come to shop at the stores, and gather in the common areas. Hence, planning is one of the main factors that have shaped the location and physical form of malls over the last 20 years. Accessible locations for development, and the drive for the highest design quality, planning will influence the location, form and type of commercial development over the coming decade. The commercial areas must respond by making the best of existing assets, addressing the sustainability, and design agenda (Bonda and Sosnowchik, 2007:211-215).

It is argued that sustainability has modified the design of shopping malls. Actually there are two reasons for this; first, the old shopping areas were designed with a much more sustainability understanding where as; the relative efficiency of today's shopping malls, with their dependence up-on air conditioning, electric lighting and

mechanical ventilation. Secondly, the new awareness of beneficial effects of more natural methods of lighting and ventilation upon psychological stress levels on workers and shoppers productivity. Hence, the new type of mall design could be characterized as follows (Edwards, 2006:166);

- shallow floor plates (12-15m) for maximum daylight and ease of cross ventilation,
- use of glazed malls or atriums to promote solar- assisted ventilation,
- height to promote stack-effect ventilation,
- orientation on east-west axis to give long north and south elevations,
- solar control by means of external screens,
- use of thermal capacity to moderate temperature,
- air-conditioning restricted to hot spots.

The general characteristics of green malls could be categorized by four sustainable design criteria –energy, water, materials and greenery. It is not possible to use all these general and specific features in one shopping mall design but; at least if a 75% of it could be achieved in designing a mall than it could be considered as a green shopping mall. Since the main part of the energy used in a mall is derived from HVAC systems, particular efforts could be put into action in order to reduce the use of energy consumption. The easiest way is to optimise the use of daylight and the use of low energy light fittings. The penetration of daylight could be achieved by the use of daylight shelves outside or by improving the window design (Edwards, 2006:169). Today, we could see more shopping malls that are more in line both with the environment and the needs of us as users. Below, the design criteria of sustainable shopping malls will be analyzed in detail.

SUSTAINABLE DESIGN CRITERIA IN SHOPPING MALLS

The development of malls and other similar areas have begun to change from the early 1960s until today. Concern for environment and sustainable development has been growing all over the world since the publication of Brutland Report. Yet it is not until recently that sustainability has been understood by the society resulting in significant impacts which influence the nature of shopping places. The term "Sustainable Development" has first defined by the UN in the Brutland Report of 1987, as a development that "meets the needs of the present generation without compromising the ability of future generations to meet their needs" (WCED, 1987). Following that report the sustainability agenda has evolved around a dedication to the triple aspects of sustainability, which are environmental, economic and social sustainability of development proposals. This part outlines the design features (energy-natural ventilation and lighting-, green roofs and green materials) of sustainable shopping malls that are likely to play a major role in cities.

Energy Systems

Energy is the precondition of any civilization. Societies drew their energy needs from human and animal muscle power; or from the sun, wind and water. Industrial societies began to produce the energy out of irreplaceable fossil fuels-oil, coal and natural gas. This revolutionary shift meant that for the first time a civilization was

eating into nature's capital rather than merely living off the interest it provided. Any civilization must draw on an amazing variety of energy sources-hydrogen, solar, geothermal, perhaps advanced fusion power, as well as other energy sources not yet imagined (Onal, 1997: 26). Energy conservation in sustainable buildings is among the most important issues in contributing to the solution of the contemporary environmental problems.

The sustainability agenda has seen exponential growth all over the world in recent years. As part of the debate, the issue of carbon neutrality has arisen, yet it is not widely recognized by the retail sector. Being carbon neutral requires a process of assessing the carbon footprint of a development, and then taking measures to reduce this number to zero. The elements that should be considered within this approach are reducing consumption of operational energy, embodied energy and water and waste. Accordingly, the designers target to minimize the carbon emissions in shopping malls with the new innovations in natural ventilation and wind catchers and natural lighting and new artificial lighting systems; these could be analyzed in order to minimize the carbon emissions and low energy use .

Wind Catchers

The green-building movement has renewed interest in natural ventilation as a means of reducing energy use and cost while maintaining healthy and comfortable indoor conditions. Recently retail designers are increasingly cooling shopping centres to levels closer to the outside temperature with enhanced comfort for the consumer and users. By mixing the use of wind and sun, wind catchers make a huge contribution to sustainable design.

Traditionally, wind catchers have been used in buildings in the Middle East for many centuries. They were constructed from wood-reinforced masonry with openings/louvers above the building roof line with a height between 2m to 20m. Taller towers could capture winds at high speeds with less dust (Elmualim, 2006:165-182).

In its simplest form, natural ventilation is as simple as operating a window or door; it permits some form of air exchange with the outdoors. Wind catchers break the mould of window or vent-based, low-level cross ventilation. They instead control ventilation at high level, taking the advantage of the wind pressure that is always present. As a consequence of their shape and position, wind catchers could normally utilize wind from any direction and via the use of dampers of any speed (Philips, 2008:34-38).

Wind catchers could be used in all types of buildings. Even in mechanically cooled buildings, there are some places such as hallways, atria and lobbies that could benefit from natural ventilation. Wind catchers would be more effective means of ventilating large, deep-plan buildings than side window vents. The rate of ventilation could be controlled and integrated with other ventilation strategies such as the stack effect. Hence, wind and sun could be jointly employed to reduce the demand made on mechanical ventilation systems. In this regard, wind catchers have become popular with green architects.

As a general rule; catchment area of a wind catcher is the same as that which would have been provided by wall openings. Since the roof-mounted wind catchers are unobstructed and there is constant flow of fresh air of wind direction. Wind catchers are divided into two chambers; one for incoming air and the other for exhaust air. The external wind movement creates a negative pressure to one side while pressuring the other. As a result; air is driven into the building and controlled by dampers at ceiling level. Wind catchers could be integrated with sun catchers, which is a system that brings natural light into the building via a silver sun pipe placed in the centre of the wind catcher unit. It has the advantage of conveying natural light and natural ventilation simultaneously, providing a useful technology for deep-plan buildings.

As a consequence, wind catchers are environmental friendly, energy saving technology for deep-plan buildings and shopping centres where external obstructions or other things such as noise and air pollution restrict the use of window vents. Since no power is required to move the air, the total energy load of ventilation or air conditioning is reduced. Edwards (1998: 2-23) claimed that the use of wind catchers could reduce the energy load of ventilation by 40% with initial capital costs 15% lower than conventional solutions.

Natural Lighting and New Lighting Systems

Designing shopping centres with natural lighting systems focusing on the reduction of electrical energy use could help to reduce the demand for energy. In today's competitive market, the appearance of space is crucial and lighting plays a vital role. Studies have shown that shoppers tend to buy more in a day lit environment, as sun contributes positively to their mood and natural light lends greater appeal ? to the merchandise (Bennett, 2006:38-44). In addition to attract the customer through the entrance and interior display lighting scheme and merchandising, lighting is increasingly an element of the environmental image.

Solar radiation is the basis of photosynthesis and primary source of renewable energy. Solar power could be used actively to generate electricity in commercial buildings with the use of photovoltaic cells. This system also used for lighting and many designers combine passive solar systems with the maximization of daylight. Artificial lighting is a major source of energy use in many commercial buildings. Lighting could account for about one-half of the electricity consumed in a building (Edwards, 2006:72-82). The cheapest way to reduce energy used in lighting is to take full advantage of daylight. Daylight penetration could be improved by the use of daylight shelves positioned outside of the building. If they designed correctly, they could increase the level of daylight inside the building without glare or sharp contrast in the distribution of rays coming in through the window into the interior. The main advantage of PV technology is the way that sunlight is converted into electricity. This allows lights, computers, TVs and other electrical equipments to be powered without restoring to imported energy. In commercial applications where much of the energy load is electricity used for interior lighting and equipments.

The design of windows plays a vital role in the shopping centres where natural lighting is preferred. Actually windows are complex design elements and require attention to size, shape and position as well as the angle of splays, position of blinds

(internal and external) and the size of openings. Besides, the type of glass and its coating have a big impact on energy performance. The energy performance of windows depends on their thermal insulation, useful solar gain and air infiltration (Edwards, 2006: 149).

In 2002, a new glass was introduced to the market as "hydrophilic" glass by the Pilkington firm. This was a self-cleaning glass that goes under the name of Pilkington Activ. Layers are deposited on the glass during the float manufacturing process to produce photovoltaic characteristics on the glass. After exposure to UV light in day light, the coating reacts chemically in two ways. First, it breaks down organic deposits – tree sap, bird droppings etc- by introducing extra molecules of oxygen into the deposit. Otherwise these organic deposits have the effect of accelerating rate of decay. Second, the coating causes the glass to become hydrophilic. This means that droplets of rain coalesce to form sheets of water that slide down the glass, removing dirt particles in the process. The best part of the product is that the coating stores enough UV energy during the day to sustain the process overnight. Saving on cleaning costs, particularly in the case of commercial buildings like shopping centres could offer considerable savings for the management especially if there is an atrium in the mall (Smith, 2007:136).

In most of the shopping centres, skylights, photovoltaic integrated clerestory windows could be seen in order to accelerate the daylight level in the mall. There are new artificial lighting technologies that are energy efficient. One energy efficient product that could be used in the shopping malls is LED's and fibre optics, with their long life, low maintenance and energy efficiencies. A common complaint about the LED's is their white light output, but that is improving (Bennett, 2006:38-44).

Greenroofs

Buildings designed for sustainability are rapidly gaining public and private acceptance all over the world and are setting a new architectural standard for the future. Greenroofs play an important role in promoting sustainable design. Designing with greenroofs offers an ideal architectural integration of aesthetics, economics and ecology. Architect Patrick Carey states that "greenroofs are the greenest thing one can do in construction except not to build at all". Greenroof technology offers a viable roof alternative and could serve as an appropriate tool for addressing an urgent urban ecological development needs (Velazques, 2005: 61-71)

A greenroof is essentially a vegetated roof system that is placed over a waterproof roofing membrane on new construction or an existing building. The plants and soil take the place of conventional roof coverings and protect the roof membrane. The greatest potential of greenroofs lies in their capacity to cover impervious roof services with living, breathing, permeable plant material. Greenroofs are healthy, sustainable and regenerated roof landscapes that can help to protect our environment. They are one of the sustainable design elements in today's ecological design.

Actually, combining plants with architecture is not a new idea. Since early times, natural and created landscapes have been integrated into the urban environment. The slopping walls were used at Ziggurat of Nana (2100 BC), sod covered roofs were

used in Iceland and Scandinavia (1000 AD), grass roofs were introduced in Canada and Northern United States in early 19th century. Hence, the true modern greenroofs were introduced in Germany in the early 1970's by manufacturers, landscape architects, and university researchers (Gissen, 2003:88-126).

There are two main types of greenroofs - extensive and intensive. An intensive grrenroof requires a minimum of 30.5 cm of soil depth. These systems could support a wide variety of plants, from flowers to small trees and could be used to achieve a landscaped environment. Most of the greenroofs on shopping centres are extensive greenroofs. These roofs typically require only to approximately 10 cm of soil, thus they are lighter and less expensive systems. They are usually planted with hardy, drought resistant, low-growing plants that are able to withstand hot and cold climates and require little maintenance. Greenroofs costs more than traditional roofs as they require more material and labour for installation, but they have many environmental (storm water management, water quality improvement, heat mitigation, air quality improvement, erosion and sedimentation control, wildlife habitat conservation, creation and restoration), economical (increase roof life, reduce energy costs, reduce heat-island effect, combine with solar power), aesthetical (visual relief, integration into natural surrounding, different design possibilities) and psychological benefits (making employees happier) (Velazques, 2005: 73-85). These benefits could be extended from the rooftops to the sides of the building by living or green walls, where plants are grown on a vertical system. This system based on principles of hydroponics for moisture and nutrients. Green walls could also be used to link rooftops to the ground to create a green corridor and provide shadings for the buildings. Nowadays, the standards and policies that would make inclusion of greenroofs and walls in buildings are becoming much easier (Taylor, 2008: 18-21).

Green Materials

As a general rule, natural materials are also healthy materials. We can construct such buildings by understanding the chemistry of natural materials. This idea suggests a radical change from toxic materials to healthy building materials. It is a design strategy animated by ecological intelligence. Thus, the building design and the materials used in construction and interiors of the buildings necessitate re-materialization, which can be defined as a kind of recycling that adds value to materials and allowing them to be used again and again in high quality products (Gissen, 2003:126-154). When this process is applied in shopping malls, it creates a relationship between materials formed naturally and the chemistry of buildings. By using these kinds of materials, our goal should be to design more life supporting structures that are environmentally friendly with more habitats, clean water, fresh air, biological and cultural diversity and pleasure.

"Reduce, reuse, recycle and recover" is eco-efficiency's popular four "R"s of sustainable design. Thus, recycling building materials is one of the techniques being employed to reduce the environmental impact of buildings. Product can be considered "green" for many reasons. Some products are considered green because they are manufactured in a way that release minimal pollutants or avoid toxic by-products. Other products are green because they minimize the negative effects of construction, or because they help a building minimize its use of energy or water. The

raw materials used in making them may come from sources considered environmentally friendly, such as wood from certificated well managed forests, recycled materials, and rapidly renewable agricultural fibres (Hosey, 2005:106). Products also can be green because they do not introduce pollutants into the built environment or they help to remove pollutants.

In choosing materials, ecological strategies include avoiding resource depletion by using sustainably harvested and rapidly renewable materials and alleviating global warming through production techniques with low carbon emissions. Economic strategies include using durable materials to increase building longevity and energy efficiency, and reduce operational and maintenance costs. Socially responsible strategies include using healthful finishes and increasing community support through careful product selection. It is recommended that in building construction, materials originating within 500 miles of the construction site are used (Bonda and Sosnowchik, 2007:100-115). First of all; this will limit the travel distance and avoid the energy and cost associated with transportation. Secondly, it supports the regional economy. Sustainable materials found in the region also reflect the architectural identity of the region. Local sourcing can also increase quality and performance. Regional materials are often better suited to the climate conditions and therefore can improve comfort, durability, maintenance, insulation and energy performance.

There are also many smart materials and fluids in the market that could be used during the construction of a mall. According to Philip Ball; smart materials represent the epitome of the new paradigm of materials science whereby structural materials are being superseded by functional ones. There are passive and active smart materials. Materials like thermochromatic glass that darkens in response to heat are passive smart materials. An active smart material is not only controlled by external forces but also by some internal signals. In these systems, an active system usually involves a feedback loop that enables the system to response and change the environment (Smith, 2007: 135-139).

CONCLUSIONS

Tracing the influences of modernism, we can begin to see how architectural form influences culture, and how materials sensitivity and design issues raise serious cultural questions. This is where today's architects should be careful. A good design should force its users to examine the social roles and express creativity in reframing or reinterpreting those roles within the parameters of the built environment. Today, sustainability is progressively seen as the only rational design issue in architecture of the 21st century. No architecture has any validity unless it is environmentally sustainable. In terms of sustainability, technology is a bridge between social, economical and aesthetical dimensions. This brings about the new types of buildings, technologies, and new agenda for design where the habitants and nature find a median. The commercial division is a remarkable consumer of materials both during the construction and refurbishment and this continue throughout the life of the building. In the commercial agenda the green material is defined as a material that preserves natural resources and reduces environmental deterioration. Also the materials' toxicity and its impact on the air quality are important concepts in the sustainability agenda.

A sustainable shopping mall not only fulfils the interior architect's structural and ecological aims, but also balances a set of human, architectural and environmental goals. The design process of shopping malls will continuously upgrade itself with sustainable criteria. Also the innovations will continue in construction process of malls. Recently the environment friendly structures are becoming more popular and increasing rapidly around us. The designers have understood that a shopping mall can be sustainable as well as providing shoppers and the working staff with a major support in shopping process. Consequently, we can say that sustainability has become an important component of shopping malls.

Sustainable design guidelines in shopping malls will help to understand the concept of environment friendly malls and interiors and the designers could take these guidelines as a basis for sustainable environment improvements. Using green materials with low carbon emissions, materials that can be maintained (i.e., cleaned, refurbished) easily and the use of energy saving HVAC systems are very important not only in shopping malls but also in other buildings. As a general rule; the greater the naturalness of shopping environment, the greater the economic, social and aesthetical benefits through enhanced productivity.

To achieve a sustainable shopping mall, shallow mall plans that provide an interface between inside and outside with green walls and roofs should be preferred in order to maximize the greenery. The window design of the mall should be compatible with intended function as well and also the sustainability concept would be taken into consideration. This means that the window sizes and places should be planned from the viewpoint of reduced electricity use and maximised day light penetration to the inside. The shopping zones, social and functional areas in the malls should also be clearly defined in order to plan the correct HVAC systems. It is important to avoid using surface finishes that need frequent redecoration, or are difficult to service. Using green and intelligent materials that improve comfort, durability, maintenance, insulation and energy performance should be preferred. In addition, a building management which responds quickly to internal environmental problems is also a necessity. Only with these aspects taken fully into account can a mall be named as a sustainable shopping mall.

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THE CONCEPT OF SUSTAINABILITY AND RENEWABLE ENERGY PROCESS IN THE TECHNOLOGICAL ERA

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ABSTRACT

Many of the problems associated with energy consumption are due to the dramatic increases in the world's population. More energy is needed to meet the demands of additional people and the subsequent need for increases in products and services. To avoid the catastrophic conditions, humankind must understand population growth rates and manage the planet within the constraints of its natural resources. The world cannot be sustainable without planning for the future. Solutions for the environmental, societal and economic issues must be approached, holistically. Designing sustainable buildings requires an understanding of how the built environment affects people and nature. Ascending costs, increasing fossil fuel consumption, environmental pollution, depleting natural energy resources oblige the world countries to improve and use the renewable energy alternatives. Designing green buildings which can produce the amount of needed energy by using renewable energy resources will be the expected solution for a more sustainable future. Renewable energy resources can be defined as ecological and zero-emission energy type with an amount of unlimited potential. The inestimable potential of sun, wind, wave, bio mass, geothermic, hydrologic and hydrogen energies are the main types of renewable energy resources. The aim of this study is to examine the usage level of natural resources and innovative application technologies of renewable energy in the built environment. The storage, transport and application systems of renewable energy will be analyzed with contemporary architectural samples, chosen from all over the world.

Keywords: Sustainability, Ecology, Renewable Energy, Architecture, Environment

INTRODUCTION

The demand of renewable energy is becoming more critical with mounting anxieties about climate change and the long term outlook for energy. As the century progresses, the world will increasingly be subject to stress from global warming, an increasing population and the explosive economic growth of some developing countries. The social and economic survival of the planet will ultimately depend on the capacity of carbon neutral energy systems to replace reliance on fossil fuels.

By absorbing infrared or heat radiation from the Earth's surface, greenhouse effect present in the atmosphere, such as water vapor and carbon dioxide. These gases act as blankets over the Earth, keeping it warmer. This has been resulted by the climate changes and some eco system problems. The existence of this greenhouse effect has been known for nearly two hundred years. Since the beginning of the industrial revolution around 1750, carbon dioxide gas has increased by more than 30% and is now at a higher concentration in the atmosphere than it has been for many thousands of years. This increase is due to the burning of the fossil fuel coal, oil and gas. Over the twenty first century the global average temperature has been risen by between 2 - 6°C from its preindustrial level. Large changes are being observed in Polar Regions. If the temperature rises more than 3°C, it is estimated that meltdown of the ice cap would begin, which would add at least 7metres to the sea level. A rise of this amount is very high and adapting to this will be difficult for humans. One of the most obvious impacts will be due to the rise of the sea level that occurs because ocean water expands as it is heated. This will cause large problems for human communities living in low lying regions (Smith, 2001:33-41). (Example; Bangladesh, South China, Islands of Indian, etc.)

The extremely unusual high temperatures in Central Europe during the summer of 2003 caused the deaths of more than 20.000 people. Scientists' leads to the projection that such summer are likely to be average by the middle of the twenty first century. Also, there is a tendency to more intense rainfall events in some parts of the world and less rainfall in some other areas. Sea level rise, changes in water availability and extreme events will lead to increasing pressure from environmental refugees. There could be more than 150 million refugees by 2050 with this rapid climate change (Houghton, 2004:3).

Global emissions of carbon dioxide to the atmosphere from fossil fuel burning are currently approaching 7 billion tones and rising rapidly. Unless strong measures are taken, they will reach two or three times their present levels during the twenty first century. In order to stabilize the carbon dioxide concentrations, emissions during the twenty first century must reduce to a fraction of their present levels before the century's end. In 2004, the International Energy Agency (IEA) published a World Energy Outlook that, in its words, 'with present government policies, the world's energy needs will be almost 60% higher in 2030 than they are now.' Over two thirds of this increase in emissions will come from developing countries.

The aim of this study is to mention the energy efficiency methods that have to be taken in order to achieve larger energy reductions. Examining basic application technologies of renewable energy in the built environment will give an approximate idea about the usage level of natural resources. The storage, transport and application systems of renewable energy will also be analyzed in the context.

RENEWABLE ENERGY TECHNIQUES IN DESIGN PROCESS

Today, approximately, one third of energy is employed in domestic and commercial buildings. Also, transport and industries are other large energy consumers of the modern world. Within the design and construction sector, some serious drives for energy savings are already becoming apparent. Zero Energy Buildings are supposed

to be a practical possibility for energy sustainability. Their initial costs are little larger than conventional buildings but the running costs are a lot less.

We can examine these alternative methods of sustainable energy under the basic subtitles of; (Peter, 2007:3-14)

- solar thermal power,
- low energy techniques for cooling,
- geothermal energy,
- wind power,
- photovoltaic cells,
- bio energy,

Solar thermal power

It is likely that solar thermal power will provide a major share of the renewable energy needed in the future since solar radiation is by far the largest potential renewable source. This solar thermal resource serves two energy domains which are heat and electricity.

solar heating;

There are two basic systems for solar heating, which are flat bed collectors and vacuum tube collectors. *Flat bed collectors* consist of metal plates coated matt behind glass or plastic. They are tilted to maximize uptake of solar radiation. Behind the plates are pipes carrying heat absorbing medium, either water or air. Water for indirect systems contains antifreeze. The underside of the plates is insulated. Flat bed collectors realize temperatures at around 35°C and are best employed to supply pre-heated water for a gas boiler or immersion hater. It is increasingly becoming the case that the collector system incorporates a photovoltaic module to provide power for the circulating fan, making it a true zero fossil energy option. *Vacuum tube collector system,* evacuated tubes enclosed within an insulated steel casing work by exploiting the vacuum around the collector. This reduces the heat loss from the system. They heat water to around 60°C but sometimes significantly higher. This means that domestic hot water systems may have no need of additional heating. To realize their full potential they should be linked to a storage facility which stores excess warmth in summer to supplement winter heating. Solar panels have traditionally been associated with providing domestic hot water. Solar water heaters compromise a solar collector array, an energy transfer system and a thermal storage unit. Solar collectors are one of several renewable technologies that together make a solar building (Peter, 2007:18-26). It is essential that, from the earliest design stage, there is a symbiotic relationship between active solar and PV's, heat pumps and possibly small scale wind tribunes. Integrated design is one of the slogans of the new millennium. Well-designed solar houses can reduce energy demand against conventional homes.

The IEA Solar Heating Advanced Low Energy Buildings demonstrated that, with the addition of photovoltaic panels (PV), it is possible for buildings to become net energy

producers. On the other hand, the effectiveness of the solar thermal applied to the existing housing stock is slightly reduced. Many buildings produced especially in Europe in the 1950s and 1960s are seriously in need of renovation. Even in most of the modern countries, today, there is an acute problem of poor quality housing, much of it dating from the nineteenth century, which is associated with fuel poverty and unhealthy. If solar technology is absorbed into the total overall cost and economies of scale are realized, the payback time should be considerably less than the normal twenty year timescale.

solar thermal electricity;

It can be mentioned that there are four key elements to solar thermal electricity power technologies (Edwards, 2002:37-48):

- concentrator; which captures and focuses solar radiation.
- receiver; absorbs the concentrated sunlight transferring the heat energy to a working fluid.
- transporter/storage; passes the fluid from the receiver to the power conversion system. In some systems a proportion of the thermal energy is stored for later use such as night time.
- power conversion; is the generation phase via a heat engine.

Improvements are often avoided by being hit with the argument of cost-effectiveness. This is often an excuse for avoiding changing designs and manufacturing techniques. In the case of solar thermal, simplified and standardized installation producers should considerably reduce the 21% of total system cost currently spent on installation. Add to this fact that the system is more efficient and faults detected instantly, bringing them overall close to the heat and electricity production costs of conventional energy resources. To get the major advantage of solar thermal systems, the following steps can be some pointers to the way ahead (Jackson, 2003:842-863).

- modular design; standardizing the connecters in modules based on the amount of hot water and electricity required by one person.
- simplified design; making wrong connections inherently impossible.
- legionella; which is a waterborne bacterium that multiplies between 40 - 50°C. This is the average temperature of water storage including solar. It is potentially fatal if inhaled, for instance when showering. In some countries regulations require a minimum storage temperature of 70°C to be achieved at least once a day. But there are other possibly more effective ways of killing the bacteria. Ultraviolet light at high intensity destroys the bacteria's ability to reproduce and is frequently used for water purification. A special type of biofilm covering the pipes can be an effective solution for this problem.
- antifreeze; is used in the collectors for obvious reasons. But the antifreeze agents are toxic, expensive have a poor ability to carry the heat and can change the viscosity which can cause leaks. To avoid the need for antifreeze, some systems automatically drain off when there is not enough solar gain. Another approach will be an absorber which can accommodate the expansion accompanying freezing.
- storage tanks; should be insulated in order to avoid from the heat loss.

- solar control units; tend to be difficult to handle and are expensive for the function they perform. There is still some way to go to make them user friendly. Often faults in a system are not discovered until an excessive heating bill arrives from the utility. Pressure, temperature and flow rates could easily be displayed in a living room with a red light indicating a fault.
- intelligent systems; could learn about consumers' behavior and adjust heat output accordingly, as computer can learn by feedback. For example; it would be possible to adjust the collector pump to reduce its rate of flow in order to increase the water temperature to coincide with the regular time when the occupants take a shower. Over time an intelligent system will learn to finely supply to demand, thereby minimizing the involvement of a back up heater.

Solar energy is more evenly distributed across the sun belt of the planet than either wind or biomass. The downside is that deserts do not attract centers of population. However, as the world gradually switches to becoming a hydrogen based energy economy, solar thermal electricity could be the key to substantial hydrogen production by electrolysis. African countries bordering the Mediterranean could greatly boost their economies by exporting solar hydrogen to Europe by tanker or pipeline. This may also be the future of Gulf States.

Low energy techniques for cooling

The cooling of buildings is one of the largest of all energy sinks and therefore a major contributor to CO_2 emissions. The alternative techniques of low energy for cooling can be established by either involving en external source of energy or systems which are integrated into the structure of a building. The most common methods can be categorized as ground coupling using air and groundwater cooling /warming.

The ground temperature below 2meters is fairly constant, ranging between 10 - 14°C. Ideally, the soil temperature should be 12°C or less. This makes it a suitable source of cooling in summer and possibly warmth in winter. The system operates by passing air through a network of pipes set at 2-5m. below ground. The soil temperature is roughly the same as the average yearly ambient temperature. The cooled air is directly used as a cooling agent or it can provide pre-cooled air for conventional ventilation or air conditioning. This method is named as ground coupling using air and actual soil temperature, velocity of the air through the pipes, diameter of the pipes, moisture level and conductivity of the soil are the main factors that influence the design of this system. In the context of this technology it is necessary to check for the ground pollution, especially radon gas. Alternatives to full air conditioning with chillers that make heavy demands on electricity and fossil fuel for space heating are coming increasingly into prominence. One option is using groundwater for thermal energy storage. This uses water from an underground well to cool a building. Once the water has taken up the heat from the building, it can be returned to a second warm well and used to pre-heat ventilation air in winter. Two boreholes are drilled to a depth of between 30 - 150 m. The wells should be between 100 - 150m apart. The groundwater, having absorbed the building heat, is injected into the warm well. During the winter, the system is put into reverse. It is estimated that 60-80% of energy saving can be reached when compared with the conventional air-conditioning systems. It has quite a short payback time to recover the extra investment 0f 2-8

years. In the situations where there is groundwater movement the system can be used a heat source or sink for a heat pump (Williams, 2007:52-59).

Geothermal energy

Heat contained within the planet causes macro geological events like earthquakes, volcanoes and tectonic movement. Geothermal energy of the Earth provides high-pressure steam and this can be converted to useful energy. This heat has to be brought to the surface. Geothermal springs do this spontaneously. If there are several geothermal wells in vicinity, this is described as thermal field. Another mechanical way of collecting geothermal energy is using the heat pump technology. It exploits the relative warmth of earth for both heating and cooling. The principle of geothermal heat pump is that it doesn't create heat; it transports it from one area to another. The main benefit of this technology is that it uses up to 50% less electricity than conventional electrical heating or cooling. If PVs with battery backup provide the power for pumps and compressors then it really is a zero-energy system in operation. An advantage of thermal energy is that it is independent of climate or seasonal variation. In certain locations the geothermal heat pump can reduce energy consumption and therefore CO_2 emissions by up to 72% compared with electric central heating and standard air conditioning equipment (Peter, 2007:43-45). The numerous advantages to heat pump technology which can be summarized as follows;

- It offers both heating and cooling.
- It is environmental friendly and could be zero carbon coupled to a renewable source of electricity such as PVs used to charge batteries to run the pumps.
- It is efficient and uses less energy than conventional central heating and cooling systems to maintain indoor comfort conditions.
- Maintenance costs are virtually zero.
- As it has a relatively few moving parts, it is a highly durable technology.
- It is quiet in operation.

Because of these above advantages, this technology is being selected for public sector buildings like schools, health centers, offices and community centers, at an accelerating rate.

Wind power

The first known windmills were developed in Persia between 500 and 900AD to pump water and grind grain. They consisted of vertical sails rotating round a central shaft. The first documented example of technology in Europe dates from 1270. It took until the nineteenth century for the windmill sails to achieve peak efficiency. These sails had some of the crucial features which helped in the design of present day turbine blades (Smith, 2001:27-29).

Wind patterns in the built environment are complex as the air passes over, around and between buildings. Accordingly a wind generator introduced into this environment must be able to cope with high turbulence caused by buildings. Wind

turbines can be sited on roofs or walls. These machines are well balanced, transmitting minimum vibration and bending stress to walls and roofs. Also, a further advantage is that the electricity generator can be located within the envelope of the building so that it would not create a problem for the architectural design process (Piggot, 2000:12).

Research conducted by Delft University of Technology identified five building conditions to determine their effectiveness for wind turbines. Four are described as 'wind catchers', 'wind collectors', 'wind sharers' and 'wind gatherers'. These terms define their effect on wind speed. The wind catcher is well suited to small turbines, being usually high and benefiting from a relatively free wind flow. The wind collector type of building has a lower profile and can be subject to turbulence. The third types, the wind sharers, are found in industrial areas and business parks. Finally, there is the fifth category, the wind dreamer which relates to low-rise developments.

Development work is continuing on designs for turbines which are suitable for the difficult wind conditions found in urban situations. There is increasing interest in the way that the design of buildings can incorporate renewable technologies including wind turbines.

Photovoltaic cells

Electricity is produced from solar energy when photons or particles of light are absorbed by semiconductors. This is basis of the photovoltaic (PV) cell. Most solar cells in current use are built from solid-state semiconducting material. Semiconductors are at the center of the electronic revolution of the last century.
Towns and cities present an ideal opportunity for the exploitation of PVs. They have a high concentration of potential PV sites with a heavy energy demand. Reflected light, is also a useful form of energy for PV systems. Many façades in city centers have high reflectance values offering significant levels of diffuse light for façade PVs on opposite elevations. At the same time the physical infrastructure can support localized electricity generation. It is estimated that installing PVs on suitable walls and roofs could generate up to 25% of total demand (Williams, 2007:50-52).
The wide scale adoption of PV in the urban environment will depend on the acceptance of the visual change it will bring about, especially in historic situations. There is still a barrier to be overcome and planning policy guidance may have to be amended to create a presumption in favor of retrofitting PVs to buildings. The efficiency and sustainability of PVs for integrating with buildings will depend on several factors such as (Gissen, 2002:17-30);

- roof heights and angles (to catch the appropriate sun's angle),
- orientation (mounting PVs either on roofs or facades of buildings),
- density of urban grain.

Also, spacing between buildings is an important factor in determining façade PV opportunities. Especially, wide streets and city squares provide excellent opportunities for this PV mode on the walls. A tighter urban grain points to roof mounted PVs.

Bioenergy

Biomass is the sum of all the Earth's living matter within the biosphere and this energy reaching the planet is equivalent to about seven times its primary energy consumption. Biomass produces energy from a variety of sources such as; fast growing trees (for example; willow, poplar, etc.), residues from agricultural crops and forest thinning, animal waste, industrial residues (for examples; from saw mills), municipal solid waste. There are three main methods of conversion to energy (Knight and Westwood, 2005:118-127);

  - direct combustion,
  - anaerobic digestion,
  - extraction of landfill methane.

At the moment, anaerobic digestion is becoming increasingly important as a means of disposing of waste. In this process, wet waste comprising dung or sewage is transformed into slurry with about 95% water content. This mixture is fed to a sealed digester where the temperature can be controlled. The digestion process involves the breaking down by bacteria of organic material into sugars and then into various acids. These decompose to produce the final gas. The action of the bacteria generates heat between 40-60°C. The heat can be provided by utilizing some of the biogas produced by the process. Suitably treated biogas can be introduced into the natural gas pipe network.

CONCLUSION

Today, scientists are being continually surprised at the rate of global warming and climate change issues. Predictions of the impact of global warming on long term temperatures are being regularly upgraded while emission levels are continuing to rise with developing economies of countries. There is now a wide spread human responsibility for most of the global warming.

On the other hand, there is a general agreement that reserves of fossils fuel are about to finite. The reports of Open University that are published in The Observer July 2004, signs a timetable about oil will last about 40 years, gas about 60 years and coal 200 years. In the near future, oil production will be unable to match the rising demand. There will be no escape from the impact of high oil prices such as higher food prices leaving increasing populations facing hunger. This situation will probably change the economical power balance between the countries (Klare, 2002:1-5).

Reducing the consumption of energy and generating clean energy, demand an integrated approach for the renewable technologies of green revolution which must happen if there is to be any chance of stabilizing atmospheric CO2 at a level that leaves the Earth more livable.

Unless strong measures are taken, emissions of carbon dioxide will reach two or three times their present levels during the twenty first century. To stabilize carbon dioxide concentrations, emissions during the twenty first century must reduce to a

fraction of their present levels before the century's end. The reductions in emissions must be made globally, all nations must take part. Hundreds of scientists and worldwide scientific communities are making researches and producing assessments to fix the environmental problems and energy issues before it turn out to be substantial.

The Intergovernmental Panel on Climate Change (IPCC) published its last major report on 2001, covering science, impacts and analysis of policy options about climate change problems. The Framework Convention on Climate Change (FCCC) also agreed by 160 countries all over the world and announced the measures that have to be taken to stabilize greenhouse gas concentrations in the atmosphere at a level that does not cause dangerous interference with the climate system. Such stabilization would eventually stop further climate change. The Kyoto Protocol set up by the FCCC represents a beginning for the process of reduction. It is an important start, demonstrating the achievement of an international trading of greenhouse effect so that reductions can be managed in most cost-effective ways. In 2004, the International Energy Agency (IEA) published a World Energy Outlook that in which it paints a picture of how the global energy systems is likely to evolve from now to 2030. Energy related emissions of carbon dioxide will grow marginally faster than energy use and will be more than 60% higher in 2030 than now.

As a conclusion, after international agreements on sustainable policies of green energy, four sorts of future actions are required. Firstly, there is the energy efficiency concept. Approximately, one third of energy is employed in domestic and commercial buildings. 'Zero energy' buildings are a practical solution for an efficient level of energy supply. Although initial costs are a little larger than for conventional buildings, the running costs are a lot less. Secondly, a wide variety of non-fossil fuel sources of energy are available for development, such as biomass, solar power, hydro, wind, wave and geothermal energies. Thirdly, there are possibilities for sequestering carbon that would otherwise enter the atmosphere, either through the planting of forests or by pumping underground. Finally, for the stable solutions economy and environment must be addressed together.

Thus, sustainable architecture and landscaping are likely to play a major role in a future energy scenario. Buildings should be designed to be self sufficient in energy. They can even be day time power stations through photovoltaic cells on roofs and elevations. Large amounts of energy can be supplied with the treatment of waste products. There should be alternative sophisticated systems to produce heat and electricity where households have access to double terminals; one for food waste and the other for residual dry waste which is incinerated. Cities have to construct reactors to convert organic waste into biogas and fertilizer. Biogas will be returned to the apartments via the gas main. Mounting and operating solar collectors and wind tribunes should be a part of design process in order to provide the energy requirement of cities. While maximizing the sustainability of the buildings with the features of recycled groundwater for toilets, biogas from food waste, recycled cellulose insulation, passive cooling with natural ventilation, low-energy lighting from solar collectors, architects should aim to give outstanding examples of an alliance between green technology and aesthetics.

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AN INQUIRY INTO SOCIAL CONSTRUCTION OF SUSTAINABLE ARCHITECTURE: GREEN BUILDING AS ECOSYSTEM

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ABSTRACT

The concept of sustainable building is fundamentally a social construct. In order to understand green buildings more fully, we have to account for ecosystem concept in relation to interpretation of nature, identification of environmental problems, interpretive flexibility attached to any artifact and embodiment of the all in built forms. Within this framework, Simon Guy and Graham Farmer identify six competing logics as eco-technic, eco-centric, eco-aesthetic, eco-cultural, eco-medical, and eco-social. Their unique contribution to the green building debate is the conclusion that boundaries between these competing logics are blurred, but perception of ecological dilemma is dominated by specific emblems and environmental problematic is hardly ever discussed in its full complexity.

With an aim at contributing to the discussion of environmental problematic, this paper presents an inquiry into social construction of sustainable architecture in terms of ecosystem concept which pertains to both eco-technic and eco-centric logics. As an outcome, systems-based conception of green building is highlighted.

Keywords: Social construction, Nature, Ecosystem, Sustainable architecture

INTRODUCTION

This paper draws on the work of Simon Guy and Graham Farmer [1] who examine the development of sustainable architecture. They emphasise that green building is an environmental innovation or artefact and socially constructed. Here, an analytical framework of social constructivist theory they outline can be summed up as follows:

- Particular image and interpretation of nature; a specific modelling of nature
- Contingent and multidirectional character of environmental concerns; social construction of the identification of the environmental problems
- Individuals, groups and institutions embodying widely differing perceptions of what
- environmental innovation is about
- Social construction of green building

Similarly, social construction of green building by a systems-based conception can be highlighted within a perspective as follows:

- Nature as ecosystem
- Defining environmental problems by referring to ecosystem
- Environmental innovation as ecosystem, or thinking of environmental innovation in terms of ecosystem
- Green building as ecosystem

Here, ecosystem concept is the one that stems from systems-based ecology conception and pertains to both eco-technic and eco-centric logics. What is common to both logics is an emphasis on technique and framing of concerns relating to systems view of ecosystem and the building as a process of both production and resource consumption. But basic distinction between the two is drawn in terms of differing technological approaches that are also identified by Guy and Farmer as ecological and smart (Guy and Farmer, 2000: 75). Concerning their common view of ecosystem, this paper focuses on both eco-centric and eco-technic logics and highlights the debate revolving around two different technological approaches.

NATURE AS ECOSYSTEM: A CONCEPTION OF SYSTEMS ECOLOGY

Quoting from R. Williams, A. W. Spirn states that nature is an abstraction, a set of ideas for the multiplicity of things and living processes for which many cultures have no one name (Spirn, 2002: 29-31).

Hagan mentions the religious top-down model of nature and the Darwinian bottom-up model, having foremost difference between each other (Hagan, 2001: 16-18). In the first, order flows from the mind of God down through the great chain of being to the lowliest one-celled organisms. There is a unity in creation because it flows from a single source. In Darwin's model, order arises from one-celled organisms. They evolve into more complex life forms in a state of mutual dependence. The unity lies in the interconnectedness of this bottom up proliferation. A dynamic, non-teleological model thus replaces the fixed model of Bible. The very idea of an 'ecosystem' is one of parts forming an interactive whole.

In the book *What is Nature?*, Kate Soper writes that ecosystem approach, essentially ecology, would have us view nature not as an external and inorganic context, but as ecosystem, a plurality of beings which possesses of its particular function and purpose to maintaining the whole (Shumway, 1999: 256). Here, Soper gives a brief explanation of the systems-based view of nature.

Systems ecologist Eugene Odum views nature as a series of balanced ecosystems which was derived by him from 'homeostasis' concept that is basically related to the concept 'whole' and maintaining the whole. Odum puts forward the concept of homeostasis that is provided by mutualism and cooperation among the many organisms inhabiting an area. Ecosystems are self-organising entities like organisms whose members work together to control their surrounding environment in order to maintain the homeostasis (Worster, 1994: 366-369). We gather that this whole is

what ecologists describe as an empirically measured nature. Similarly, Hagan touches on the term 'environment' so that it is the view of nature as measurable and quantifiable, material surroundings that include not just the natural environment but the built environment as well, with its own measurable physical properties, its own atmospheres, its own micro-climates. In nature, ecosystems evolve to minimise the linear energy loss, forming circular patterns of consumption in which all the parts fit into interlocking wholes that are as efficient as possible: flowers feed bees; bees pollinate flowers; flowers become fruit, fruit feeds birds; birds spread seeds; seeds become flowers; flowers feed birds, etc. (Hagan, 2001: 102). Pearson writes that (Pearson, 2005: 72) nature is made up of interwoven ecosystems that are continuous, interconnected, self-regulating, regenerative, and sustainable. All natural processes which take place within them are part of an ecocycle in which the waste of one component becomes the raw material of the next. These natural ecocycles are themselves linked into the global cycles of energy, air, and water. One of the keys to personal and planetary self-healing and repairing is to see the way we live, and the environment- plants, animal, and bacteria, in which we live, as an integral part of an ecosystem. Thus, regarding nature or earth as an ecosystem means considering nature in balance and in equilibrium.
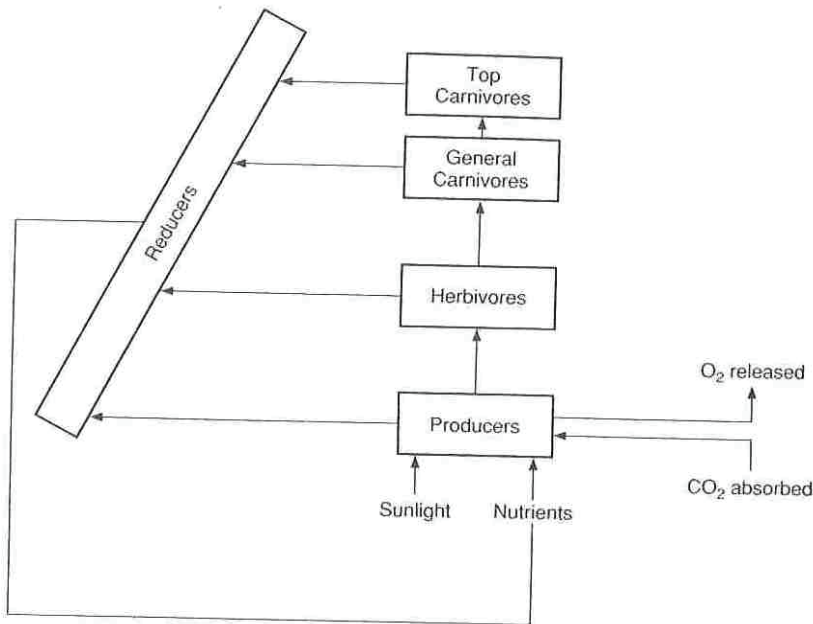
Figure 1. The cycling of materials within an ecosystem (Yeang, 1995: 21)

However, Clark informs us that in the science of ecology, a turn away from the idea of ecosystem and stable nature towards a vision in which repeated disturbance plays a vital part in distribution and evolution of life. Equilibrium landscapes therefore seem to be the exception rather than the rule (Clark, 2003: 185). Kwiatkowska puts that

'scientific nature' favoured the linear phenomena. All chaotic features, dysfunctions, disharmonies, and internal inconsistencies were eliminated from theoretical studies and experimental techniques. This idealised nature, 'mathematical manifold' as Edmund Husserl described, achieved a higher ontological status than the living world. Concepts that become part of everyday language and part of value systems to justify our 'rational' actions are hard to change. Intellectual constructs may either be deep truths about nature or clever delusions. For instance, the individual responses to the environment means that what we call a community, or ecosystem, is just an arbitrary subdivision of local species assemblages since habitats and ecological systems are not entities. In a continuous gradation, one system overlaps with another without clear boundaries. Nonlinear analysis indicates that chaotic disturbances are normal. Species and environmental context, so the ecosystems fluctuate chaotically and species do not simply reach permanent or even long-term ideal adaptations with their environment (Kwiatkowska, 2001: 97-98).

DEFINING ENVIRONMENTAL PROBLEMS BY REFERRING TO ECOSYSTEM

Guy and Farmer state that within the mainstream architectural discourse, environmental problem is perceived as a shared problem in urgent need of addressing by actors as joint members of a new risk community (Guy and Farmer, 2000: 73). A continuous process of defining and redefining the meaning of the environmental problem is the result of a growing body of scientific data highlighting the environmental impact of buildings, ranging from fossil fuel and resource use through the health of building occupants. But, there is no longer an environmental conflict on the question of whether there is an environmental crisis.

After the Second World War, a new moral consciousness called environmentalism began to take form under the threat of the atomic bomb, whose purpose was to use the insights of ecology to restrain the use of modern science-based power over nature (Worster, 1994: 342-387). By 1950s, the environmental problems grew immense and complicated, also necessitated a big picture. To serve the age, new leadership ecologists had to achieve a unified theory. Ecologists had to show how all the pieces of the earth fitted together into a whole and clarify what made the whole healthy or sick.

Eugene Odum provided ecologists with a very successful textbook, *Fundamentals of Ecology*, a comprehensive scientific manual for mending the planet. By focusing on the ecosystem, he believed the field of ecology at once found unity in its diversity and come up with solid recommendations. He headed in 1954 with his brother who also collaborated on the textbook, to an atoll in the South Pacific to analyse and measure the metabolism of a coral reef, which is a kind of collective organism made up of algae and coelenterate animals. The reef provided a marvellous example of how such collectivism works, how it spends its energy budget and utilises its nutrition, with efficient recycling of materials and use of energy, which are the keys to maintaining prosperity in world of limited resources. They had come to the atoll mainly to help the government understand how nuclear weapons might affect the environment. But they had the opportunity to do research on broad ecological principles in an ideally isolated laboratory, as in Savannah River and other places, to study the pulsating force of the sun flowing through, animating and organising ecosystems (Worster,

1994: 342-387). Odum includes suggestions about improving the health of the planet in many of his articles and text books. As from the 1950s, his inquiries into ecology were much more concerned with environmental problems. In the ecosystem that includes all of the organisms in a given area interacting with the physical environment, flow of energy is the key for this interaction through material cycles (i.e., exchange of materials between living and nonliving parts) and leads to biotic diversity. In this respect, he refers to parasite-host relations in nature. In a very real sense, humanity is a parasite on biosphere and studying parasite-host relations we learn that a prudent parasite that has only one host does not kill off that host and in many cases does things to help it prosper. In ecological language this is co-evolution for co-existence (Keller, 2001:7). In other words, not only a single organism, but also ecosystems work together to resist decay. In this respect, according to Odum, every human being has to envisage himself/herself as a space traveller; he/she has to develop 'a spaceship economy'. He points out that the place in which humans have to practice economic means of surviving on the planet is the spaceship. Hence, in his opinion, understanding of a spacecraft mechanism helps man both to develop negative feedback systems and to utilize minimum amount of energy for utmost means of survival. Odum concludes his book with remarks on the maintenance of earth spaceship (Yazgan, 2006: 40-43).

ENVIRONMENTAL INNOVATION AS ECOSYSTEM

The premise in social construction in relation to environmental innovation is that individuals, groups and institutions embody widely differing perceptions of what environmental innovation is about. It is much more a struggle between various unconventional political coalitions, each made up of such actors as scientists, politicians, activists, or organisations representing such actors, but also having links with specific television channels, journals and newspapers, or even celebrities (Guy and Farmer, 2007: 18).

Guy quotes from the book *Green Shift* written by John Farmer and writes that a range of innovative design approaches either explicitly or subliminally reference themselves in relation to nature (Guy, 1997: 6).There is no conclusive definition of what green means beyond these approaches. But even though attempting to define green building by privileging specific forms of environmental innovation is misguided and green building is a social construct, this is no to say that the range of environmental innovations are not valid. The aim should not be discredit environmental claims but rather to understand how they are created, legitimated, and contested. Therefore, we will view green buildings as social representation of alternative ecological values, or material embodiments of discourses that make up the green buildings debate.

Guy and Farmer write that as a result of a bewildering array of contrasting building types, employing a great variety of different technologies and design approaches and also a highly diverse set of interpretations directed towards each of them, making sense of environmental innovation in architecture tends to be a confusing business. Instead of interpreting of what a sustainable place might represent, they develop their own classification of sustainable architectures out of six competing logics.

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Following Marteen Hajer, Guy and Farmer define the logic as a specific ensemble of ideas, concepts and categorisations that are produced, reproduced and transformed in a particular set of practices through which meaning is given to social and physical realities. These logics are not meant to be in any way exclusive, or frozen in time or space. Logics may collide, merge, or co-inhabit debate about form, design, and specification (Guy and Farmer, 2001: 141)

Table 1. Six competing logics - discourses of innovative design approaches of sustainable architecture (Compiled from Guy and Farmer, 2001: 141)

Logic	Emblematic Issues				
	Image of Space	Source of Environmental Knowledge	Building Image	Technologies	Idealised Concept of Place
Eco-technic Norman Foster	global context macrophysical	technorational scientific	commercial modern future oriented	integrated energy efficient high-tech intelligent	Integration of global environmental concerns into conventional building design strategies. Urban vision of the compact and dense city.
Eco-centric Mike Reynolds	fragile microbiotic	systemic ecology metaphysical (epistemological) holism	polluter parasitic consumer	autonomous renewable recycled intermediate	Harmony with nature through decentralised, autonomous buildings with limited ecological footprints. Ensuring the stability, integrity and flourishing of local and global biodiversity.
Eco-aesthetic SITE	alienating anthropocentric	sensual postmodern science	iconic architectural New Age	pragmatic new nonlinear organic	Universally reconstructed in the light of new ecological knowledge and transforming our consciousness of nature.
Eco-cultural Glenn Murcutt	cultural context regional	phenomenology cultural ecology	authentic harmonious typological	local low-tech commonplace vernacular	Learning to dwell through buildings adapted to local and bioregional physical and cultural characteristics.
Eco-medical Gaia Group	polluted hazardous	medical clinical ecology	healthy living caring	passive nontoxic natural tactile	A natural and tactile environment which ensures the health, well-being, and quality of life for individuals.
Eco-social Paolo Soleri	social context hierarchical	sociology social ecology	democratic home individual	flexible participatory appropriate locally managed	Reconciliation of individual and community in socially cohesive manner through decentralised organic, non-hierarchical, and participatory communities.

Table 2. Architects and the six competing logics (Compiled from Guy and Farmer,
           2001: 142-148)

| Logic	Architect
Eco-technic energy efficiency, high-tech, technocentric, global context	Norman Foster Richard Rogers Nicholas Grimshaw Michael Hopkins Renzo Piano Thomas Herzog Ken Yeang
Eco-centric systemic ecology, ecosystem, ecological system (closed), self-sufficient, holism-ecological whole, Gaia, eco-centric or bio-centric, local and global context (biodiversity)	Brenda and Robert Vale Mike Reynolds
Eco-aesthetic energy efficiency, complexity theory, holistic, ecological worldview (organicism, chaotic, complex, expressionism, non-linear, folds, fractured planes, crystalline forms), fusion of landscape and architecture	SITE
Eco-cultural landscape and ecosystem, regionalism, genius logi, bioregion (a combination of natural, biological, and ecological characteristics and cultural context), small-scale ecological society	Glenn Murcutt Charles Corea Geoffrey Bawa Hassan Fathy
Eco-medical building biology	Peter Schmid Floyd Stein Gaia Group Elbe and Sambeth
spiritual health	Christopher Day
Eco-social self-sufficient ecocommunities, appropriate technology based on understanding of the laws of ecology enabling participatory, transparent process adapted and grounded with local ecological conditions, Segal method: flexible building with renewable, recycled, local materials	Lucien Kroll Ralph Erskine Peter Hubner Paolo Soleri

To explore the relationship between the sustainable architecture and systems view
leads to the encounter with autonomous (self-sufficient) building, since a green
building designed as an ecosystem is basically an autonomous building. However,
Guy and Farmer relate the ecosystem concept and the self-sufficiency alongside it to
eco-centric logic. Ken Yeang, a well-known architect associated with 'the skyscraper
as an ecosystem' is related to eco-technic logic.

GREEN BUILDING AS ECOSYSTEM

Guy and Farmer states that the debate around the green building revolves around differently configured technical structures. Differing technological stances draw directly on ecosystem or on analogies from ecological systems as living, closed, cyclical processes (Guy and Farmer, 2000: 75). Hagan associates this with the level of symbiotic relationship between building and nature (Hagan, 2001: 148). Certain types of technology can be shown more sustainable than others. Therefore, it can be suggested that a certain level of analogy from ecosystem can be regarded more sustainable than the others.

Identifying nature as ecosystem and valuing the ecosystem for sun, wind and water, Behling argues that if we are to solve the environmental problem then we must learn from nature (Behling and Behling, 1996: 78). Through this view, the design strategy of the global discourse revolves around small scale, soft and appropriate technologies which depend upon local knowledge and natural resources and natural systems. Design priorities would include the use of local and always renewable building materials as well as re-use and recycling, employing composting toilets, reed bed treatment for sewage, grey water recycling, passive solar gain (Guy, 1997: 7).

Similarly, Pearson writes that the desire for architecture to be in harmony with nature is a practical necessity if it is to be part of the ecosystem. Being part of the ecosystem for humans and their shelters is to accord with and be inspired by the same processes. He regards Van der Ryn's 'integral urban house', Brenda and Robert Vale's influential book *The Autonomous House*, and 'Earthship' concept of architect Mike Reynolds as the route of self-sufficiency to break the parasitic grip of human settlement on the land (Pearson, 2005: 73-75).
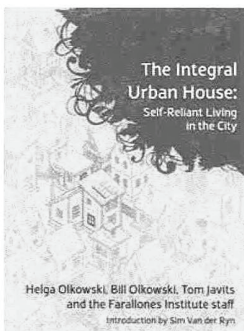
In the early 1970's in Berkeley, California, the Farallones Institute entered into a collaborative project to design and construct a completely sustainable urban house - in essence a mini-ecosystem where residents grew their own fruits and vegetables, raised chickens, rabbits, and fish, recycled 90% of their waste, solar heated their hot water, and used a variety of other alternative technologies?all on a 1/8-acre city lot. The project was chronicled in the book *The Integral House: Self-Reliant Living in the City* which has been long considered the bible of urban homesteading.The Integral Urban House's attached greenhouse only hints at the innovations inside.

Figure 2, 3. *The Integral House: Self-Reliant Living in the City*, The Integral Urban House (http://www.newsociety.com, http://www.mothereartnews.com)
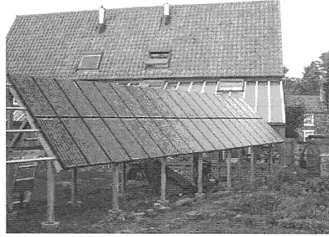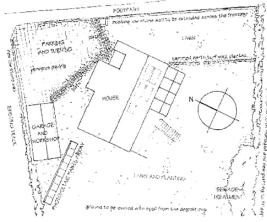
• Thermally heavy - high density concrete construction inside the insulation envelope.• Highly efficient triple glazed windows with minimum heat loss and maximum 'solar gain' - heat gain from the sun.• Design and positioning of the windows will also make best possible use of natural daylight, reducing the need for artificial lighting.• A dry composting toilet system will deal with all the human waste, turning it into high quality garden compost.• The waste (grey) water which the house produces will contain only soaps and carefully chosen detergents.• Solar panels on the roof will provide a significant percentage of the domestic hot water - in the summer months probably all of it.• Photovoltaic panels mounted on a pergola in the garden will produce electricity to supplement that drawn from the national grid - the only external service connection.

Figure 4, 5. Autonomous House. Brenda and Robert Vale. (www.windunsun.co.uk, www.cropthornehouse.co.uk)

Designed by architect Mike Reynolds (who lives in the one at the top), the houses based on earthship concept are almost entirely self-sufficient in energy.

Figure 6, 7. Earthship House. Mike Reynolds. (http://www.stillpictures.com)
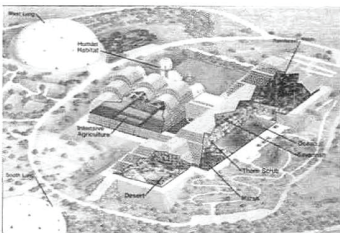
Experiments in Biosphere 2 to test the capacity to support human life in a completely enclosed ecosystem teach us that such artificial systems are not truly independent and cannot solve the wider environmental issues.

Figure 8, 9. Biosphere 2. (http://www.biospheretechnologies.com)

The book *Designing with Nature*, which was written by Ken Yeang in 1995, is considered an architectural complement of the *Fundamentals of Ecology* (Yazgan, 2006: 243-248). Ken Yeang analogizes the building with an ecosystem, a living system which is a member of the ambient ecosystem and world ecosystems. As the basic task of an ecosystem is the maintenance of the stable flow of matter and energy with the help of such processes as metabolism, photosynthesis and symbiosis, the building survives by importing energy and matter from its environment and then exporting back to the environment after use, thus conform to the steady-state ecosystems with their metabolic functioning. This also defines the steady state of a living system which assures it with mutual interaction and the homeostatic environment. Analogizing the building system with an ecosystem brings forward the acceptance of the holistic connections of the building with the rest of its ecological environment. Yeang has some technical recommendations on how architects may be involved in developing a homeostatic environment. Ecosystem science envisioned biological systems in which self-regulatory processes operate like a machine, while Yeang envisioned his buildings operate like a biological system with the aid of technology. He in a way replicates self-regulatory methods of ecosystems in his buildings. Technology not only helps in the efficient working of building ecosystem, but also in the repair and renewal of world ecosystems. Hence, his skyscrapers will pave the way for planetary stability (Yazgan, 2006: 275).
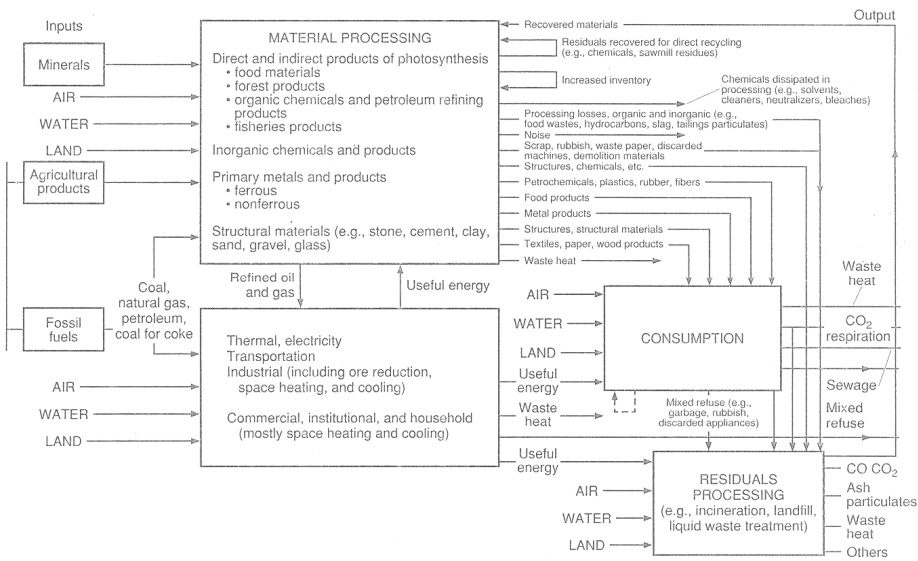

Figure 10. The inputs and outputs through the built environment (Yeang, 1995: 56)

Architecture and Its Ecological Impact

where:

$\rightarrow$ = fluxes across system boundaries

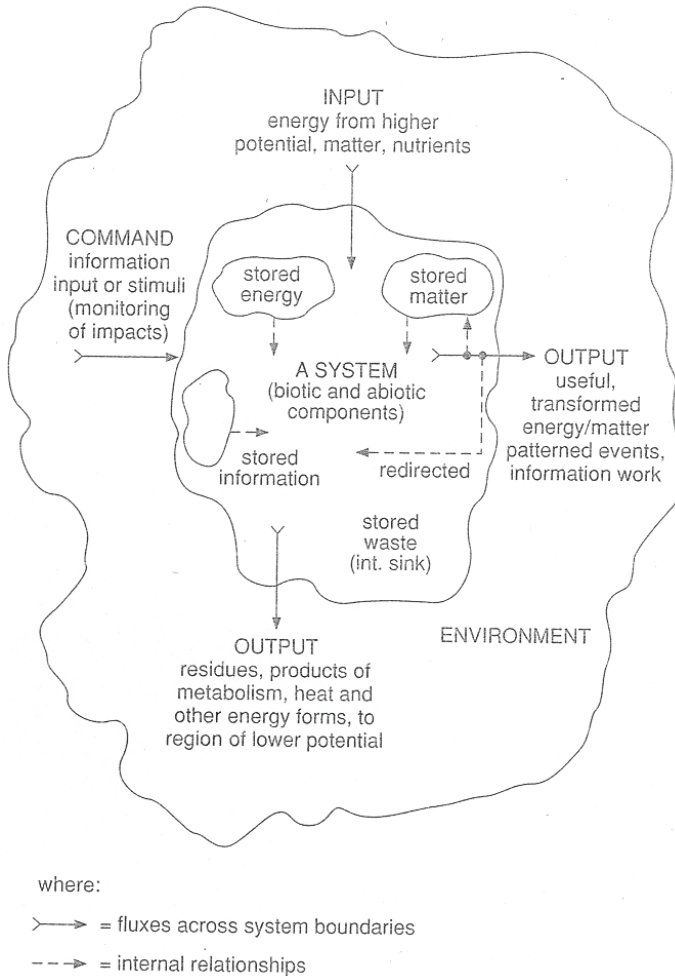$--\rightarrow$ = internal relationships

Figure 11. The input-output structural model of the built environment (Yeang, 1995:65)

Yeang defines the ecosystem as a natural system which has organic and inorganic components acting as whole. He calls designing ecological buildings – and masterplans- designing artificial ecosystems. What human beings are doing that he finds wrong is making the environment more and more inorganic, and more artificial. Its complexity and biodiversity are being drastically reduced. A single thought he wants to leave in the minds is to bring more greenery and organic mass into the

buildings. Thus, he looks at different ways of putting greenery into the built environment. He continues that we can either put it all in one place, or put the biomass in a series of locations in a pattern of patches that may or may not be integrated with each other. He adds that ecologically, it is better to have an integrated continuous pattern so that different species can interact or migrate, creating a much more diversified and stable ecosystem. What can be gathered from Yeang's opinions is that he never means a hundred percent organic building. His aim is to bring as much greenery as possible into the buildings to balance the abiotic/inorganic constituents with the biotic (Yeang, 2004: 177). Even though he highlights this as the holistic approach and as the most efficient means of material and energy transformation, Yeang is also aware of the impossibility of total energy recycle. In addition, for Yeang, holistic approach being compatible with the culture of management in ecosystem thinking entails the designer to predict and monitor the range of environmental interactions and consequences of the design and management of energy and material resources. The more the building as an artificial device or system is integrated in a truly organic and self-sustaining way, like an artificial heart that uses the energy of the body, the more it becomes ecological.
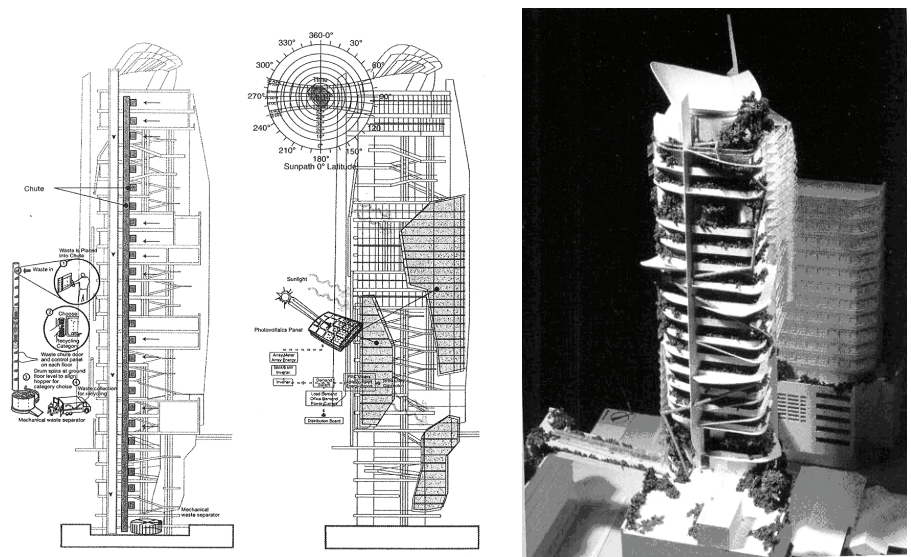

Figure 12, 13. Ecological building system: solid waste and ambient energy (Yeang, 1999) EDITT Tower by Ken Yeang (Hagan, 2000)

Similarly, Hagan emphasises the achievement of some acceptable level of symbiosis as the only requirement for environmentally sustainable architecture. Symbiosis considers the building in its construction and operation as much as possible a dynamic system among other dynamic systems, cooperating with them rather than further damaging them. Use of renewable energy – sun, wind, water - and recycled or low-energy materials, in pursuit of a circular model of consumption with the building's

operation modelled as closely as possible on metabolic processes, is clearly symbiotic (Hagan, 2001: 148). A symbiotic relationship is only possible if the building fights entropy like a natural system, or rather an ecosystem, blurring the line between the man-made and the given (Hagan, 2001: 98-99, 101). As for symbiotic, metabolic relationship between building and nature, Hagan thinks that all one can hope to achieve is a less environmentally damaging building, rather than perfected coexistence. This is what Yeang certainly achieved and continues to push forward with remarkable fertility (Hagan, 2001: 158). On the other hand, regarding the biotic environment as the organic host system, Yeang himself also indicates at the impossibility of a symbiosis in its real ecological sense (Rappaport, 2002: 175). However, he questions if a low-energy building assembles enough the eco-gadgets such as solar collectors, photovoltaics and recycling systems into one single building and if it is really, truly an ecological building (Yeang, 2004: 179).

CONCLUSION

Systems approach regards architectural object as a self-sufficient, homeostatic entity like an ecosystem that operates under a technological construct; requires monitoring, management, repair and renewal through a sophisticated technology and science.
Although Simon Guy and Graham Farmer underline the importance of blurring boundaries within the six competing logics of sustainable architecture, this paper concludes that systems view of ecosystem has the supremacy and leads to a singular approach in green building design.

ENDNOTES

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NEW APPROACHES TO THE CLASSIFICATION OF DOUBLE SKIN INTELLIGENT FACADES

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ABSTRACT

After energy crisis which occurred in 1970's, the countries began to change their energy policies toward using energy economically. After this time, double skin intelligent facades which are sensible to nature, using renewable energy sources and making natural ventilation are begun to be used instead of classical curtain wall systems. By using double skin intelligent facades, the energy cost of the building for cooling, for heating, for lighting and for making ventilation are reduced. By this paper; types of double skin intelligent facades and well known classifications about them will be introduced. The aim of this paper is to suggest new classifications for the double skin intelligent facades.

Keywords: Double skin intelligent facade, Sustainable architecture, Classification

The buildings with the glazed facades have a high energy consumption not just because of the heat loss, but also need for more energy use for ventilation, cooling and lighting. Using the natural ventilation, daylighting and building thermal heat capacity with optimum efficiency, the consumption quantity of the energy would decrease impressively.

Intelligent facades use renewable energy sources, are sensible to nature, are economical and during using period the amount of energy for heating, cooling and lighting interiors decrease.

The intelligent glazed facades have been used since 1980's, getting prevelant day by day as having many advantages. There have been many construction applications with intelligent glazed facades and it is estimated to have the system as next years' indispensible construction element. The existing examples had given affirmative results, providing successful interior space performance criterias. In utilization phase, the energy use for lighting, heating and cooling have been decreased to minimum rates and also some buildings have become to be self sufficient on account of energy. The effective use of solar energy have been provided.

The advantages of intellligent glazed facades in comparison to glazed curtain wall systems can be classified like below;

- Conserving the structure against the wind and weather conditions,
- Ventilating the interior spaces naturally by the ventilation holes on the facade layers
- The energy consumption for the mechanical ventilation would decrease,
- Better sound insulation can be provided,
- Provides defending against the burglary,
- The heat loss occured during the mechanical ventilation would be abondened,
- Passive solar energy is used,
- Heat and sun control elements can be installed between the two facade layers. This sun control elements can provide protection against the negative effects of the outer space and weather conditions. So a wide spread of products can be used.
- The energy kept inside during the summer days, can be let out from the open windows at night,
- The energy consumption for the heating, cooling and lighting would decrease,
- The ventilation of the space can be done hygienically.

Also the disadvantages of intelligent glazed facades in comparison to curtain wall systems can be classified like below;

- The space between the facade layers alter among 20-160 cm, and the lost space quantity increases according to space width in intelligent glazed facades.
- Assembly duration is longer in comparison to claasical glazed facades,
- The transportation of the prefabric facade elements increases the cost,
- The cost is high (additional solar control elements, second facade layer)
- Some help of professionals on this topic is needed for the design phase of the intelligent glazed facades.

The intelligent glazed facades can be classified according to the layer number that generate the facade:

1) Single layered intelligent glazed facades
2) Double skin intelligent glazed facades

The solar control in single layered intelligent glazed facades can be provided by applying a cover on the glass. This cover; reflects and collects the visible wavelenghts or decreases the daylight gain while reflecting the infrared sun rays.

Double skin intelligent glazed facades are composed of many different functioned layers; outer facade layer, inner facade layer and the space between these layers. The outer facade layer provides protection against the weather conditions while creating sound insulation by keeping the sound out of the structure. The space between the facade layers, creates a buffer zone between the inner and outer space

and enables natural ventilation while decreasing the heat loss. The movement of the air between the facade layers, is supplied by the heated air principle and the wind force between the facade layers.

Many classification about double skin intelligent facade are done till now. But mostly used and well known is done by Andrea Compagno. According to Compahno; the double skin intelligent glazed facades can be analyzed in three groups according to ventilation of air in the space between the facade layers. (Compagno, 1999)

- Storey high Double skin intelligent glazed facades,
- Building high Double skin intelligent glazed facades,
- Shaft facades.

Storey high double skin intelligent glazed facades,

In storey high intelligent glazed facade systems, vents have been located for the air input and output on the cavity between facade layers of the floor slab levels. The cavity between the facade layers continiues through floor height along the whole floor. The input air heated in the cavity of the facade layers, rises up from the lower levels and it turns out from the vents on the upper levels of the slab.

The most effective ventilation can be obtained by the influence of the air that exists a short time in the hollow between the facade layers.

| 1 | 2 | 3 |
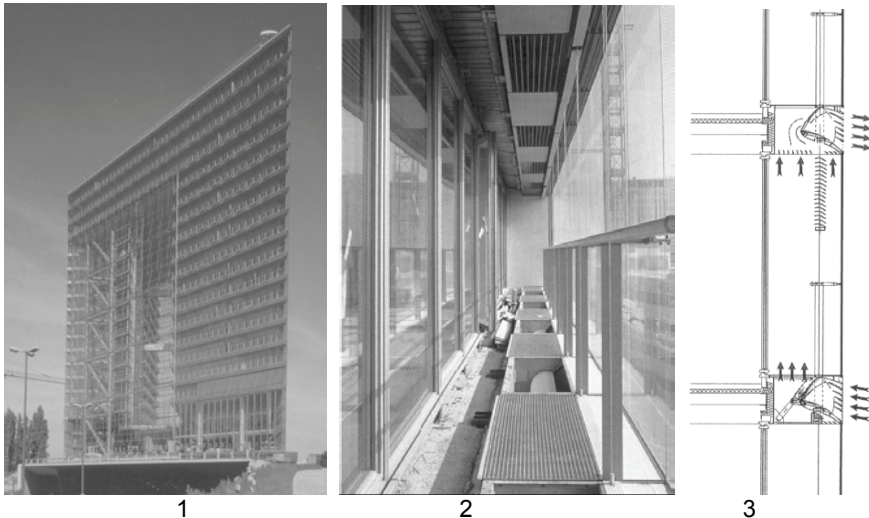
1- The facade of the "Düsseldorf Stadttor" Building, (Compagno, 1999: 140)
2- The double layered glazed facade of "Düsseldorf Stadttor" Building, (Compagno, 1999: 141)
3- The natural venilation schema of "Düsseldorf Stadttor" Building, (Compagno, 1999: 141)

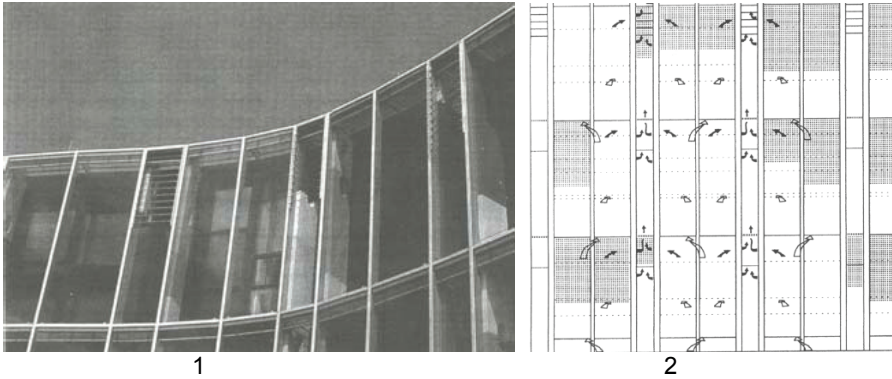**Building high double skin intelligent glazed facades,**

The systems that have a double skin intelligent glazed facade having the cavity between the layers, through the whole facade height. The air let in the cavity from the lower levels, turns out from the points on the upper levels of the building. Especially for the high rise buildings, the air in the facade layers' cavity, warm up excessively. Therefore, building high double skin intelligent glazed facade systems are not prefered for the multi storey high rise buildings.

| 1 | 2 |
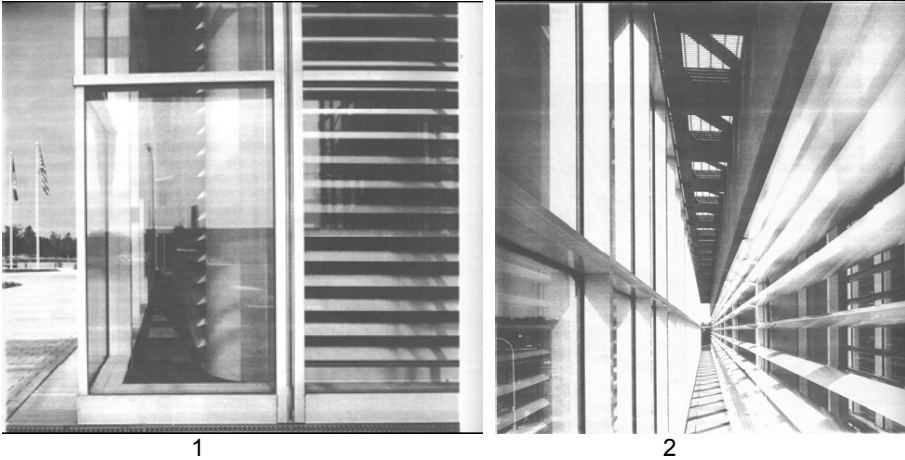
1- The glazed facade of the Occidental Chemical Centre Bulding, (Wigginton, 1996: 160)
2- The cavity between the layers of the double skin glazed facade of Occidental Chemical Centre Building (Wigginton, 1996: 157)

Shaft facades

By the combination of the storey height double skin intelligent glazed facade systems and building height double skin intelligent glazed facades, the shaft facade systems are formed. The cavity between the facade layers continiues through the storey height. Another cavity (shaft) would be added to this system continiuing through the building facade height. The air warmed up in the cavity through storey height, is turned out by these shafts.

1- The facade of the Photonics Centre Building, (Compagno, 1999: 155)
2- The natural ventilation schema of the Photonics Centre Building, (Compagno,1999: 155)

The double skin intelligent glazed facades are classified as it is told above, and also we can make a classification according to the size cavity between the facade layers.

1. Classification of the double skin intelligent glazed facades according to the size of the cavity between the facade layers

For the double skin intelligent glazed facade systems, the size of the cavity between facade layers varies significantly. The environmental factors, climatic datas, storey numbers are all decisive features for determining the cavity size between the facade layers.
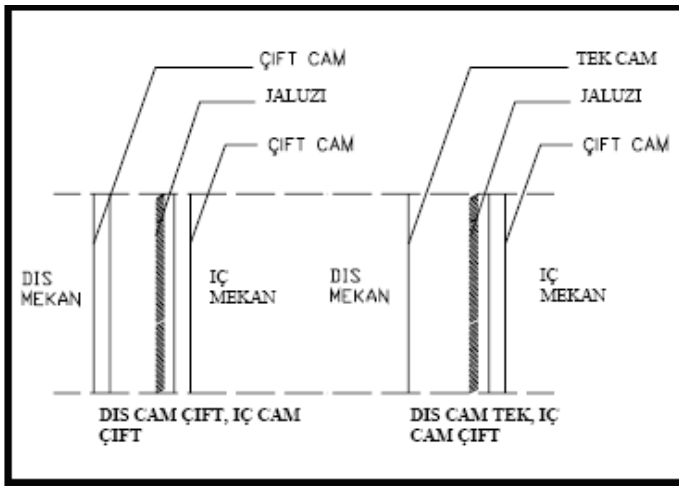
- The double skin intelligent glazed facade systems with a small sized cavity between the facade layers are the examples that the cavity width is 20 cm.
- The double skin intelligent glazed facade systems with a medium sized cavity between the facade layers are the examples that the cavity width is between 50-70 cm.
- The double skin intelligent glazed facade systems with a large sized cavity between the facade layers are the examples that the cavity width is between 70-200 cm. (Kocaman, 2002)

The cavity size between the facade layers can change between 20-200 cm's in double skin intelligent glazed facades. The cavity size can be determined according to the airflow supply, chimney effect and the pressure of the wind on the building facade. According to these datas, another important criteria is; the grills installed in the cavity can be stepped on in order to use for the cleaning and maintanance of the facade layers on the facades that have a cavity size bigger than 50 cms. So the maintanance and cleaning can be done easily. For the examples that have a space size under 50 cm's, the inner facade layer glasses can be openable and so the space and the outer layer can be reached for the cleaning and maintanance, but this can increase the cost of the facade. (Kocaman, 2002)

Inner layer of the intelligent glazed facade is composed of double glass while outer layer can be both double or single glass. The double layered intelligent glazed facades can be classified in two groups according to the number of glass layers used in outer facade:

2. Classification of the double skin intelligent glazed facades according to the number of glass layers on the outer façade

    1- Both layers of the intelligent glass facade are composed of double glass
    2- Outer facade layer is composed of single glass while inner facade layer is composed of double glass,


The variations of glass combinations for double skin intelligent facade (Kocaman, 2002).

While creating the double skin intelligent glazed facades, different applications have been seen as double-single skin glass for inner and outer facades. The atmospheric conditions and the region that the site of the structure is located on, should be considered in order to determine the number of glass layers for the inner and outer facade layers. The outer layer of the is designed as double layered for the regions that have big wind pressure and extremely high temperatures. For the other regions, the environmental factors like the traffic noise, effected the outer facade layer to be designed as single glass. (Kocaman, 2002)

3. Classification of the double skin intelligent glazed facades according to the shape of outer facade layer
    • Double skin facade systems having the outer layer components fixed.
    • Double skin facade systems having the outer layer components movable.
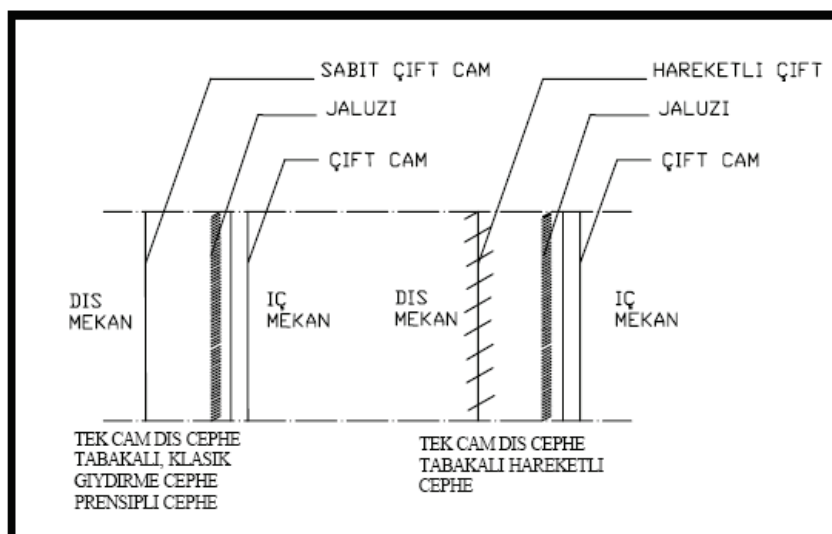
Shaping the outer facade layer of double skin intelligent glazed facades
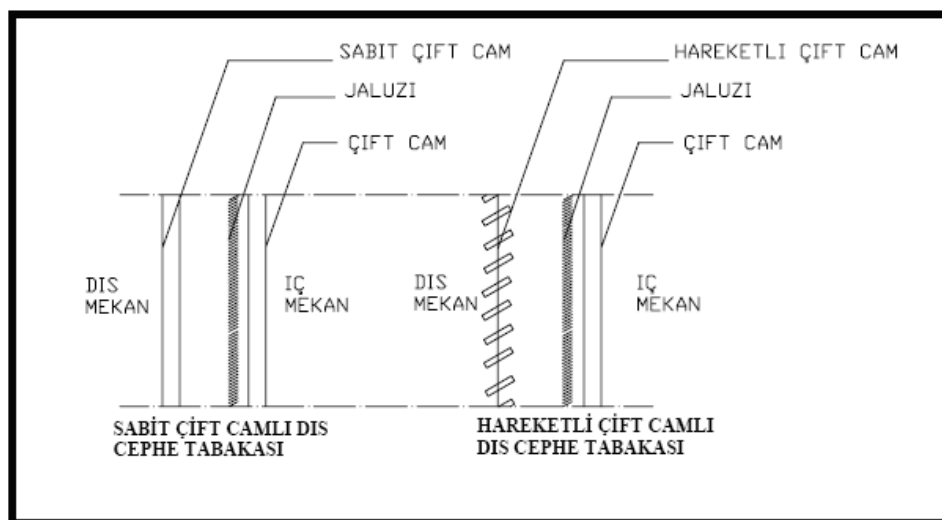
Shaping the outer facade layer of double skin intelligent glazed facades

As it is seen on the figures, the outer facade layer of the double skin facades can be movable and also fixed. For the examples that have the movable components on outer facade layer, it is not needed to install a vent on the outer facade for the air input to the cavity between facade layers. The air input can be provided by keeping the facade components on open position.

The examples that have been applied with the existing classification of double skin intelligent glazed facades

Double skin intelligent glazed facades have been formed by many sub-systems in order to provide the needed energy efficiency and building performance. The combination of different sub-systems caused intelligent glazed facade systems with different specialities. The existing classifications have been done according to one or two main features of double skin intelligent glazed facade systems. Adding sub classifications to these examined classifications, would make a clarity for the definition of double skin intelligent glazed facade systems. With this paper, by analyzing the examples, new sub classifications have been proposed to.

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STRUCTURAL COMFORT AND ENERGY EFFICIENCY OF CURTAIN WALL SYSTEMS: KTU FACULTY OF ARTS AND SCIENCE AS A CASE

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ABSTRACT

From the past to the present, the efffects of developments and changes in all areas such as social, cultural, political, technological, economical, estchetic etc. in socities has been seen obviously upon the cities' architectural identity, structures' mass and facade. Buildings and their skins have became as decorating components in cities with the reflection of technology to design and formal enrichment. Designing principles and alternatives of building skin and facade organizations beyond a visual element, are dealt with as an important factor especially in the process of sustainable and energy efficient structuring. Facades as being in the quality of buildings skin, are set by architectural mentality and technique, building structure and materials of their building period. So, as it is thought that common structure, material and architectural mentality have composed a common facade mentality, curtain walls have came out as a best gain of current architecture. As it is in the other facades, expectations such as stabilizier of internal and external climate, providing the best way of user comfort condition, dynamic covering that provide energy saving by decreasing the usage of mechanic systems indoors have attached to expectations such as strength, security, insulation of heat-noise-water and fire, ventilation, daylight usage etc. in the curtain walls systems that are used commonly , too.

The aim of this study is to seek solution ways to problems in curtain wall systems covering about one third of building cost that has came out inevitably during the operating process as a result of deficient building physic conditions in accordance with wrong decisions taking in the designing process and user fault. Curtain wall system in the context of structural comfort and examined energy efficient is located at Art and Science Faculty in Black Sea Technical University campus. The northern facade of this building change into curtain wall system two years ago because of both providing efficient performance in terms of user's comfort and safety against the enviromental factors and keeping pace with developing facade system and changing esthetic view. In the context of study, a public survey with the technical staff in chosen sample building has carried out to identify structural comfort features that is one of the most important factor affecting the job efficiency expected from workers. In accordance with public survey results and structural analyze of building's curtain wall system, assesments and suggestions were made to reach the optimal results in new design and improvement of available conditions in terms of structural comfort and energy efficient by identifying the system's pros and cons.

Keywords: Building skin, Curtain wall systems, Comfort conditions, Energy efficient design, Renovation

INTRODUCTION

Throughout the history, depending on the material and technological possibilities of the period, different types of structures have been constructed for different purposes. All the buildings and have been evolved in paralell with the development of people an they have reached the current state affected our experiences up until now.

Designing principles and alternatives of building skin and facade organizations are dealt with as an important factor besides primary effective parameters such as design, selection of material, operating systems, especially in the process of sustainable and energy efficient design. A sustainable and energy efficient design can significantly reduce adverse human impacts on the natural enviroment while simultaneously improving quality of life and economic well-being.

The building skin, as it provides protection against the weather and enemies, and for storage provisions, represents the primary and most important reason for building. This is clear when we consider that building work is reduced to a minimum in those regions where the external climatic conditions essentially match the ambient conditions we humans find comfortable. However, the greater the difference between exterior climate and interior conditions, the greater is the technical undertaking required to create the conditions necessary for occupying the interior. The conception, design and construction of the building skin and facade are crucial. Not only for the external appearance of the building, but also for the serviceability, durability, costs and energy consumption of the entire building, the protection of people and property, and comfortable interior conditions. Local circumstances, the type of society found in a certain region, the history and ethnography, the local climate, or the availability of local resources have all played a key role in the design of the building skin. (Herzog, Krippner, Lang, 2004).

The emergence of iron as a construction material during the industrial revolution and the invention of the iron frame opened up a whole new scope for devising the external elevation. The process of dissolving and dematerializing the facade is directly coupled to relieving it more and more of its loadbearing function. The ability of the frame to concentrate loads from the floors directly in beams and columns laid the foundation for opening up the wall until, ultimately, just a glass skin could be hung in front of the frame as a 'boundry' between inside and outside. (Schittich, Staib, Balkow, Schuler, Sobek, 2006)

Today, at the start of the 21st century, the glass facade has become an established feature of the built enviroment. In terms of technolog, the material has reached a stage of development in which it seems that nothing is impossible.

The interaction of economic, technological and stylistic factors now contributed to the rapid spread of the use of glass as a building material. Towering, glazed office blocks became fashionable as company headquarters. Glass curtain walls became the status symbol confident companies and the silhouette of glass towers the sign of a prosperous city.[3] In fully glazed buildings the energy budget is burdened not only by heat losses, but also by the energy consumption needed for ventilation, cooling and lighting. Optimum utilisation of natural air flows, incident daylight and the thermal

storage capacity of the building mass, can bring about a considerable reduction in energy consumption levels. (Compagno, 2002)

Buildings account for the bulk of the energy budget of the OECD countries. At least one-quarter of the domestic heating bill in these countries is due to the thermal energy loss through glazings because they are the weakest thermal component in a building. (Muneer, Abodahad, Weir, J. Kubie, 2000) Therefore, improving the thermal insulation of the window will contribute to energy conservation and enviromental improvent. In order to provide the user with a comfortable enviroment, a facade must fulfil many functions. Considering all these features expected from building facade, the purpose of this study is to investigate the effect effect of building to the energy efficiency and to user comfort of front system prefered by today's architecture frequently. Within the first section of the study, it is briefly mentioned curtain wall system and parameters of user comfort designed for helping the controlled relation between experior and interior space. In the second section, investigation methods and technics for sample building's curtain wall are mentioned.

In the conclusion section, by analayzing the findings, assesments and suggestions were made to reach the optional results in new design and improvement of available conditions in terms of structural comfort and energy efficiency.

CURTAIN WALL SYSTEMS

Curtain wall refers to a general name of all partitions having pre-fabricated curtain wall that is suspended and do not bear any load from building, and is an essential element of exterior costruction for the skyscraper using various types of materials and construction methods being developed recently. (CA Press, 2008) Since the construction is practically independent of the building's main loadbearing structure, the facade can be partitioned almost at will and cladding or glazing used to meet the various aesthetic or functional requirements. The vertical and lateral loads are generally led to ground flor by flor, but special loadbearing elements may be added to bridge longer spans. (Knaack, Klein, Bilow, Auer, 2007)

Opaque curtain wall 'spandrel panels' can be finished in virtually any material, but metal and stone are the most common. The 'vision panels' are made of insulated, multi-pane glass, with a variety of coatings for appearance and performance. Older style 'stick systems', where the curtain wall is composed of individual elements (glass, mullions, gaskets, spandrel panels, metal caps) assembled on-side, have given way to prepabricated 'unitized systems' that arrived at the construction site virtually preassembled, ready to be lifted into place and fastened to the building's structure. While unitized systems now dominate curtain wall technology, stick style systems continue to be used in some parts of the world. (Crosbie, Pelli, 2005)

Comfort Factor For Building Skin Design

Comfort is an indicator of people's enviroment. However due to the biological differences of people in the same enviroment their comfort level changes depending on this. As it is impossible to create an atmosphere that can satisfy all type of users,

prefered conditions are provided with the conitions desired by the majority. For example, ASHRAE Standart 55 consider at least 90% users' satisfaction related to thermal comfort but International Standart Iso 7730 does at least 80%.

Different types of buildings pose different demands on the comfort level. The most essential criteria are thermal, hygienic, acoustic as well as visual comfort. All participating concultants should agree upon the many parameters that need to be considered during design.The functions of ventilation, heating, cooling, sun protection and directing of light have to be realised through elements of the facade in order to achieve the required comfort levels.

Thermal Requirements: Many factors are responsible for the thermal comfort level. The human body not only absorbs an emits heat through the air by convection, but is also influenced by the surrounding surfaces through radiation. Therefore heat transfer by both convection and radiation needs to be considered when trying to achieve thermal comfort. This shows how much impact the surface areas of a space can have on thermal comfort.

Visual Requirements: The goal related to the visual perception of a room is to please the eye of the occupant. In general, rooms should be designed such that the human eye can easily grasp the surroundings and receive a clear impression of the space. Another aspect of visual comfort is natural light. In as far as incident sunlight is available it should be used. However, to avoid overheating of the room and glare at the work place, sun protection is necessary.

Hygienic Requirements: The quality of the ambient air plays a significant role in terms of hygienic comfort. A comparative research study of air-conditioned offices and naturally venyilated rooms conducted by the BMFT [German Federal Ministry of Research and Technology] in 1998 has found that the occupants of air-conditioned rooms felt uncomfortable more often than those in naturally ventilated rooms. To ensure hygienic comfort the air has to be adequately circulated.

Acoustic Requirements: The acoustic comfort level in a room is influenced by sounds transferred from the outside, sounds inside the building and from the person's own sound generation, or rather, resonant response. Noise can also be caused by technical installations and conductors. Such sounds can spread through the whole of the building and therefore reduce the acoustic comfort level. (Knaack, Klein, Bilow, Auer, 2007)

The Impact Of Facade Design On Energy Consumption In The Building Interior

In conventional office buildings nearly 40% of total energy consumption is devoted to heating and a further 40% for the operation of air-conditioning systems for both ventilation and cooling. The remaning 20% is consumed for artificial lighting. To increase comfort and reduce energy consumption, the cooling loads must be reduced by means of optimal sun protection, improved daylight use and daylight-dependent regulation of artificial lighting. Depending on the spesific requirements, heat gains in a room or thermal transmittance losses in the facade can be minimized with shade,

glare protection and insulating systems as well as daylight deflecting elements. (Schittich, 2001)

Larger glass surfaces, high internal heating loads, changing user requirement, rising energy prices and the near-exhaustion of environmental resources, have made an investigation into the performance and function of the building skin more important today than ever before, if we wish to keep pace with changing demands and conditions.

MATERIAL AND METHOD

In this study, a survey was made for emphasizing the effects of building shell to the users' comfort conditions, work efficiency an building energy systems in the business enviroment in which we spent most of the day. With this survey, with the help of users' opinions, it is aimed to determined the important parameters for choosing the right material an detail in the curtain wall system buildings, identifying of system's positive and negative sights and providing required structural comfort condition.

The Faculty of Arts and Science building in KTU central campus was selected for survey study. 50 administirative and academic staff using the rooms that have curtain wall systems in the north facade were interviewed. The number of interviewed people meets 90% of total number. 30 questions were directed to users with the aim of determining the level of building's structural comfort standarts. As a result of survey responses, the current situation was tried to determined with the percentage and graphics.

The north facade of this building was constructed with vertical stick curtain wall system in 1960s. This facade type was formed with vertical stick parts placed in modules that is main carrier and horizontal stick parts situated between these parts. Facade was covered with windows placed between metal stick parts and parapet panels consisting of isolated wood wool slabs. As it can not provide the user's comfort in interior environment any more and the reason of losing its resistance to the exterior enviroment condititions, this facade used too many years was changed in 2007. Standart curtain wall system (stick system) is used in the renewed facade. Folding wings were designed as top hung (open out) concealed vent windows. The type of the glass used in facade is tempered blue reflective glass. As we evaluate the glass type used in facade of in terms of structural comfort, usage of blue reflective glass is suitable in terms of solar central performance especially in office buildings and the regions having long cooling periods.

This glasses' solar radiation reflection coefficient is high and it's permeability coeficient is low. These reflective covering can applied both clear and colored glass. Compared with clear glass, the reflective covering applied to colored glass has more cooling coefficient. (Wiggington, 1996) As these glasses' daylight permeability is too law, the need for artifical lighting in daytime increases.

Figure 1. KTU, Faculty of Arts And Science, old – new curtain wall system
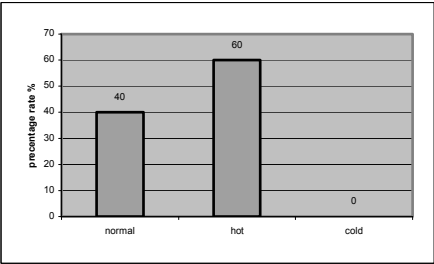
FINDINGS

The survey questions prepared by evaluating the problems and basic principles of the topic consist; heat-sound-water-fire insulation, solar control, type of metarial, heating and ventilation system and positive and negative views of users about facade. The results of the survey are following.

Users opinions about the heating of the environment in the summer and winter are shown in Graphic 1 and Graphic 2. The environment is indicated to be cold by 10% of users, to be hot by 32% , to be normal by 58% in the winter. In the summer, while 40% of users mentioned that their rooms are at the normal heatness, 60% of them mentioned that it is hot.
Moreover some users stated that overheating and humidity of indoors caused from high level of humidity of the city in summer, affect the working comfort adversely.
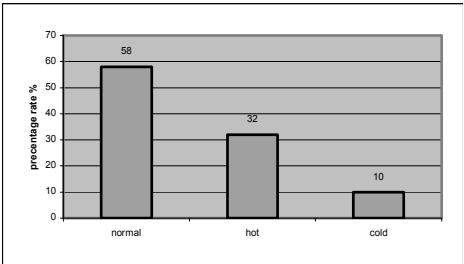

Graphic 1. Indoor Heatness in Winter   Graphic 2. Indoor Heatness in Summer

In the building which the survey was applied, all the space are heated by the central-heating system.While 48% of user think the central heating system is adequate, 6 % of them use air-conditioning in addition to central-heating system an 46% of them use electric heaters besides. All the users mentioned that sweat-evaporation isn't seen on the room's windows in the winter.

50% of users need to use additional cooling equipment in the winter. When we investigate the day light (nature light) level of rooms, depending on the system of building construction and the type of glass, the users' opinions about this are shown in Graphic 3. While 60% of users think natural lightining level of rooms adequate, 30% of them think relatively adequate but 10% don't.
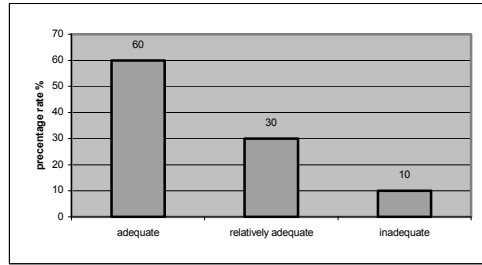

Graphic 3. Daylight Level of Indoors

When assesting renewed facade in terms of solar control , 90% of users mentioned their needs for additional solar control equipment such as venetian blind, curtain , blinds despite the use of solar control glass. 16% of users said that the glass used in facade to provide solar control is adequate, 65% of them think it is relatively adequate but 19% find it as inadequate (Graphic 4).
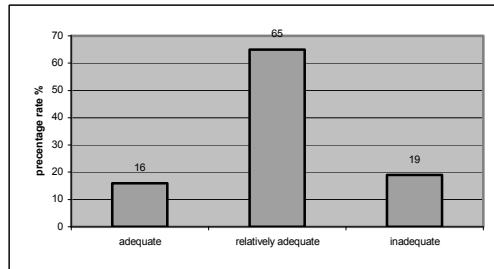
Graphic 4. Solar Control Level of Curtain Wall system

Depending on the type of the glass used in the front of building, a gloomy atmosphere is seen indoors in daytime an users can be seen from outside while they are using artificial lighting as it gets dark. This situation disturbs 76% of users but 24% of them aren't disturbed. One of the important issues affecting the indoors atmosphere comfort and also should be considered in curtain wall systems is the effect of wind. 26% of users say they sometimes feel the effect of wind in doors, 28% of them say "rarely", and 12% of them say they usually feel it but 34 % of them never feel it. When we examine the curtain wall system that affects the acoustic comfort in

terms of volume level from outside, while 62% of users find sound isolation is adequate, 38% of them don't. Depending on the facade construction system and the type of materials, voice transition between floors and rooms was determined by all users. (Graphic 5) 90% of users stated that this voice transition affects their working comfort. With regard to this result, we can say that materials used in curtain wall system and technic for details is appropriate in terms of acoustic comfort between outdoor and indoor however, the indoors arrangements aren't.
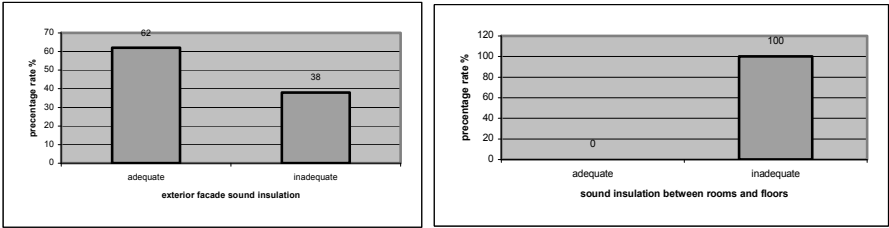
Graphic 5. User's Satisfaction of Sound Insulation in Curtain Wall System

During the interviews with users, it is observed that the spaces between floors left for heating equipment weren't closed while the facade was underconstruction and voice transition occured dependingly during the examination done indoors. Gypsum board separators arranged between rooms are sufficient. Some plasterboards were used in parapet area. Radiators used for room heating were attached to this panels and marble sill were fixed on it. Also a few users stated that animals like mice are able to enter indoors because of both spaces resulted from labour system failure and consruction system in parapet area of facade and this causes psychological disturbance.
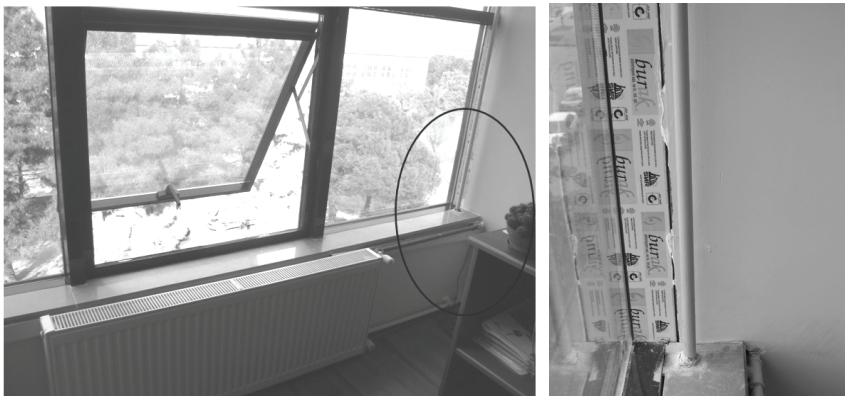

Figure 3. detail of parapet - partition wall

76% of users wıshed that window wings can be opened while 24% of them didn't support this idea. Users opinions about this issue are shown in Graphic 6 and 7. While 72% of users mentioned that the size of the wings are appropriate, 28% of them don't. Users also dissatisfied with the number of wings that can be opened as it affects the natural ventilation in rooms.
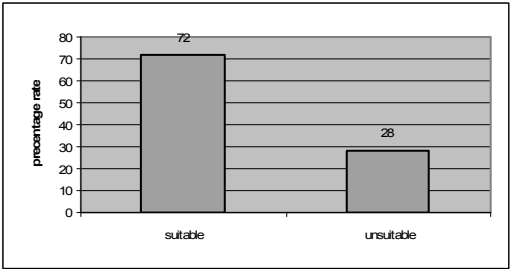
Graphic 6. Size Of The Windows That Can Be Opened In Facade

While the opening style of wings are unsuitable for 70% of users, 30% of users mentioned they are suitable. This 30% of users complaint about their unabilities to clean the windows from inside due to the opening style of wings. Morever, the new facade system hasn't been cleaned since it was constructed (for 2 years). This case affects the visual comfort indoors negatively.
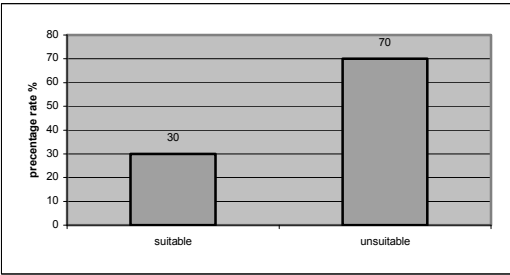
Graphic 7. Opening Styles Of Windows (*top hung-open out*)

When we investigate the facade construction in terms of water and fire insulation, 70% of users indicated that water impermeability is at the sufficient level. In terms of fire insulation, security risk is observed because of the plasterboards between rooms and spaces between floors.

The result stated in Graphic 8 and Graphic 9 were obtained when the users were asked about their negative and positive opinions of facade construction of building
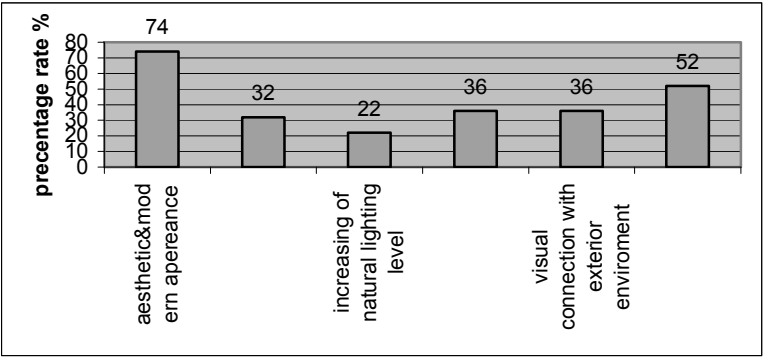
Graphic 8. Positive Openions About Curtain Wall System
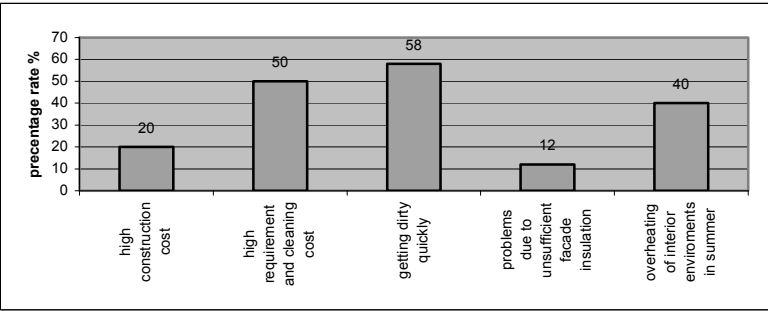
Graphic 9. Negative Openions About Curtain Wall System

As a result of the surveys, it is indicated that 76% of users are satisfied with the changes although there are some drawbacks affecting renewed facade system's comfort conditions. While 18% of users are partially satisfied, 6% of users indicated that they aren't satisfied and they also said that their problems continues.

CONCLUSIONS

Curtain wall facade systems has several aesthetic kinds. Facade system, constructed with the purpose of serving both exterior comfort; the security and aesthetics , and interior comfort, are fairly succesful products. However, if the facades can not be constructed as they were designed before or consturaced with wrong design decision, the result will affect both the user comfort level and the level of using the building's energy sources productively. Especially users' opinions are important for increasing the physical performance of workers in the building that changes of it will be done later, creating more comfortable working conditions. Curtain wall facade

system's structural feautures such as its material and details should be determined by learning the users' opinions and needs. These opinions make it clear that what the features used in curtain wall facade system buildings that has optimal comfort conditions and energy efficiency relatively are.

According to the data in the studies, some problems affecting indoor environment conditions, energy efficiency of building, using duration of exterior skin negatively have occured. These problems affecting the indoor comfort can be summarized as follows. When the current system(the classic covered curtain-wall facade) is examined as thermal comfort, it is emerged that. 50% of users need additional healting equipments, in the winter, but they need additional cooling equipment because of overheating in the summer. One of the most important reason is to use the profiles using in facade without insulation due to being more economical. However, the use of insulated profiles is more apprapriate to decrease the heat transmition in facade. It is suitable to use double glass units in transperant part, panel unit with glass and stone wool in parapet part, for thermal-steam intransmition in system, but for steam intransmition, using galvanized sheet plate is more suitable. In parapet part, using stone wall showing more resistance to fire as heat insulation material is recommended. Moreover, for fire protection, the spread of fire can be delayed by using galvanized sheet plate between floors and parapet parts.

When we examined the users' opinion about solar control, the need for additional solar control equipments and insufficient productivity has been determined in spite of using solar control glass in the system. Also, because of the blue daylight reflection glass' low permeability of the daylight, using artificial lighting even in daytime of both affects users comfort and increases energy consumption of building. Examined the facade system as acoustic comfort, although the sound from outside environment is felt less indoors, disturbing sound transmission between the rooms and floor has been identified by most users. We can classified the related reasons as wrong designs in connection details, inappropriate material usage and workers' insufficient performance about application. When the facade system windows are investigated in terms of their type and size, most of the users stated their dissatisfaction with the window opening format. Vasisdas opening of windows isn't appropriate both for security psychology and cleaning difficulty of the interior facade. Besides, this cleaning difficulty affects indoor visual comfort negatively. Users are glad with the windows' size but the limited number of wings that can be opened isn't sufficient for both psychological relaxation and natural ventilation.

Besides all negative conditions emerged by the result of all work, most users are happy with living in building with curtain wall system having aesthetic and modern view and being compatible to the environment.

Providing comfort conditions at optimum level in the building is needed to increase physical comfort and provide psycholological satisfaction of the environment. When we think the energy giving way to our era is being consumed and the need of using it economically, users comfort in building has gained more importance.Therefore, in the building designed recent years, it should be preferred the facade systems being sensitive to nature, using renewable energy sources more and providing reduction of construction costs and artifical energy amount using for indoor heating, cooling, ventilation and lighting (HVAC)

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GREEN ROOFS, ECOLOGY AND SUSTAINABILITY

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ABSTRACT

Sustainability is defined as meeting today's needs without affecting future generations' ability to meet their own needs negatively. Consumption of limited natural resources at a very fast pace and the danger of ending up with an irreversible ecological destruction increase the importance of sustainability. Under the concept of sustainability, the obligation to protect ecological balance and spend natural resources economically urges designers and investors to take new precautions, and this also speeds up the construction of ecologically designed buildings.

The energy resources that ecological design uses do not consume and contaminate resources; they are nature friendly, clean and renewable. Thanks to these characteristics, ecological design forms a healthy cycle in the nature-human/society interaction. Ecological design criteria are multifaceted. It has social and physical components that rely on time and the general conditions of a time period. As for protecting green textures, green roof applications are among the components of ecological design and sustainable architecture.

In this declaration, green roofs are analyzed with respect to especially their ecological aspects and their contribution to maintainable architecture.

Keywords: Green roof, Garden roof, Ecology, Green architecture

INTRODUCTION

Green texture is one of the key elements in keeping the earth in a climatic balance. Green texture has many benefits for the ecologic balance. Moisture and heat adjustment, cleaning of air, acoustic insulation, protection from sun rays, a natural environment for animals and plants, and last but not least visual richness are some of these benefits. (1).

By means of the said benefits and more, green texture forms a healthy relation between people and nature, thus the need for green texture is absolute. However, the number and acreage of open and green areas that have a direct relation with today's and tomorrow's urban places tend to decrease as they get closer to city centers. One of the most effective solutions for this situation is to regenerate the green texture on the structures that caused the green textures to vanish (2).

For this purpose, nowadays in the cities, many terrace roofs are designed as green roofs or turned into green roofs afterwards so as to provide green places and to protect the ecological balance.

GREEN ROOFS

The very first example for green roofs in the history is the hanging gardens of Babylon. We also see examples of green roof designs in the Greek, Roman and Renaissance period. Le Corbusier, one of the representatives of the modern architecture, contributed to the development of green roofs as he asserted that green roofs allowed for a wider place to relax when situated very close to high buildings and that they could also be used as garden. Today, roofs of many structures having different functions are designed in green, as it is an element of ecological and maintainable architecture. (3,4). Green roof applications can be used on the roofs of shopping malls, hotels, domestic residences and stores, just to name a few.

Green roofs are mostly applied on well isolated flat roofs that are built in accordance with terrace roof building rules with a slope of 2%. Besides, any kind of slanted surface, from gable and hipped roofs to cross vaults, can be greened by making use of a suitable method and materials. Green roofs can be classified as ventilated or non-ventilated, traditional or reverse roofs. Main layers that constitute green roofs can be counted as follows: 1.plants, 2. soil, 3. filter and drainage layer, 4.moisture holding layer that shields against mechanic impacts,5. the layer that holds roots, 6.water insulation and roof construction. (Figure 1) (5) These main layers can be arranged in various ways depending on the construction system or material type. Using additional layers is also applicable (heat insulation, etc).

The two main methods used for building green roofs are intensive greening and extensive greening. Intensive roofs are made of a thick layer of plant soil and traditional garden plants and sometimes little trees. The pressure of the system that is exerted on the roof is generally 300-400 kg/m², so the static system has to be built strong enough to handle this pressure. The plants used in intensive greening require maintenance, so one has to pay attention to watering. Use of human resources has to be considered. (Figure 2) (5,6,7).

Extensive roofs are constituted of a thin layer of plant soil, various types of sedum plants, moss-like plants and bushes. Because the pressure exerted upon the roof by extensive systems is 100 kg/m², these roofs are lighter roofs. The plants involved require less water, the required maintenance should be carried out at most once or twice a year. There is no need for the use of human resources (Figure 2) (5,6,7).
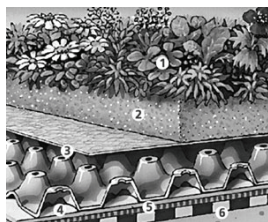

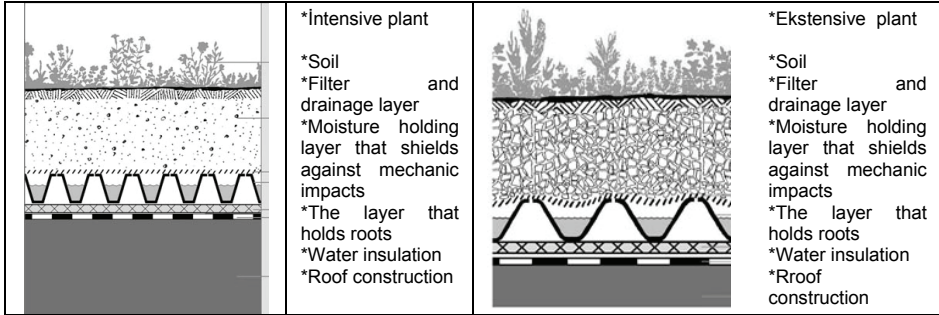
Figure 1. Main laters of green roofs

| | *İntensive plant

*Soil
*Filter and drainage layer
*Moisture holding layer that shields against mechanic impacts
*The layer that holds roots
*Water insulation
*Roof construction | | *Ekstensive plant

*Soil
*Filter and drainage layer
*Moisture holding layer that shields against mechanic impacts
*The layer that holds roots
*Water insulation
*Rroof construction |

Figure 2. İntensive and ekstensive green roof

ECOLOGICAL AND SUSTAINABILITY BENEFITS GREEN ROOFS

Improved Air Quality

- **Filtration of Airborne Particulates:** Air borne dust particles, various types of gases (CO, CO2, SO2, NO etc.) and heavy metals (cadmium, copper, lead, zinc etc.) that are released to the atmosphere through industry, heating, traffic etc. are harmful to the health of people and environment. Plants filter by absorption these harmful substances and more which are carried in the air and water. They increase the quality of air and create places where life is possible   (Figure 3) (5,6).
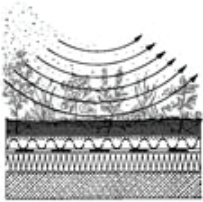

Figure 3. Filtration of Airborne Particulates

- **Carbon Dioxide/Oxygen Exchange:**Through the process of photosynthesis, plants convert carbon dioxide, water and sunlight/energy into oxygen ang glucose. This cyclical process supplies animals and humans with oxygen and food (Figure 4) (6,7).
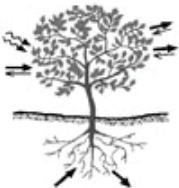

Figure 4. Carbon Dioxide/Oxygen Exchange

- **Moderation of Urban Heat Island Effect:** Stone, asphalt and concrete surfaces which accumulate solar heat throughout the day and release the same at night cover lots of space in big cities. In this situation, the temperature of the air in urban areas is higher than that in rural areas. Green roofs protect cities from the excessive heat absorbed by hard surfaces. Plants and soil evaporate water, moisturize the air and help it get cooler. It creates places worth living where precipitation is higher and summers are cooler. CO_2, because of its greenhouse gas characteristic, is another factor for the increase of air temperature.   Plants affect global warming and climatic balance positively as they convert CO_2 into oxygen through photosynthesis (6,7).
- **Moisture Transferability:** Green roofs, thanks to their moisture transferability, render the structure breathable and take the moisture in the building out. This is important for the human and structure health (7,8).

Sound Insulation

- **Sound Insulation:** Noise, stemming from technological developments, is an important problem for the society. Noise control is necessary for people's health, work effectiveness, privacy and comfort. Plants and the soil layer in green roofs absorb sounds. Soil blocks low frequencies, plants block high frequencies. This aspect offers advantages for buildings situated in the vicinity of noisy places like airports and highways (Figure 5) (9,10).

Figure 5. Sound Insulation

Preservation of Habitat and Biodiversity

- **Natural Habitat for Plant and Animals:** Green roofs are natural living environments for birds, insects, butterflies, various types of plants and trees. They return to the city the natural environment lost by the building of structures and roads (Figure 6) (6,11).

Figure 6. Natural Habitat for Plant and Animals

- **Local Food Production:** Green roofs can provide new opportunities for urban agriculture (12).

Social Benefits:

- **Recreation:** Green roofs provide a soothing environment inside a stressful city. People go to green places to make use of their free time, to get away from the psychological pressure of the city life even for a short time, to take fresh air, to get connected with the nature and to engage in sports activities(Figure 7) (9,10).

Şekil 7. Recreation

- **Aesthetics:** Urban greening has long been promoted as an easy and effective strategy for beautifying the built environment and increasing investment opprtunity (12).

Economic Benefits

- **Warming and Cooling Effect:** In cities, the budget allocated to heating in winters and cooling in summers is considerably high. Green roof system protects the structural shell from the freezing cold of winter. In winter soil layer provides an additional insulation. Through green roof system it is possible to reduce the heat loss due to winds by 50%. Therefore, the heating expenses of buildings in winters decrease Figure 8 (6,12).
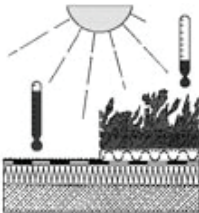

Figure 8. Warming and Cooling Effect

- **Protection of Water Insulation Layer:** The life of water insulation system in green roof systems is longer. Because it is protected from solar UV lights

in a better way. It is exposed to low or high temperatures for less time. Increase in the life of the system reduces insulation renewing costs (Figure 9) (9,12).

Figure 9. Water Insulation

- **Rain Water Filtration:** The pressure on waste water disposal systems in cities increases as on one hand the need for water usage increases in cities and on the other hand the amount of soil to absorb rain water decreases as a result of increase in the number of concrete structures. Lots of cities get damage from floods because of insufficient sub-structure. Green roofs return a substantial amount of rain water to the nature through evaporation. In this case, the amount of waste water decreases by 10-50%. Any decrease in the amount of water to be drained eases the task of waste water system and also reduces the drainage system costs Figure 10 (9,13,14).
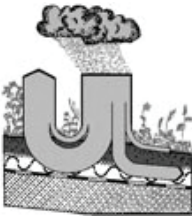
Figure 10.Rain water

GREEN ROOF EXAMPLES

Today, roofs of many structures having different functions are designed in green, as it is an element of ecological and maintainable architecture. Green roof applications can be used on the roofs of shopping malls, hotels, domestic residences and stores, just to name a few (Figure 11).
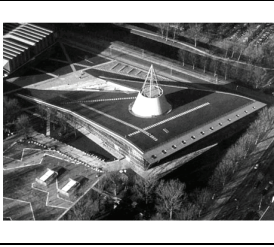
 Meydan Shoping, İstanbul,Turkey	 Millenium Park, Chigago,USA	 Church of Jesus Christ of Latter-Day Saint Conferance Centre,USA
 Turkcell Building, Gebze, Turkey	 Square Public Library, Vancouver, Canada	 School of Art and Design ,Singapore
 Seattle City Hall, USA	 Delft Library, The Netherlands	 California Academi of Science, USA
 Ford Motor Company's River Rouge Plant, USA	 Haworth Corporate Headguarters, USA	 Art and Exhibition Hall in Bonn, Germany

Figure 11. Gren Roof Examples

CONCLUSION

Green texture is important within the context of ecological and sustainable architecture. Because, in order to maintain the climatic balance inside and around buildings that cover big areas green areas must be kept alive. In case necessary amount of green areas does not exist, then situations like air pollution, floods and heat increase emerge and the relationship between people and nature is harmed. Green areas tend to shrink in the city scale so several solutions are developed in order to extend them in architectural scale. One of the most interesting applications is green roofs.

Green roofs act as connection points to the nature. Plants, through affecting the heat, wind and rain, increase the favorability of the climatic conditions. Flora houses natural life habitats, food and soil. It enhances life through noise control, air cleaning and its other functions. Depending on the design characteristic of the system it saves on the amount of water that is to be disposed from the roof. By offering various looks throughout different seasons it gives different perspectives to the users, it is good looking and enhances the mood of the people.

With all of their mentioned benefits, green roofs are important systems that take part in sustainable and ecological architectural designs as they earn plants and nature to their environment and ameliorate the urban ecology.

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A SURVEY ON GLUED LAMINATED TIMBER AT ECOLOGICAL CONTEXT

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ABSTRACT

Today, the protection of the environment and the nature constitutes humanity's focus of interest more than ever. One of the most effective methods for adapting to this new consciousness is the usage of glued laminated timber. Since glued laminated timber is both an ecological and recyclable material, during its processing stage, the environment is affected at a minimum level with respect to the various materials' processes. Usage of timber stimulates more forestation and provides the regeneration of tree species, thus ensuring rejuvenation of forests, which are indispensable for protection of the ecosystem. Glued laminated timber, besides these characteristics, can cross wide spans up to 200 m by systems like arcs, frameworks, geodesic space frame; it can be employed in spaces with different functions. In this study, the structural richness of the glued laminated timber which has gained by virtue of today's technology is investigated from the context of ecology.

Keywords: Glued laminated timber, Ecology, Structural timber

INTRODUCTION

Only one primary building material comes from a renewable resource: wood. As it grows, it cleans the air and water and provides habitat, scenic beauty and opportunities for recreation. As a good environmental steward, the forest products industry practices sustainable forestry practices and efficiently uses harvested material. Every log that is harvested is nearly 100% utilized.

Of the structural building materials, it has the lowest energy requirements for its manufacture, significantly reducing the use of fossil fuels and pollution of our environment compared to other materials. As part of a structure, wood's natural insulating properties (many times higher than steel or concrete) reduce the energy required to heat and cool the structure for its lifetime. Wood is reusable, easily recycled, and 100% biodegradable. Just like its parent material, glued laminated timber enjoys all of these natural benefits.

In addition to the great environmental benefits associated with wood, glued laminated timbers (glulam) extend the available wood resource by using high grade material

only where it is needed in the layup. Glued laminated timber technology also uses small dimension lumber to make large structural timbers, utilizing logs from 2nd and 3rd growth forests and timber plantations (1).

GLUED LAMINATED TIMBER TECHNOLOGY AND ITS ADVANTAGES

Glued laminated timber is a high technology versatile material that is formed by attachment of independent timber plates in different sizes under the controlled industrial conditions via special adhesives (2) The development of this technology has enabled engineers to employ larger sections with better structural properties.This means that load-bearing capacities and the spans of timber structures are now much greater (3) (Fig.1).
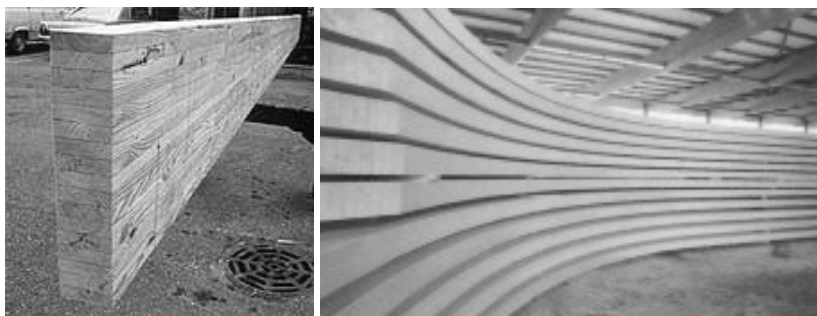
Figure 1. Glued laminated timber

As a rule, glued laminated timber is manufactured from softwood because its easy to machine and satisfies the requirements of strength and durability. Spruce is the most common species in use, but occasionaly pine, larch or Douglas fir may be used if special demands regarding impregnation and weathering resistance have to be met. Hardwoods are difficult to deal with and involve uncertainties regarding the strength of the glued joint (3).

Timber plates possessing glued laminated timber technology are comprised of pieces that were either butt strapped to create long sizes or that were bended to get a curved shape during gluing.

Butt strapping stage includes assembling the timber in length and breadth and provides its suitability for production of wide glued laminated timber (4).

As for the basic purpose of gluing, it is to shape the lumber assembled in length and breadth into a beam form. The glued independent plates are placed into straight, bended and curved molds that were prepared in accordance with the structural component's form, and then these molds are locked via pneumatic locks and pressure is applied (2).

A 25 m arch can be crossed by basic glued laminated timber beam components and a span of 100-150 m can be crossed with arch or framework forming components. Furthermore, span sizes that can be crossed by three dimensional bearing systems such as space frames reach 200 meters (5) (Fig 2).

Figure 2. Various structures formed with glued laminated timber

There are many advantages present in glued laminated timber with respect to lumber and other engineered materials:

Along with glued laminated timber technology, size limitations of massive timber have disappeared, and between structural supporters, it has become possible to design and produce structural components of variable cross-sections (2).

Long structural glued laminated timber components are produced from standard sized lumber (8). During production, by utilizing the bending characteristics of lumber, very difficult or almost impossible curvilinear forms can be prepared (2) (Fig. 3).

Figure 3. Curvilinear forms with glued laminated timber

Lightness of glued laminated timber components has introduced significant advantages in vertical support and groundwork calculations. Behaviors of the

component in case of earthquake are much more successful compared to those of structural elements constituted by other materials. Lightness of structures created by this type of components simultaneously reduces the horizontal forces as well. Especially in structural applications with wide spans, glued laminated timber technology demonstrates a huge performance regarding statics (2).

The component's thickness has rendered it more fire resistant compared to lumber that is designed to bear the same load. (699–899 ºC) (4).

Glued laminated timber has excellent energy absorbing characteristics (seismic, moisture, acoustic). At the same time, it has a high degree of resistance against chemicals and corrosion (4).

With respect to the consumption of resources and ecology, there are many advantages presented in glued laminated timber.

The capability of producing large scale structural components from short and small lumber pieces enables more efficient utilization of lumber resources.
The type of coned pinewood that is used in the production is tree specie that nature can replenish very quickly.
In the production of the structural component, a very low amount of energy is used (fuel & electricity costs). Likewise, average fuel consumption for freight is also decreasing. All of these augment energy savings in general sense.

The fact that toxins or similar synthetic chemicals are not used due to accomplishment of the drying and bug protection technique by drying in the oven with heat is an important aspect with respect to ecology (2).

CO_2 remains a long term compound in glued laminated timber and doesn't result in pollution to the atmosphere (6).

Glued laminated timber can be recycled or used thermal utilization (6).

UTILIZATION IN BUILDING DESIGN

Glued laminated timber components are preferred due to many advantages like possessing high structural resistance in various structures such as; structures with large spans being in the first place, industrial facilities, pedestrian and vehicle bridges, schools, conference halls, indoor and outdoor sports structures, shopping malls, houses and pergolas despite possessing a light structure, providing architectural design variety by being produced in intended forms, displaying a warm appearance without having any coating or finishing material on itself and besides for being an environmentally friendly material. Below some buildings with different functions are exemplified, where glued laminated timber is used and environmental benefits are pursued:

The Sunderland Aquatic Centre

The Sunderland Aquatic Centre has been designed as a performance centre for the preparation of UK team for the Olympic Games in London 2012 (Fig. 4).

Its core is the "Olympic Size" pool with 50 m length and 25 m width. A diving pool and the wellness area supplement the pool which is the largest in North England ever built in timber. The glued laminated timber frames span over 50 m. The challenge was the combination of an outstanding architectural shape including a very tight radius of 3 m and the high forces within the splice connection (7).

The Sunderland Aquatic Centre is an important reference of this distinctive material with the following properties:

- Ideal for long span structures as it is a light weight building material
- Ideal in aggressive environment as in a pool or near the sea coast (no problem with corrosion)
- Ideal for complex shapes (curved members)
- 100 % Off Site Construction and therefore less risks and costs on site
- Low carbon material - saving 500 tons of CO_2 by using glulam instead of steel for the Sunderland project . This is equivalent to 300 cars for one year with an milage of 10.000 km (165 g/km)(7).

Figure 4. The Sunderland Aquatic Centre

Sheffield Winter Garden

The Winter Garden structure is formed by a series of timber arches formed from glue laminated European Larch. The larch, derived from sustainable forests, requires no preservatives or coatings. This is a double benefit as it reduces the use of solvents and also avoids the use of chemicals that could kill the plants.

A research study was performed for examination of the environmental impact of constructing the building. This showed the timber had an eco-rating of less than 5% of that for steel or concrete alternatives - a 95% reduction in energy used in the construction (8)(Fig. 5).

Figure 5. Sheffield Winter Garden

Forestry Tasmania Dome

The glued laminated structure of the domed atrium displays the sustainable building material for which Forestry provides the raw material. Concurrently, the living, growing forest that the atrium encloses is a persistent reminder of their responsibility to maintain the necessary ecological balance in Tasmania's working forest (9)(Fig.6).

Figure 6. Forestry Tasmania Dome

Carlo Fidani Peel Regional Cancer Centre

In the field of health care in particular, research is beginning to provide empirical proof that patients heal more quickly and staff morale and performance increases in a non-institutional setting where natural materials, such as wood, and natural light figure prominently. Regional Cancer Centre in Mississauga/Canada features this approach in design of the lobby/atrium space. Conceived as a village gathering space, the 12 m. High atrium features a forest of nine tree columns whose glued laminated timber branches curve and intertwine. The organic forms enhance the emotive quality of the space which is bathed in natural light from clerestory windows. With its humanist approach, complex forms and innovative technology, this project represents a new bench-mark in the use of engineered wood in Canada (10)(Fig.7).

Figure 7. Carlo Fidani Peel Regional Cancer Centre

Eugene Kruger Building / Laval University

The project is located on the edge of Laval University's suburban Quebec campus and connected to the existing buildings of the Faculty of Forestry and Geomatics. This project were held in two stages : to demonstrate the potential of all wood construction in a large non-residential building and to apply the University's newly adopted sustainable design principles to a built project for the first time. The completed building has helped to break the preconception of wood as a low-tech material for small scale projects, and reinforce the virtues of wood as a green building material. The building expresses the essentially technological nature of eastern wood construction, employing a palette of engineered structural and non-structural wood products. These are assembled in a simple, geometric composition of repetitive modules within a primary glued laminated timber frame.

According to an independent study carried out by the Athena Sustainable Materials Institute, the extensive use of wood results in a 40% overall reduction of embodied energy in the Kruger Building's construction materials, 85% reduction in water pollution and 25% reduction in air pollution (10) (Fig. 8).

Figure 8. Eugene Kruger Building / Laval University

Sydney Showground Olympic Exhibition Centre

Sydney Olympics were identified as the "Green Games", and planned and specified as a sustainable development principles. The main structural elements were designed from timber for the conservation of indigenous species and natural resources, and careful pollution control. Since It was recognised that timber is a renewable building material with low embodied energy when compared with the alternatives. The Exhibition Buildings were constructed using glued laminated timber for its unique aesthetics, cost-effectiveness and environmental credentials. The dome is the largest clear span timber structure in Australia (11)(Fig. 9).
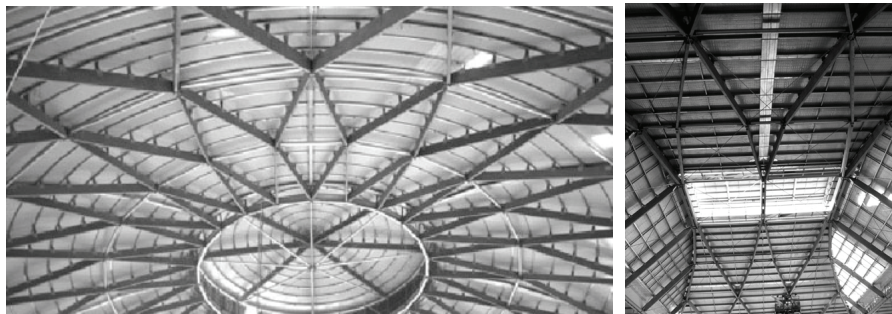
Figure 9. Sydney Showground Olympic Exhibition Centre

RESULTS

Glued laminated timber is a high quality structural component and a high technology versatile material. By virtue of glued laminated timber technology, timber that has been used for about a thousand years has turned into a contemporary structural material having structural advantages. The product, aside from the ease of usage it

provides in crossing of wide spans via delicate and light structural components, offers unique opportunities in architectural design as well. In addition to these, it is an ecological and environment friendly material due to its characteristics such as; rendering more efficient usage of lumber resources possible by production of large scale structural components from short and small pieces of lumber, usage of tree species that the nature can regenerate very quickly, being a recyclable material, disusing toxins or similar synthetic chemicals in drying and protection processes, capturing carbon dioxide in its constitution and not releasing it into the atmosphere in the form of pollution and low energy consumption during its production and freight.

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IN SEARCH OF NEW RECONSTRUCTION: PREFABRICATION WITH WOOD

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ABSTRACT

Rapid growth of cities in the industrial age is caused by great demand for housing. The building sector could not fulfill this need and many people suffered from the lackness of socially well adapted and good quality houses. Architects have tried to meet mass problems.

The manufacturing of traditional materials has also undergone a change after the Industrial Revolution and new production methods were applied to them. Our building construction system no longer corresponded to our way of life. The prefabrication process has been introduced to architecture as it is cost and time reducing. It has recently diminished because of the unsustainable materials. We have to reconsider prefabrication concept in architectural building process.

For prefabrication process arranging a system of dimensional framework is necessary for dimensional coordination. In industrialized construction systems, designing with a modular coordination can be useful, it may improve the quality of traditional systems too. The existing building materials like plastics and concrete are not appropriate materials for prefabrication in ecological manners.

In this study wood has been proposed to be used in prefabricated building components without overlooking its traditional construction technics in Turkey as being sustainable and being the most available and ecological material.

Keywords: Prefabrication, Ecological material

INTRODUCTION

The need for shelter has been the major problem throughout the history of mankind. Humanbeings has tried to fulfil this need by several methods of building. These building types have been shaped by topography, climatic and cultural changes and evolve by time.

After the Industrial Revolution city centers became crowded and factories were being built without regarding the city plans. Between 18th and 19 th centuries in England, with the boost of industrial growth, the major part of the population were living in the

cities in order to work in the factories. The farmers were selling their farms and migrating to the cities. The growth in population caused the sprawl of cities. This brought forward the row-houses concept. The living conditions of the workers were quite poor. The infrastructure of the cities could not fulfil the need of newcomers. And the city became unhealthy for the inhabiters.

In 1950's it was quite the same for Turkey. We have not obeyed the city master plans of Istanbul and other major cities of Turkey other major cities of Turkey. The migration of villagers caused the slum encroachment to the city. We should rethink our policies of high rise and dense city models. A carefully planned, efficient in size city would pollute less and prevent encroachment upon the countryside.

IN SEARCH FOR DWELLING

The increase of dwelling demand has brought forward several solutions. Housing shortage in big cities have formed low-cost housing. Low-cost housing aimes to fulfil the need for shelter, neighborhood and economic conditions. Social housing is built in a standardized way with mininimum space and material for the low income people to be affordable economically.

Figure 1, 2, 3. City sprawl caused by slum encroachment

Recently the major problems of cities are to meet the need for housing with the rapid growth of population. To overcome housing shortage governments are proposing satellite cities. They are donated with recreation fields, shopping centers, hospitals and schools to become more attractive.

There are many attempts to solve housing problem with low-cost housing implementations. But these applications create concrete jungles and architecture without identity. The expectations of the users change according to the life styles and family sizes.

The growth in human population and urban sprawl caused by the migration are threatening the natural resources of the cities. The more cities sprawl, the greater is their dependence on their hinterland on forests. Cities are the major actors for forest decays. This phenomenon causes the spread of erosions, desserts or flooding. The

presence of natural landscape around a city improves the quality of air and life for the citizens. The decision making institution for future planning of cities in the urban planning departments should follow a policy to reduce urban growth and resource consumption. Governments may impose environmental taxes on municipalities which encourage landfill or urban sprawl.

SUSTAINABLE ENVIRONMENT AND ARCHITECTURE

Sustainable building, as a term, is most commonly used to describe a building which is constructed according to sound ecological and environmental perspectives. The term Sustainable Development was first defined in 1987 by the World Commission on Environment and Development as a process which meets the needs of the present without compromising the ability of the future generations to meet their own needs. (Günther, Ed., 1998)

The construction industry is the major consumer of the natural resources. Several chemicals are being added to the building materials in order to increase their strength and durability. This process is hardening the recycling phase of building materials. Thus the waste of the building sector is polluting the environment. On the one hand the natural resources are about to come to an end, on the other hand, the population growth increases rapidly. For this reason the built and natural environment are no longer in a sustainable management.

For a sustainable environment, the natural resources have to be protected. The building materials must be made from renewable and recycled raw materials. There are plenty of by-products from agriculture regarded as waste. Many countries are struggling how to dispose their agricultural wastes. In recent years, the buildings are being made from ecologic materials that causing low impact to the environment. They are also being designed as energy-sufficient.

Unsustainable procurement and manufacturing of building materials and mismanagement of industrial and agricultural wastes cause several environmental threats. Great amounts of energy and natural resources are consumed not only to construct buildings but also to resolve the problems which emerge thereafter.

In recent years, buildings have been increasingly designed as energy-efficient as possible, to avoid the undesired impacts on the environment. In Turkey concrete has been widely used. Governments have encouraged cement factories.

In fact this phenomenon was to encourage modernisation of architecture and life styles. The building form and the skin was overlooked by architects in all the cities throughout Turkey. The environmentalist architect Stein states just after energy crisis years: We became so entranced with the capability of mechanical plants that we no longer had to design buildings that were interconnected with the weather and climate around them. (Stein, 1978)

Use of environmental friendly materials is the basis of sustainable design. Wood is 100% renewable material. Wood is the most preferable building material in traditional Turkish architecture. As it is a natural material it can be used widely in buildings in

terms of health concerns. Wood is recyclable and can be classified as an environment friendly material. It is preferred for its high compression durability and lightness.
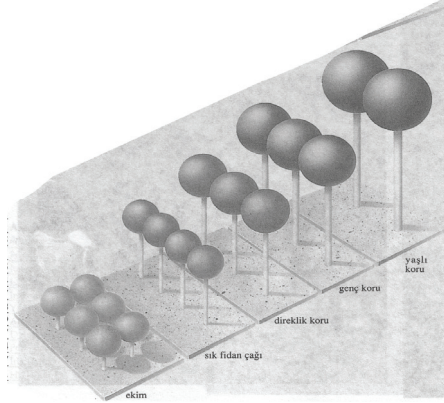
Figure 4. Sustainable harvesting of wood

LEARNING FROM TRADITIONAL TURKISH HOUSE

Proportions in traditional Turkish house originate from human body. The fillet is one finger deep, one palm wide and two fathoms long. The summer rooms have high ceilings so as to circulate the air inside. The winter rooms have low ceilings to the height of a man raising his arm. The windows are generally three palm wide and five palm high. The adze is used to shape the wood. The adze handle is one foot long; and used as a size unit. Generally the determiner of the room size is the carpet itself. (Bektaş, 2001)

The skeleton system is mostly erected by 15x15 or 12x12 posts with 120-150 cm intervals. The proportion of windows is generally 3/5. Between 18th and 19th centuries the proportions changed to ½. (Uluengin, 1998)

Firstly the skeleton system is formed and then the roof is constructed. After this phase the filling of the skeleton system is applied. Usually the floor joists are laid in one direction. The cracks of the coating are prevented with casings. Wood is widely used as it has high heat storage capacity, easy handling and shaping features. In central Anatolia white pine, willow, in South cedar, in North and Western North chestnut are used. In doors, window casings and furniture mostly walnut, boxtree, ebony and oak trees are used. (Eriç, 1972)

The rooms of the Turkish house took their form alongside the development of the general concepts of community life. The rooms are independent units serving specific functions. The rooms evolve according to the growth in population. (Küçükerman,1988)
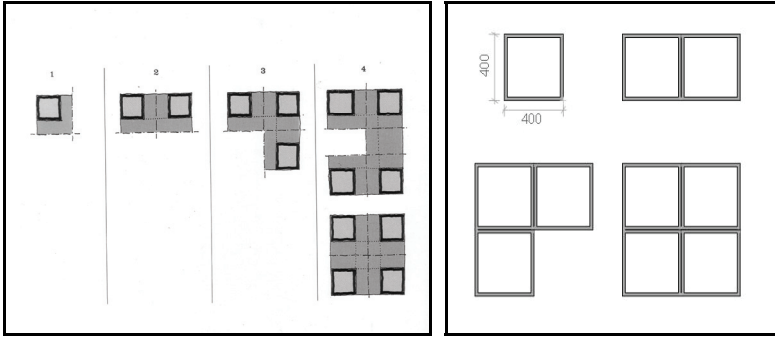
Figure 5. Evolution of the rooms   Figure 6. Proposed Evolution of the rooms

PREFABRICATION OF WOOD AND MODULAR DESIGN

Prefabrication means that prefabricated buildings are built with parts which have been made in factory so that they can be easily carried and put together. This system of building offers reduction from workmanship and time costs. Concrete and steel are used mostly in prefabrication but these materials are not sustainable and not healthy as wood. In 1894 Ottoman Empire Sultan Abdülhamid has ordered a wooden prefabricated house for the visiting Kaiser Wilhelm. It was built in three weeks and was erected in one day in Hereke. This building is the first prefabricated wooden house in Turkey. (Erdin, 2003)

Instead of using Turkey's potential of wooden material, the use of reinforced concrete is increasing rapidly. Reinforced concrete is not compatible with nature andenvironment, creating health problems especially in moist climates; and does not meet the needs of the society, and encourages high buildings. A similar proposition was studied by Vural and others with a detailed prefabricated wood for Eastern Blacksea Region. In order to improve the tree growth in Turkey the Black Sea Region can be pilot forest field in order to obtain the source of building materials as this region is appropriate for raising trees in climatic terms. (Vural et al., 2007)

The modular theory, developed by Albert F. Bemis and his associates, was described in their treatise entitled The Evolving House, published in three volumes between 1933 and 1936. It proposes a method by which site assembly of buildings can be effected without excessive alteration or cutting of component parts. This objective requires dimensional coordination upon the part of architects or other designers, fabricators and manufacturers of building materials. After considerable study the committee agreed upon a 4-in. module as a basis for dimensions of both building materials and the layout of the building. Manufacturers of building materials, including steel, aluminium and wood windows, have adopted sizes which correspond to multiples of 4 in. Such standardization offers the advantage of eliminating much cutting and fitting on the job, as well as an appreciable reduction in the number of sizes of building products which must be manufactured and carried in inventory. These economies should be encouraged by the designer through application of modular system wherever practicable. (Theodore, 1956)

We shall underline portable architecture while designing a modular housing system. Portable architecture consists of structures that are intendend for easy erection on a site remote from their manufacture. The simplest strategy consists of buildings that are transported in one piece for instant use once they arrive at their location. Some incorporate their transportation method into their permanent structure and may be built on a chassis or a hull. Such buildings are generally restricted in size due to the limitations of transport. A more common strategy taht also enables greater variety in built form is the building constructed from factory made elements transported as a partly complete package and then quickly assembled at the site. The third type of portable buildings is composed of a system of modular parts that are easily transportable and usally dry assembled on site. (Kronenburg, 1996)

In space organisation like in traditional Turkish house the modules are repeated as single units. The maximum span of purlin is 4 meters long and thus the prefabricated module will be 4x4 meters. The modules are added according to the customer needs. With this production method a standard unit has been formed and results as a cost efficient process. A hinged arch of laminated wood would be used as a main structure. They would act as the post and beam in one unit. Purlins would sit on these arches and rafters would be put on these rafters traditionally. The sandwich panels would be mounted between the by-posts and windows.
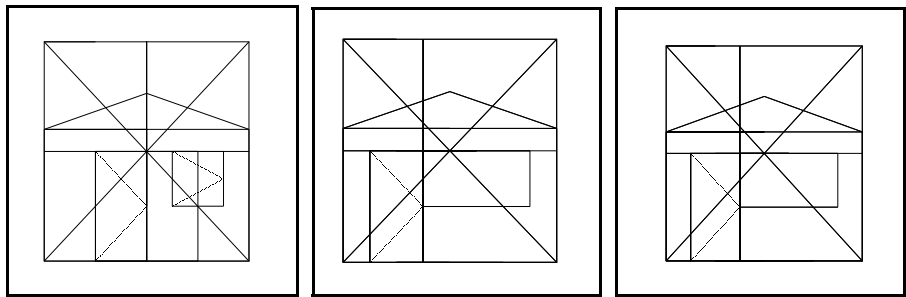

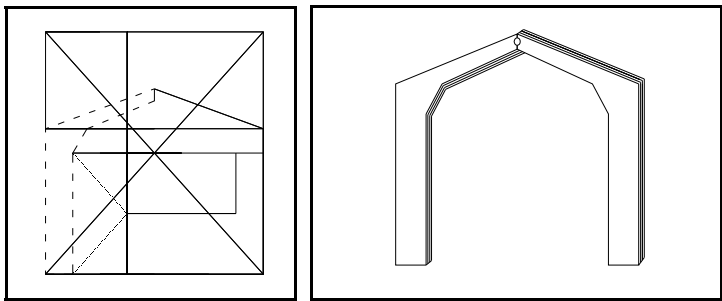Figure 7, 8, 9. Prefabricated panel, door and window alternatives

Figure 10, 11. Prefabricated structure made from laminated wood arch

CONCLUSION

Rapid growth of human population caused by migration resulted as the city sprawl and this ended up with a high demand for housing. Governments ignored the city plans and overlooked the city encroachment by slums. At the present time the dwellers are not looking only for the shelter but integration with the sustainable environment as well.

The major problem of our generation facing is the environmental decay and the natural resources are consuming away. For a sustainable environment as architects we should rethink the way we consume building materials. Life cycle assessment of building materials is pointing to the energy content and the recyclability features. The prefabricated wood building systems offer a healthy living environment and a cost efficient housing occasion.

This prefabricated building would be realized from wood which is our traditional building material. A new system has to be introduced for harvesting our forests. We could rejenuvate the old trees into younger ones while using the cut ones in the construction sector. It would be wise to replace the old tree with a younger one when its carbodioxide suction ratio slightly decreases. With this building system forest villagers would be supported and a sustainable environment would be established.

In this study wood and derivatives are preferred for prefabrication of housing units instead of concrete or bricks. The main concern in this study was procuring the building materials in a sustainable way. The easy mounting and lightness of wood for minimizing the transportation costs was the secondary concern. We have not imposed any style for the building look whether the house would be traditional or modern. This is left to the consumer's choice. Passive cooling and heating principles may be introduced as a second phase for this study.

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A SUSTAINABLE APPROACH TO BUILT ENVIRONMENT: ECO-RESIDENCE MACDONALD CAMPUS OF MCGILL UNIVERSITY IN MONTREAL AS A SAMPLE

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ABSTRACT

Sustainable development concerns not only buildings in the narrowest sense or the whole eco-system in the largest sense, but also involves the settlements and parts of cities. In this sense, the integration of the principles of sustainability and ecological considerations with the planning process becomes of utmost importance. That is the reason why I found it appropriate and useful to undertake a case study of a successful project settlement in Montreal designed along the lines of sustainable development, that might provide lessons for Turkish planners and design practitioners. Although the concept of 'sustainability' is widely accepted all over the world, the rate of applications changes from country to country and when we look at the housing constructions in Turkey we can not see even an application of an eave on top of the windows. So, to have an example of student residential project from Montreal is needed to make our architects to remember some very simple and useful architectural techniques and apply them in their designs. In architecture, knowledge is useful if it is applied in building designs and highlight the life quality of the users. The sample project named as 'Eco-residence and located on the MacDonald campus of McGill University in Montreal, Canada. In selecting the project, I paid attention for three main criteria: Renovation of existing building settlements; application of sustainable guiding principles and providing minimum cost and affordable housing for the residential which also means that mass housing preferred instead of single ones which are rare in Turkey. Those main three criteria are also very important for the housing process and development in Turkey. In Turkey there are many existing settlements that can be renovated within the minimum cost limits by using sustainable design principles; which by emphasizing this I am trying to underline the importance of 'locality'. In Turkey, we have also similar existing settlement areas in most of our cities which are old. Like the sample in Montreal, we can renovate them according to our own local features including the climatic conditions, local materials and being in collaboration with the local community during the design process.

Keywords: Sustainability, Built environment, Eco-residence, Modern architecture and nature

INTRODUCTION

Since the middle of the 1980's the concept of sustainability has become a guiding principle for human settlements at all levels of governance. Global, national, regional, local and even community levels are the basic horizontally organized social environments where the application of the principle of sustainability is not only an opportunity but also a requirement for a better future. There is no doubt that preconditions of implementing this rule may change from one country to another and over time. Needs and opportunities of each nation may be different and may require handling in different ways. Under these conditions, the very rule of the universality of sustainable development may become questionable. Because such policy preferences have to be conceived necessarily as culture-specific phenomena. This does not mean that nations do not have much to share. As in the case of sustainability and affordability in housing, experiments of other countries, their successes, and even their mistakes can be used as extremely useful didactic materials. That is the reason why, The United Nations has recently adopted a policy to submit to the world public opinion "best practices" in housing, urban development and environmental protection in order to provide an opportunity to the nations to share their experiences in relevant fields.

The "Eco-Residence" seem quite valuable in this respect. The fact Canada has played a pioneering role in the preservation of nature and environmental protection as well as in rationalizing the planning processes for urban development and human settlements during the last three decades make me believe that both developing and developed countries have much to learn from its experiences. In Eco-residence experiment we find the application of solar use and renovation techniques that Turkish decision-makers could fruitfully utilize. These are in line with the suggestions of the Stockholm (1972) and Rio (1992) Declarations as well as those of Vancouver (1976) and Istanbul (1996) summits, requiring the contributions of all stakeholders in creating the most appropriate environments for the poor, and also close cooperation among nations for the same purpose.

SUSTAINABILITY

The term "sustainable development" and the associated notion of sustainability have risen to international prominence following the publication of the Brundtland Report (World Commission on Environment and Development, 1987). Sustainable development refers to a form of socioeconomic advancement which can continue indefinitely without exhausting the world's resources or overburdening the ability of natural systems to cope with pollution.

Sustainable development is defined by Brundtland as: "*Sustainable development is dvelopment that meets the needs of the present without compromising the ability of future generations to meet their own needs.*" Thus the Brundtland Report, even its very title 'Our Common Future', offered sustainable development as the 'shared goal' of humankind. As with global warming or ozone depletion, the only apparently sensible level for carrying out policies for sustainable development is that of the globe because non-sustainability by even a minority will undermine sustainable development for all. Previously, economic growth was a development objective that

could be pursued by all nations individually. For the first time, sustainable development is not something that everyone can do separately but a joint global project; as the Brundtland Report expresses it, 'the goals of economic and social development must be defined in terms of sustainability in all countries' (Yearley, 1996:131-133).

The fundamental understanding of the sustainable development is that environment and economy cannot be seen separately. The two are inextricably linked. Environmental goals should be integrated into the economy, so pollution is prevented in the first place. The concept has since gained significant momentum and popularity in Rio in 1992 and in Johannesburg in 2002 (Whitmore, 2004:80).

Sustainability requires profound changes to occur on all levels of society: In governance, in technology, in architecture and in life styles. Until modern Architecture conquered the world, architecture was mostly rational, functional, hence resource conserving and energy saving in the regional/local climatic context. Architecture embodied the local characteristics or a place. Therefore, vernacular architecture, by its nature, had built-in sustainability, both physical and cultural. In that sense, we ought to have a meek attitude to learn from the vernacular.

For the professionals who are involved in the creation of cities and architecture, it is becoming more and more important to be interested in and be involved in the process of development in the local community of actual residence for being able to attain sustainable designs.

There are roughly two meanings in the notion of Sustainable Architecture. The one is buildings which physically last long, require little maintenance, and save in energy, utility and disposal costs. These are the aspects of gentleness to nature and that of small load to the environment, hence contribute to the sustainability of cities and consequently contribute to the sustainability of the whole earth. This is the aspect of what sort of impact the human deed of constructing buildings renders to natural environment and ecology. These are largely engineering aspects.

The second aspect is the way architecture and environment ought to be, in fostering man's spirit and soul, and make man as a spiritual being sustainable. That is to say that, architecture should not only be justified for giving little negative impact to global ecological systems by being resource conserving and energy saving, but also it should have beauty and something metaphysical which could work on human soul.

Ecological design has to struggle with ways to integrate environmental technology, resource conservation, and aesthetic content. Without all three components in place, there is little chance for a truly enduring architecture. A major factor contributing to the longevity of buildings that have survived from the past, is their fusion of nature and art. They had to be both earth friendly and beautiful to be worthy of preservation in the first place.

ECOLOGICAL LIVING

Ecology is the scientific study of the distribution and abundance of life and the interactions between organisms and their environment. The environment of an organism includes physical properties, which can be described as the sum of local factors such as sunlight, climate, and geology, and biotic factors, which are other organisms that share its habitat. The word "ecology" is often used more loosely in such terms as social ecology and deep ecology and in common parlance as a synonym for the natural environment or environmentalism. Likewise "ecologic" or "ecological" is often taken in the sense of environmentally friendly (Access date: July,2008,http://en.wikipedia.org/wiki/Ecological).

The natural environment, commonly referred to simply as the environment, is a terminology that comprises all living and non-living things that occur naturally on Earth or some region thereof. The natural environment is contrasted with the built environment, which comprises the areas and components that are strongly influenced by man. A geographical area is regarded as a natural environment, if the human impact on it is kept under a certain limited level. This level depends on the specific context, and changes in different areas and contexts (Access date: July, 2008,http://en.wikipedia.org/wiki/Ecological). But, as mentioned earlier 20th century societies universally lost contact with the earth on a level unprecedented in history.

The opportunities for a reversal of this catastrophic trend are usually lost to political expedience, popular ignorance, and environmental programs biased in favor of economic advantage. From a policy-making perspective, governments will now admit to the magnitude of environmental destruction, but rarely even think about the level of philosophical and tactical reversal needed to find solutions. Now, the issue of global warming is a confirmed fact, the international business and government communities are holding a series of urgent conferences to seek global remedies. International government organisations favor the establishment of a binding worldwide policy where industrial and national economic success can no longer be measured purely on productivity and monetary growth. Instead, progress must be evaluated in terms of ecological impact.

Local governments succeed by helping all their residents live fulfilling lives, both today and in the future. The availibility of natural capital, nature's ability to renew and provide resources and services, is not the only ingredient in this vision. However, without natural capital – without healthy food, energy for mobility and heat, fibre for paper, clothing and shelter, fresh air and clean water – such a vision is impossible. Thus, providing current and future human well-being depends on protecting natural capital from systematic overuse; otherwise, nature will no longer be able to secure society with these basic services (Wackernagel, 2006: 103).

With a few isolated exceptions found in aboriginal cultures, most of the world today lives in a linear state of compulsive profit motive and consumer-based technocracy. These conditions are trapped within an illusion of progress and a reality of traumatic "disconnectedness." In his environmentally concerned writins, Heidegger has seen the dangers of this alienating condition and has described a more desirable state of connectedness as follows (Wines, 2000:35-36).

"The experience of world yields transformation. Put another way: to focus one's thinking on earth recycles the energy that flows through the earth – and through humans as part of the earth – and transmutes human energy such that we know our being –one-with-the-earth, or more generally; our being-connected, connectenness as such, interbeing. Parenthetically, it is my contention that only this experience of connectedness will save the earth – and us with it. Any attempt, however grandiose and with however much commitment to its cause, will fall short if it does not have at its root this transformation of human experience in which human thinking knows connectedness as such and itself within that."

Returning to the focus on architecture, this need for a philosophical grounding is at the foundation of any hope for a sane ecological approach to design. Given the seemingly irreversible consumption of fossil fuel, expansion of consumer markets, and unbridled technological advancements, the search for alternatives is severely compromised. An earth-centric approach is the only option for the human habitat to regain its iconographic and functional relevance (Wines, 2000:36). Accordingly, the sample of Eco-residence project in Montreal, corresponds to the required approaches for design which respects the natural givens.

ECO-RESIDENCE PROJECT IN MACDONALD CAMPUS OF MCGILL UNIVERSITY AS A SAMPLE

The idea to apply the philosophy of ecological living groups at McGill was first suggested by Alexandra zum Felde, BSc(Agr)'99, after she discovered the concept while doing research on the Internet for an assignment. She approached Dean of Agricultural and Environmental Sciences Deborah Buszard about starting a group on campus. McGill's news indicates about this approach as (Yılmaz, 2006):

"Buszard once described the facility as "rather like a cheap motel." Built by McGill   in the 1960s for graduate students with small families, it was destroyed within the time. "Only six of the 36 units were habitable and there was extensive water damage to the building and roof," says the Dean. But with a $600,000 mortgage outstanding on the residence, demolition was not really an option. "Knocking it down would leave us with a continuing financial burden without any possibility of generating revenue. "When Alexandra came to me, I thought, 'This is an interesting idea: students living together in a way that is less damaging to the environment.' Unfortunately, I didn't have a house available for them. Yet I had this enormous residence. And the light bulb went on." An energy efficient light bulb, naturally."

The Location

The Eco-residence project is located on the MacDonald campus of McGill University in Sainte-Anne-de-Bellevue, at the western tip of Montréal Island. The campus combines a research farm, and arboretum and an academic campus with housing for staff and students for the McGill Faculty of Agriculture and Environmental Sciences. The existing graduate student housing complex, Robertson Terrace was a 1960's concrete and masonry structure containing 60 apartments of one or two bedroom

units that were in a state of advanced deterioration. Although the client initially intended to completely demolish the existing buildings, L'OEUF –an architectural firm founded by Danny Pearl and Mark Poddubiuk - proposed transforming the existing one bedroom apartments into 40 residential units varying from two to six bedrooms, in order to encourage an ecological lifestyle for a group of students who contributed to the initiation of the project (Yılmaz, 2006).

The Sustainable Features

The inherent economy of renovation as opposed to demolition and new construction made the project financially viable at a cost of less than $40 per square foot. The savings also allowed for the incorporation of some base infrastructure so that future environmental initiatives could be added with minimal disruption to the current users (heat-recovery systems, solar preheating of domestic water, and plant-based ecological treatment of waste-water).

Inspired by similar projects on campuses such as Berkely and Stanford, the principles of sustainable and innovative housing design guided the proposal to recycle and transform the existing buildings. This strategy permitted the development of affordable student housing while retaining a robust load-bearing masonry structure, whose inherent qualities included high quality thermal and acoustic insulation. The conservation of the existing building effectively reduced demolition waste, pollution and the consumption of resources associated with the production of new materials. The new six-plex units combine four existing one-bedroom apartments on two levels to create six private bedrooms with common dining, kitchen, and living areas.

The result is an ecologically friendly complex that's much easier on the eye, brightly painted in reds, oranges, yellows and greens, redesigned for better privacy, with greenhouse balconies on the upper floors, a new slanted roof, and spacious interiors filled with new furniture, wired for computers and the internet, set up for recycling and composting, and renovated with environmentally safe materials. Huge overhangs were added to the roofs, with new trusses added on to create an air space to prevent overheating in the summer, and the design encourages passive solar heating in the colder months (Yılmaz, 2006).

The Materials

The renovation and construction itself was carried out in an environmentally sensitive manner. Many of the construction materials are reused and the project contains a selection of non-toxic and ecological materials and finishes. Metal, wood, and other materials from the old residence were recycled into the new building. Construction and demolition waste makes up an astounding one-third of the solid waste going into Canadian landfills, and while federal initiatives have resulted in waste reduction, recycling in construction is still very rare. The materials used in the renovation were also green, free from the polyvinyl chlorides (PVCs) that are common in building materials -- in piping and tubing, plumbing fixtures, floors, windows and doors -- and

that release large amounts of toxic chemicals and gas into the atmosphere (Yılmaz, 2006).

The Greenhouse Effect

Among the more striking features of the new residences are the greenhouses along the front balconies. On the upper level, new greenhouses built of recycled and restored doors and windows are provided off a common living room. Outside air is preheated and filtered by thermal solar energy that is captured and stored in the greenhouses then distributed to the main living areas of the units by natural conduction and convection. The new greenhouses also create a new identity for the project as well as an identification to the new communal accommodations (Yılmaz, 2006).

The windows for the greenhouses came from the old residence. The old wood windows are replaned and connected. The greenhouses themselves contribute to the overall energy efficiency. The exterior walls of the buildings are made of four inches of brick, and another eight inches of block behind that. When the sun hits that in the winter the energy is stored inside the wall and gives off heat hours later. But if it's exposed to the outside, the energy is lost. So by placing the greenhouses on those walls what happens is that the sun goes through the windows, heats up the brick, which radiates back the heat within the greenhouse because the windows keep it fairly airtight. Eventually the air gets radiated into the house. The greenhouses will be used by students to grow plants for their research and course work (Yılmaz, 2006).

CONCLUSION

A big portion of global warming is caused by the over-consumption of fossil-fuels by the buildings. In our era, precautions have to be taken in every field in order to survive the earth for the future generations. In connection, the term sustainability has to be applied in a broader sense including social, cultural and historical heritage.

In this paper, I approached to sustainability within the context of architecture. In 21st Century it is understood that architecture is not a universal field that is asserted in 20th century by the philosopy of modern architecture. Architecture has to deal with local features in order to be 'connected' to the earth. The local properties like climate, topography, geography, culture, wind etc. have great importance in providing identity and saving energy - hence less gas emissions to the atmosphere - if those givens taken into consideration during the design process of the buildings. As in the sample of Eco-residence, at least passive solar gains can be provided through architectural design and at the same time protection from sun rays also can be provided by very simple architectural solutions as overhangs on top of the window openings. The usage of filtered rainwater in buildings infrastructure systems can be an efficient solution that can be applied.

The usage of local materials is another important factor for reaching sustainability in architecture. It can be seen very good examples of the usage of local materials like mud-brick and stone in the vernacular architecture of Lefke settlement. These

materials have great insulation capacities which responds perfectly to the climate of Cyprus.

The renewable sources like sun and wind have enormous potential for the provision of clean energy. Technology can contribute to convert the renewable sources into energy like photovoltaic and wind tribunes which are technological products. But, without these equipments, only by architectural design which respects and evaluates the natural properties, as in the sample of Eco-residence, great savings in energy and healthy interiors can be obtained.

Eco-Residence Project's Photos (Meltem Yilmaz)
FACADE TREATMENTS & INTERIORS

The frontal facades of the student residences are more closed to outside than the backyard facades as can be interpreted as provision of privacy (Yilmaz).

The backyard facades of the student residences face to a common exterior space in a communal spirit and the roof of the buildings act as an overhang over the windows, protecting the interiors from the summer sun. Every residential unit has an access to balcony (Yilmaz).

Passive solar gain is provided by windows with reused frames (Yilmaz).

Maximum usage of daylight can be observed for the interiors (Yilmaz).

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FORGOTTEN HARMONY IN INTERIOR ARCHITECTURE: DESIGN WITH CLIMATE

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ABSTRACT

Since high technology and industrialization advancements make designers disregard the local conditions of the environment, they design the built environment, which fits all locations regardless of cultural and climatic differences. Unfortunately, these conditions have been taken for granted by young generations whereas the educators have to inform them to reconsider settled and accepted trends and to think critically, through the possibility of both knowledge and truth (Young, 2006). Therefore, raising awareness for the consequences and improving the capacity of the people to address environment and development issues are necessary and should be taught in design education (CSD, 1992). At this point, 'sustainability' appears to be an answer to be investigated as a world savior hero. It is like one big umbrella to cover many components such as green washing, recycling, design with climate and so. Among them, 'Design with Climate' has been chosen as a principal of the project in the third year interior design studio during the summer school in 2006. Since interior architecture deals with existing buildings, students were asked to deal with the same building, and to design a 'Welcome Station' in various climatic regions of Turkey. This paper will provide some of the student projects to show how to create different interiors for different climates and regions of Turkey. This way, it will demonstrate the reflections of design with climate in the interior spaces. It will also show how microclimate can be achieved within the perimeter of the building by using appropriate materials and providing necessary local building features as part of student projects. It will also present how environmental, ecological and energy problems can be respond through `Design with Climate` as part of sustainable developments. This paper aims to question the role of interior architecture education in reconstructing the forgotten harmony of `Design with Climate` and pointing out its sustainable nature.

Keywords: Interior architecture, Design with climate, Sustainability, Regionalism, Design education

INTRODUCTION

According to the International Federation of Interior Designers/Architects' definition of the interior architect, main concerns are maintaining the function and quality of the interior environment, performing services and preparing drawings and documents relative to the interior space (ifi, 2009). Since the interior environment begins where

the enclosed space is available, it could be suggested that the interior architect, in a way, helps to sustain the built environment while performing his or her task.

According to "the new design principles necessary for sustainability exemplified by the "Hannover Principles" developed by William McDonough Architects", which were also adopted by the World Congress of the International Union of Architects in 1993, sharing knowledge about sustainability is crucial for constant improvement (McDonough, 2000). Thus, facts about sustainability should be emphasized in the education of designers. Because of the sustainable character of interior architecture, it can play a significant role in saving the environment by starting one-step ahead in its design journey. This design journey should be enhanced with environmentally responsible courses. Nonetheless, `Design with Climate` is an environmentally responsible approach, which has been almost forgotten to be stressed in the curriculum of interior architecture education. Actually, neglected climatic constraints can be adapted even to existing buildings, but unless it is taught how, they cannot be included in design process. How to accomplish this task and to discuss interior architecture's sustainable character are the foci of this paper. It also shares a design studio teaching experience of one of its authors: `Design with Climate` was issued as a theme during the third year interior design studio studies in the department of Interior Architecture and Environmental Design at Bilkent University in the summer of 2005, to stimulate the students' interest in the subject and to support the sustainable character of interior architecture simultaneously. Its application will be discussed and some results are finalized.

NATURE OF INTERIOR ARCHITECTURE

The definition of endurance is to remain firm without yielding (www.webster-dictionary.net). It is actually what interior architects should try to achieve within the existing structures: The new design of an interior should remain firm under existing conditions of the building while maintaining its identity by universally valid environmental and human factors. In other words, it should support the features of the given space without breaking its structural members while maintaining its existence by responding to the changing conditions without disturbing the environment. Although every new intervention to the interior environment may stem from dramatically different functional and aesthetic requirements, sustaining the existing structure is possible in the nature of interior architecture thus; it oscillates between continuity and change according to the circumstances of the present and the future. This character of interior architecture has been taken for granted without noticing its sustainable nature, which also has the potential to make the profession be respectful for the old and creative for the new.

Global warming is strikingly demonstrating its existence. Needless to say, it is due to the excessive carbon dioxide emission, which is increasing from day to day largely owing to the extreme use of non-renewable resources and deforestation. Every profession should feel the responsibility to deal with these phenomena. In this respect, sustainable design became a strategic approach to the design of the built environment, which does not diminish the health and productivity of the natural system, and requires an ecologically intelligent framework by enduring future possibilities (Steig, 2006). However, even though sustainable design looks new

injection to the design profession; it is not the case for interior architecture. It includes this character within itself, since it deals with either the reorganization of the existing space for the new function, or renovation of it to create new ambience. This character enables less energy intensive intervention, continuity of the existing, and considerate attitude to the built environment for the present and the future.

On the other hand, many old buildings are inherently more efficient than any newer designs, and rehabilitating existing structures could also save 50 percent and more of the energy needed for new construction (Ainslie, 1980). What is more, reuse requires less energy and fewer raw materials than either the production of new items or recycling (Goldbeck, N & Goldbeck, D, 1999). Apparently, energy has been and is still being used extravagantly in the building industry, which contributes to both energy shortage and air pollution in the 20th and 21st centuries. If we assume that we are at the recovery phase of this problem, we should reduce, reuse, recycle - and regulate (McDonough, & Braungard, 2002). All these four `R` s actually coexist in the nature of interior architecture through renovation and adaptive re-use of the existing building, and make interior design sustainable for both present and future means.

DESIGN WITH CLIMATE

Since technological advancements of building industry make most designers disregard the local conditions of the environment, the global architectural production display a homogeneity, which fits all locations regardless of cultural and climatic differences. `Design with Climate` principles have been ignored in such a way that constructing buildings consumes more energy and contributes to global warming (Thomas & Watts, 1997, p.35). The decision; for instance, to face a house to the south can reduce heating bills by 15 percent without any additional insulation, whereas heating and cooling the space would have caused additional carbon dioxide emission. Artificial lighting can count for 50 percent of electrical consumption and 25 per cent carbon dioxide emission, but substitution of daylight for artificial lighting may save 40 to 50 percent energy consumption (Edwards, 1999). Our reference in designing the mass and the space of built environment should not be only the technology but the ecology to save the earth and to inherit the residue without borrowing it anymore from our children (Jones, 2004).

Ecology has the ineluctable relationship between specific biosystems and cultures which have demonstrated their sustainability, and have often developed highly specific practices well suited to the characteristics of their particular region (Smith & William, 1999). Appropriateness to regional characteristics is possible by being parallel to contextual and climatic factors. As Stitt stated, each region of the country has a traditional building form or `vernacular architecture` and it is almost always climatically appropriate (Stitt, 1999). The implication here is also the essence of `Design with Climate` and its reflection to the region. Therefore, `Design with Climate` helps cultures to develop sustainable livings. Eventually, incorporating suitable elements of `Design with Climate` into a building will improve its energy efficiency. For example, thickening the exterior wall of the existing building where possible, in order to use it as a thermal mass can provide cooler indoors for hot arid climates, which may reduce the use of mechanical air conditioning. It is also possible for an interior architect to arrange a floor plan, which provides optimum use of

daylight, reduces heating bills by locating the service areas to north facade, and allows natural air ventilation by appropriate use of circulation patterns and openings. The use of locally available materials and elements should be enforced in the construction and finishing of interior spaces to decrease the use of non-renewable energy resources, as exemplified in this statement below:

> `The energy invested in processing and fabricating the girder is 257
> million Btu` s : transporting it to the construction site and installing
> it might require 13 million Btu` s. By leaving it in place, the constructor
> would eliminate the consumption of a total of 270 million
> Btu` s – the amount of energy in 2000 gallons of gasoline. And the
> price of girder would be saved. `(Sawhill, 1981).

The problem is to raise awareness about sustainability. Since sustainability has many components, each component should be handled separately. `Design with Climate`, is one of them that it stresses positive environmental impacts through regional, contextual and cultural values. `Design with Climate` should not be treated as a popular trend. It should not simply be taken as a theme or a concept for the development of interior design projects; it should be an indispensable, a permanent ingredient of the design process. This approach does not only support the eco system, but also strengthens the sustainable nature of interior architecture.

Design educators need to set the stage for sustainability rather than just assume that students will embrace the concept (Ruff & Olson, 2007). However, implementing the concept of sustainability is not as easy as it seems and it requires the ability to comprehend the larger context by understanding the past and responding to the present with concern of the future (Brady, 1996). In simple terms this larger context represents a triangle, as seen in figure 1, which points out the three basic components of sustainable development by summarizing Agenda 21 of United Nations System with energy at its apex and environment and ecology forming the other corners (Edward, 1999). Climatic factors are not only included as part of ecological concerns, but also seen as a component of the environmental issues and have been mentioned as a factor in planning the design and construction of a building besides geographic and sensory factors (Ching, 1991). Furthermore, `Design with Climate` is counted as one of the factors of the sustainable development design principles, at building level (Edward, 1999), and the discussions were initiated by Victor Olgyay's book *Design with Climate* published in 1963.
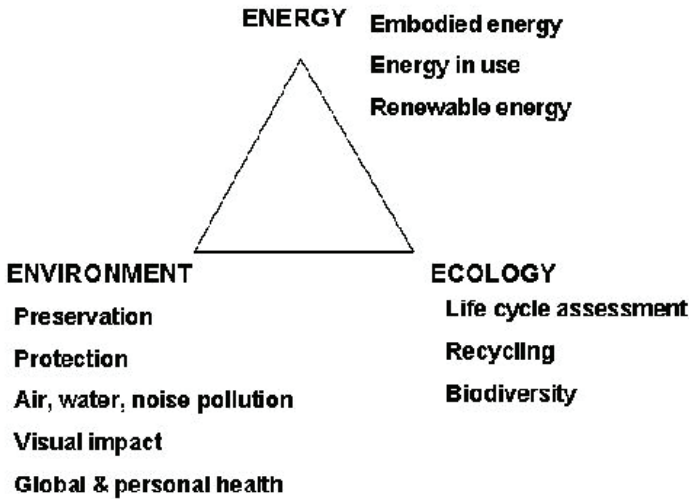
Figure 1. Components of Sustainable Developments / Construction (Edward, 1999)

DESIGN WITH CLIMATE IN THE DESIGN STUDIO

`Design with Climate` is not only a factor that helps to shape a building's form, but to rearticulate its enclosure, reestablish its relationship to the environment, and suggest the way how interior spaces are laid out. At this point, interior architecture can take an active role in responding to design aspects of sustainability through the three corners of the mentioned triangle: first is by reducing the demand to non-renewable energy sources, second is by helping ecology thru recycling, reuse and renovating, and the third is by respecting contextual and regional values, as well as the health issues by careful selection of materials. Climate is the key to all these concerns. Therefore, in interior architectural education, `Design with Climate` should be stressed to make the students realize that nature is actually one of the main constraints of the design considerations, even for the existing structures.

Problem

With all these facts in mind, `Design with Climate` was taken as logical extensions of interior design considerations to address environmentally sensitive design for the third year interior design studio studies in the department of Interior Architecture and Environmental Design at Bilkent University during the summer school of 2006. The title of the given project was `Welcome Station` as related to the resting area, stopping-over and halting activities, located on highways, out side the town in between the geographical regions of Turkey. Students were asked to fit the given program into a. warehouse building, which had a post and beam reinforced concrete

structural system. They were allowed to design the envelope as well as a mezzanine floor for the given structure.

Methodology

Climatic and geographical regions as well as cultural values were analyzed and researched in order to accomplish the purpose of this design studio. Expected inspiration was based on these researches to develop an initial design idea for the given design problem. Eventually, one of the concerns was the transformation of these researches into a concept as an image to be created to form the interior spaces. Design process of this image was handled in stages:

1. Awareness of regional identity was raised thru the researches of climate, history and vernacular architecture of that region, and research folders were prepared.
2. Students were asked to prepare a poster with a motto to represent the identity of the region symbolically.
3. The structure of the given building was studied and existing features were recognized. On the other hand, the location of the building was chosen by the student since each student was to study a different region of Turkey. However, the orientation of the building was fixed for all possible sites.
4. Students were guided in the development of their initial design sketches with climatic factors in mind. In the creation of their *parti* developments, distribution of functions and circulation patterns according to different comfort levels of human beings living at that particular climate were examined and reflection of climatic and regional features to the interior spaces were highlighted.
5. Recycled and locally available materials were researched and encouraged to be used as finishing materials by indicating their appropriateness to that particular region.
6. Students were asked to respond to these stages and present them in a way that how environmentally conscious interior architecture student transformed all existing constrains into not only functionally and spaciously working, but also ecologically sensible interiors.

In order to explain how `Design with Climate` effect interior design projects of the students, it is better to exemplify some of the design problems based on the mentioned components of sustainable development, which are forming a triangle with three factors. Energy is one of them and its usage has to be minimized when heating, cooling and illuminating the interior spaces. For example, for the student projects, if the layout of the space planning within the given structure was designed according to the movement of sun, it would help to improve heat transfers and effect the use of heating energy. Such as location of kitchen at the northern side of the building worked as a zone to make the interior warmer. Allowing living areas and windows to be at south helped to create green house effect, and increase the use of solar energy especially in cold climates. Since making new openings on the walls of the given building were not forbidden, injecting day light through skylights or according to climatic requirements were also possible for the students. On the other hand, access between the spaces could be arranged by placing the partition walls, windows and doors in a way that cross ventilation through the spaces was achieved and saving the

energy was controlled by eliminating or reducing the use of air conditioning especially for hot-humid climates. Air circulations of some student projects were analyzed and sketched over the student projects by the instructor for the presentation purposes. (Figure 2)

ground floor plan 1   ground floor plan 2
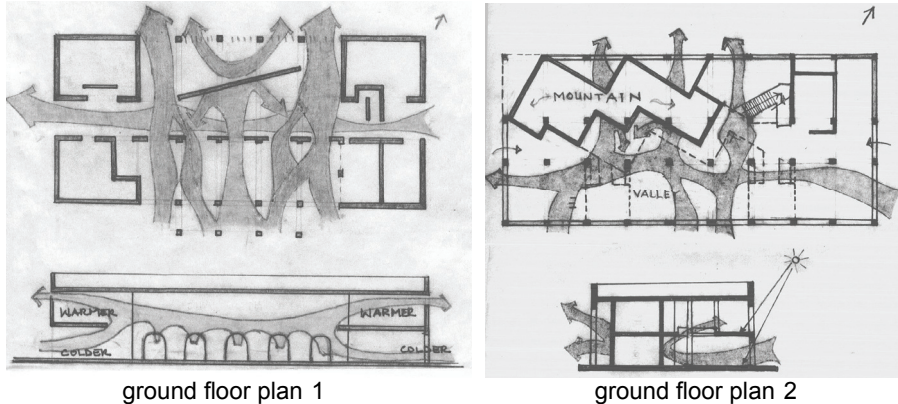
Figure 2. HOT-HUMID CLIMATE   (Mediterranean Climate) analyses of cross
         ventilation

Using less energy intensive and locally available materials were also demanding during the studio studies for both energy and regional concerns. Use of masonry wall in hot-arid region as sketched in figure 3 and on floor plan 3 & 4, worked as a thermal mass to provide cooler indoors during the daytime and warmer indoors during the nighttime, and while reducing use of heating energy, it was enhancing visual beauty of the region. Since students could choose the material of the interior walls and suggest the wall thicknesses where it was possible, local applications were recommended. Use of water elements was used to create the breeze and cooler effect as seen figure 3 and on floor plan 4.

ground floor plan 3   ground floor plan 4
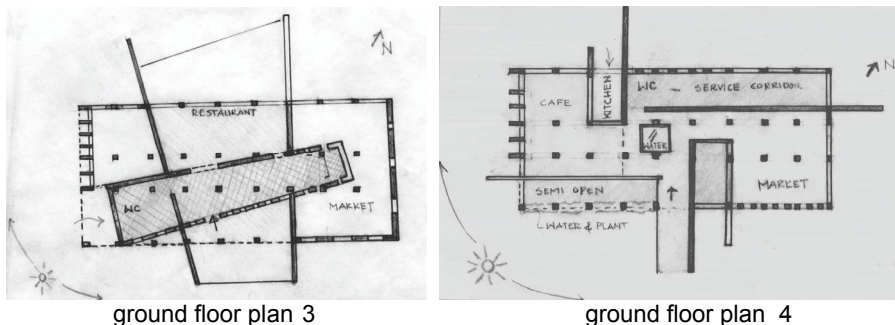
Figure 3. HOT - ARID CLIMATE: Use of wet areas at warmer side, at south and
         south-west orientation – social activities are located at northern part of the
         building – recessed entrance to create shadow – use of thermal mass –
         configuration of the spaces according to movement of sun.

Reduction of energy use was also promoted thru color selection of the surfaces, since color was another important factor for determining the solar radiation, reflectivity and the sol-air temperature of surfaces and contributed to the warmness of the space (Givoni, 1998). Thus, materials and their color selections were questioned together during the design studio hours. However, use of renewable energy sources such as solar and wind energy, use of photovoltaic energy was not taken into considerations since they mostly demand technical knowledge.

Ecology as being second corner of the triangle was another issue, which was covered naturally through `Design with Climate` approach during the design studio. Since, the principle of ecology is the maximization of richness and diversity with the minimization of resource impact in building design and mainly about the life cycling of each design element (Edward,1999), particularly, adaptive reuse of the existing structures which was hundred percent satisfying the ecological component of the sustainable development as far as the interior design concerns. It was also related to the use of recycled materials which were biodegradable and their life cycle was cradle to cradle that `Design with Climate` through this project necessitated the use of indigenous materials, which were indeed ecologically fitted. Use of cork, linoleum, locally available stones, wood, glass were among them.

Environment was the third component, which was integrated in the project, as it was related to contextual, regional, and indoor air quality for health issues. Even though the location of the building was out of town located on highways, its site was assumed to be just before entering to the region, and building's facade was expected to express the characteristic features of region like use of locally available material, wide or no window openings, water element or semi-open areas. Enhancing indoor air quality was again possible by choosing right material and through natural ventilation since interior design transforms the room into habitable space in the context and culture that were inseparable from it (Benzel, 1998).

In addition to creating indoor climate for human comfort, microclimate was given importance, since interior-exterior relations were the concerns for interior design process. Eventually, the study of relationships sought correlations among the individual, society, the built environment, and nature (Benzel, 1998). Even though creating microclimate was the part of site planning and seemed to be out of the boundaries of the interior architect's responsibilities, it was required to question how to provide human comfort where semi-open spaces were located and some activities which confronted within the perimeter of the building and necessitated outside settings. Since recessing and creating alcoves were always permitted in interior design studies, microclimate might take its place by providing shading, with sun control devices, alcoves, or space planning and redirecting the wind with appropriate planner elements, and introducing proper materials for heating or cooling purposes as well as using dark surfaces to absorb sun radiation or light surfaces to reflect sun radiation back to the spaces to provide human comfort. Similarly, water features, to produce a cool microclimate in hot-arid regions were valid design ideas to raise level of human comfort in semi-open interior spaces (Thomas, 1997). As Hudson stated that `interior architecture` was more inclusive that it considered the cross-disciplinary nature of design, bringing together the skills required to investigate interior space with the wider context of architecture (Hudson, 2008).

Assessment of the Projects

Assessments of the projects are done thru the mentioned stages; energy, ecology & Environment, and some of them are available in pictures as provided. It was presented according to project's accomplishments. Almost each project had different climatic and regional characteristics, since they were categorized according to geographical zones of the Turkey. However, designing for the Mediterranean or Aegean region with a tempered climate in mind, seemed to necessitate additional supportive idea or metaphor since the climatic constraints were not too strict for the interior configurations of the projects. It was experienced that at the beginning, students were after geometrical configurations without considering the climatic issues. Recognition of the problem evolved by the time but detection of the climatic constrain was quite reasonable. `Design with Climate` as a supporting component of sustainability was the focus of this design course, and it was finalized in environmentally sensitive, interesting and creative products and experiences.

Discussion of the Project

This design studio was originally prepared to be participated with interior architecture students from abroad. It was going to be a one-week workshop to provide an opportunity to learn regional differences of Turkey and to create an experimental and educational platform with the students from different cultural background on a joint project. This project was going to be the part of the `Welcome Station` program as a marketplace for selling regional goods, which was also meant to promote thinking on how different people, and settlements have evolved their public space in different ways. Thereby, the purpose of this project would have been supported even stronger. Unfortunately, because of the bird-flu consequences of the time, it was cancelled. For the future application, it is recommended to be reorganized for international interactive settings as a workshop not only for the summer school but also for the regular semester period, since the duration of the summer school is shorter.

This project can be restructured with a specific building that students can visit and see the real environment. Actually, it may also provide cultural, intellectual and historical enrichment to the students, depending upon the chosen site. This visual in situ experience will raise the students' motivation and perception levels, and ensure the awareness in place, which will be more effective and supportive for teaching sustainability and stimulate environmentally sensitive design ideas of the interior architecture students. In this case, similarly, climate can be same to see the different *parti* ideas within the same building and same climate. This cognitive and experimental learning will enrich the student's creativity while supporting sustainable approaches.

For further research and analysis, application of `Design with Climate` to interior architecture studies may lead us to the development of new typology potentials of each climatic region for existing buildings and interior architecture purposes.

CONCLUSION

If `Design with Climate` is given priority in the development of sustainable design decisions, interior architects can become known as the design professionals who create ecologically sound, healthy interior environments (Cradle-to-Cradle Task Force 2005). In this regard, the interior architecture educators will need to take on responsibility of developing appropriate curricula to ensure the education of new interior architecture professionals saturated with environmentally sustainable design practices and methods (Ruff & Olson, 2009). As explained earlier, `Design with Climate' as being one of the components of sustainability should be integrated in the education of interior architects because, firstly, it can be taken as a tool to teach the value of energy which is actually not to be consumed but to be used efficiently. Secondly, it points out the essence of local materials and their ecological values. Thirdly, it contributes not only to healthier indoor environments by promoting the use of indigenous materials, but to reducing the risk of global warming by encouraging the use of renewable resources. Finally, it is also ethical to emphasize this subject since it serves the needs of the present, while respecting the old and not limiting the needs of the future generations. This ethical attitude will also reinforce the sustainable character of interior architecture and education.

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SUSTAINABILITY CULTURE: A SOCIAL LINK TO THE FUTURE

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ABSTRACT

Emphasizing the diversity of paths for societal transformation, sustainability makes a call for justice on behalf of future generations. It implies a hierarchical interdependence between economy, society and natural environment. Attention to the relationship between individuals and their environments has been drawn and the social and cultural constructions of the environment are proposed to be taken into consideration. On the basis of this sustainability approach, it is thought that a new "sustainability culture", which means a life style composed of environmental awareness and concern together with environmental responsibility and commitment, is inevitable to achieve sustainable urban development. Here, "sustainability culture" is considered as a social construct and sustainable city as its outcome is considered as a sum of physical constructions. This work presents a conceptual framework and an empirical study based on this framework.

Keywords: Sustainable urban development, Sustainability culture, Place identity, Place attachment

INTRODUCTION

The concept of sustainability hasn't found any shared acceptance from different authorities yet. Becker et.al.(1999) state that the concept describes a field of investigation based on a society-oriented definition of problems although it is most prominently associated with ecological crisis. They point out to the relation between the question of how societies can shape their modes of change in such a way so as to ensure the preconditions of development for future generations and the concept of sustainability. From their point of view, sustainability refers to the viability of socially shaped relationships between society and nature over long periods of time. Similarly, Redclift (1999) states that the bounds of sustainability are set by sociological models, as well as by the "real world". Consequently, it is in our models, as well as in our policies, that we must make decisive changes. When the idea of development is added, the idea of "sustainability" which originally belongs to ecology, would no longer be looked at from the environment point of view, but from that of society (Reboratti,1999).

In this approach, development becomes the object of concern. Thus, society is not seen as carrying out a sustainable development of the environment; rather, the sustainable development of the society is seen as including an environmental dimension (Reboratti,1999). Sustainable development as a concept invites people to recognise both "sustainability" as physical and "development" as social aspects and the interaction between them. Otherwise, this concept will continue to be a basis of discussion including different ideas and interpretations (Sachs,1997), (Blowers,1997), (Reboratti,1999).

The most common definition[1] of sustainable development emphasizes the environmental dimension of development including the concepts of future, justice and environmental responsibility. However, this definition does not answer the crucial questions like "What needs?", "Whose needs?" and "What is to be sustained?" Most of the researchers argue that the growth of global population will lead to increased demands on the environment, and the definition of sustainable development should incorporate this fact, together with the required changes about the consumption practices of individuals (Redclift, Woodgate,1997), (Sachs,1997), (Pearce, et.,al.,1990).

Some alternative approaches that have been proposed instead of the minimalist definition of the Brundtland Commission's report highlighted the social aspects of the concept. In the Congress of UNESCO-MOST (1996), sustainable development was defined as the process satisfying the viability of socially shaped relationships between society and nature over long periods of time (UNESCO-MOST Declaration,1996). In the 20th UIA Congress, sustainability was defined with a holistic approach as; "*a local, informed, participatory, balance-seeking process, operating within an equitable ecological region, exporting no problems beyond its territory or into the future."* This definition has profound implications to the future of the design professions. Sustainability is seen as a process for transforming society from an exploitative, consumerist enterprise to an equitable society. It is indicated that, to form an equitable way of living on this planet, within the limits of nature is a design problem including urban and architectural design and urban management (Levine, et.,al.,1999).

In the annual report of the Forum for the Future(2000), sustainable development is; *" a dynamic process which enables all people to realize their potential, and to improve their quality of life, in ways which simultaneously protect and enhance the Earth's life support systems"* (DETR Report, 2000).Various definitions of sustainability can be clarified by Castell (2000)'s statement;*" Sustainability implies the fight for control over space and the fight for control over time"*

LITERATURE OVERVIEW: SUSTAINABILITY AS SOCIAL CONSTRUCTION

In his study investigating theories based on cultural representations, antropolog Ingold(1992) clearly summarizes the origin of socio-cultural approaches to sustainable development. In the conclusion of this study he says;"*It is supposed that persons can neither know nor act upon their environments directly, but only indirectly through the medium of their cultural representations..."* Also, Goodland (1995) indicates, in one sense all discussion of sustainability, including environmental

sustainability, is socially constructed. Ecological principles themselves are part of science, and science in turn is part of human culture. Thus, the idea of environmental sustainability is part of the social construction of modern science.

Approaches to sustainability in social sciences can be categorized in two different poles as "weak" and "strong". The 'weak sustainability' regards natural environmental capital as potentially "replaceable" with human-made capital stock. In this view, new technological products can in some cases replace natural environmental goods, so that the overall level of capital in the system is retained at a constant or growing level. The 'strong sustainability', alternatively, holds that human-made capital stocks and natural environment capital stocks are not always interchangeable. So that human-made capital can readily fluctuate up or down, whilst if natural capital assets are depleted beyond certain levels, the effect is irreversible, possibly involving extinction(Haughton, Hunter,1994).

Blowers (1997) indicate two different incompatible approaches to sustainability as "ecological modernity" and "risk society". Ecological modernity is an optimistic approach claiming that environmental conservation could be achieved only by increasing economic performance. On the other hand, risk society is a pessimistic approach that denies modern and high-risk technologies and pointed out the necessity of alternative production patterns together with high participation and democracy for sustainable development.

Baker et.al.(1997), put stress on the necessity of alternative frameworks indicating diversity of policy options associated the different meanings attributed to sustainable development. They explain these frameworks in terms of a *Sustainability Ladder* including the treadmill approach; weak sustainable development; strong sustainable development; and the Ideal Model. The researchers express the Ideal approach to sustainable development which is also termed as *"ecologist"* approach, represented, by the *"deep ecology"* [2] movement as the top rung on the Ladder. The Ideal Model requires the elaboration of a more detailed set of development indicators that focus on the quality of life. It offers a structural change in society, economy and political systems, which is premised upon a radical change in the attitude of humankind towards nature[3] .

Hatfield Dodds (1998), specifies five different approaches to sustainable development each including a different environmental scale and a basic research unit as the basic factors in comparing various sustainability approaches. These are; sustainable income approach, ecological approach, institutional approach, demand-side approach, alternative ethical approaches, in turn. He puts stress on the alternative ethical approaches which defend the opinion that immediate and fundamental changes must take place in human values, priorities, behaviour and life styles to avoid a total collapse of our cultures, civilisations and environment. In these approaches the focus is on the importance of human value systems and world views, rather than on techniques and methods for improving decision making and resource management (Hatfield Dodds 1998), (Max-Nef 1991).

Within the context of social sciences the main objective of the approaches to sustainable development is to renegotiate the goals of future societal development and to establish a system of governance that is able appropriately to implement

policies moving towards sustainability on international, regional, national and local levels. Becker, et.,al.(1999) summarize this objective by indicating that, any discussion of sustainability as a concept for the social sciences has to acknowledge the close and complex links between each of these different contexts. The researchers put stress on the need of cross-disciplinary research into sustainability and offer three different models that differ with respect to the degree of enrolment of non-scientific actors, the form of co-operation between scientists and the level of cross-disciplinary interaction. These are " goal–oriented multi-disciplinarity", "problem oriented inter-disciplinarity" and "self-reflexive transdisciplinarity", the last of which has the potential to provide a way of structuring the research process that reinforces social scientific reorientation and enhances self-reflexive awareness of environmental and sustainability –related research (Becker, et.,al.,1999). This approach can be considered as the social level reflection of "full ecology" [4] approach which emphasizes the concepts of environmental awareness and commitment.

The concepts of *"awareness"* and *"responsibility"* are at the core of these approaches that are used to investigate sustainable development in the context of social sciences. At this point, it is thought that to mention about environmental psychology of sustainable development will be beneficial. From the point of view of the field of environmental psychology, the goal of any field of planning is to enable people to achieve as high a level of quality of life as possible. According to Churchman (2002), achieving this goal requires understanding of the way in which people perceive think, learn, feel, and develop; an acceptance of the variability between people and between groups of people; and an understanding of the ways in which the socio-physical environment can be asset or a hindrance to this goal. In this case, it is clear that, sustainability studies should be supported by socio-cultural approaches. In the following section, a conceptual framework of *sustainable urban development* and *sustainability culture* is explained. It is developed to clarify the role of sustainability culture as a social construction in achieving sustainable urban development, the outcome of which is a sustainable city considered as a physical construction.

THE CONCEPTUAL FRAMEWORK: SUSTAINABLE URBAN DEVELOPMENT AND SUSTAINABILITY CULTURE

The theoretical approach of this paper is based on the *Alternative Ethical Approach* (Hatfield Dodds,2000) and *Ideal Sustainability Approach* (Baker et.al.,1997) which emphasize the urgency of fundamental changes in human and society values, priorities, behaviours and life styles to achieve sustainable urban development and form a conceptual basis for these changes. On the other hand, the relationships of urban development and the pro-environmental behaviours and actions that are mentioned in these socio-psychological approaches are investigated with the *transactional approach* [5]. In recent years, the transactional approach is being used frequently, in analysing the attitudes and behaviours of people towards sustainability requirements (Werner,et.al.,2002, Werner,1999).

In the context of this study, the concept of culture is represented by one of its reflections *"life style"* and the multi-dimensional concept sustainable development is considered as; *"a dynamic process which enables all people to realize their potential,*

and to improve their quality of life, in ways which simultaneously protect and enhance the Earth's life support systems [6]*".* While the concept is being discussed in global, regional and local scales in different platforms, it's evaluated in urban scale in this study. Thus, it is defined as *"the economic development of the cities which keeps the balance between economy and eco-system and doesn't disturb the social order, additionally, which improves the urban quality of life within the limits of carrying capacity of the cities without compromising the ability of future generations to meet their own needs*" [7] *.* It has to be taken into consideration that, sustainable urban development, of which main objective is to improve the quality of life in cities, covers a great amount of socio-cultural and economic facts together with the physical ones (Çahantimur,A.,I.,2007).

The relationships between the concepts investigated in the study are systematized as seen in figure 1. Sustainability, as a multi-dimensional concept is a product of global culture and the ways of achieving sustainable development can be clarified by the help of culture again. In the conceptual framework the concept of culture is considered with two interrelated components as "sustainability culture" and "city culture". The aim of this selection is to investigate the relationship of human behavior and cultural environment throughout the development process of sustainability culture. Investigation of culture with these two components is also meaningful for the reason that sustainable urban development involves the concepts of "urban development" and "sustainability" as two interrelated components.
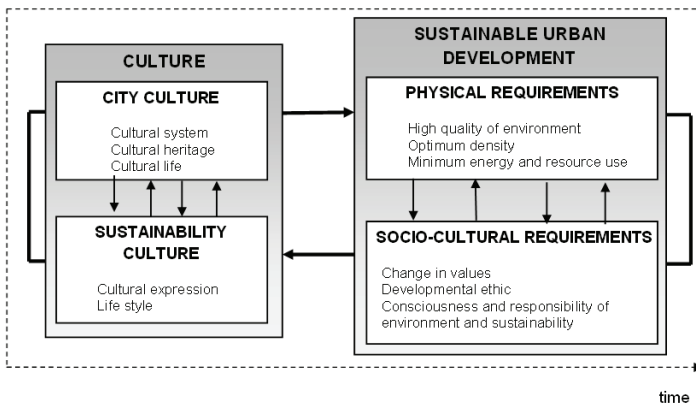
Figure 1. System of relations between sustainability culture and urban development

The concept of sustainable urban development is examined with its physical and socio-cultural requirements as two interrelated components which are pre-condition for each other. The impact of achieving sustainable urban development on life style that is composed of sustainability culture and city culture can be explained as follows; meeting the physical requirements of sustainable urban development provide a prosperous development of cities with their cultural system, life and heritage. On the other hand, socio-cultural requirements of sustainable urban development express

the indispensable prerequisites in the formation process of sustainability culture, which is needed for achievement of environmental sustainability. When a society becomes aware of the importance of sustainability, accept the related responsibilities and as a consequence participate in the studies- in the other words; assimilate sustainability culture, and furthermore integrate this sustainability culture with its own values, traditions, customs and social norms; it means that sustainable development is achieved in socio-cultural context. This dynamic relation system develops a transactional whole with its spatial, socio-cultural, psychological and temporal aspects (Çahantimur,A.,I.,2007).

CASE STUDY: BURSA

The empirical study carried out in this context, was applied on a sample of residents of a traditional neighbourhood in Bursa, Turkey. The study examined the influence of psychological and socio-cultural features of the inhabitants on their sustainability awareness and responsibility, two of the most important components of sustainability culture. Place identity and attachment, environmental evaluation, satisfaction and expectations were selected as the components of psychological features. Furthermore, age, length of residence, education and income levels were the components of socio-cultural features. Observational and ethnographic research methods were used together with the detailed interviews throughout the empirical study. In working out of data, factor analysis and multiple correlations were applied.

Description of the Case Study Area

The reason for selecting Bursa as a case study area is, it's being one of the most important historical cities of Turkey together with undergoing a rapid process of industrialization (Figure2). It is the first capital of the Ottoman Empire and has always been an important focus point in social and historical aspects due to its location's being suitable for settlement; natural structure's favouring agriculture and military strategic importance. Bursa is located in the centre of a plain with fertile land. However, as a result of its being a focus of large inner and outer immigration and undergoing a rapid process of industrialization, it has one of Turkey's highest population increase rate. This situation affects the development of the city (Figure 3).

Figure 2. Bursa in Turkey
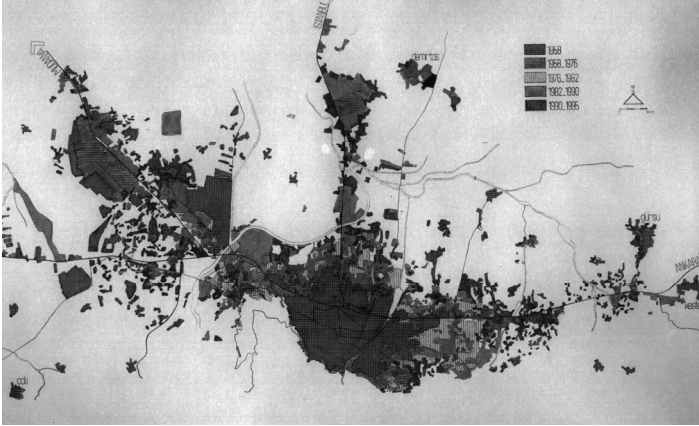
Figure 3. Urban development of Bursa by certain periods of time (Bursa Metropolitan Municipality Archives)

An important traditional neighbourhood, which was the first settlement area of the Ottoman City has been selected as an example for the case study. The neighbourhood of *"Hisar",* includes traditional housing pattern preserved to the best level till our days. Surrounded by the old city walls, the neighbourhood is located to the West of the centre on a hill overseeing the city (Figure 4).Unfortunately, a wide motorway has been constructed in the neighbourhood of *Hisar* as a part of reconstruction and modernization works to great extent (Figure 5). However, urban fabric of *Hisar* with its narrow roads and blind alleys and the morphological characteristics of its built environment give it a special identity, very different that of the contemporary settlements.

Figure 4. Bursa Castle and its near environment known as 'Hisar' in 1921 Map (Bursa Metropolitan Municipality Archives)

Figure 5. Hisar settlement today (Bursa Osmangazi Municipality Archives)

The Fieldwork

Firstly, data related with physical environment, history and social demography of settlement were obtained through observations and archival documents. As a second step, by the help of a detailed survey, socio-cultural and psychological characteristics of the inhabitants of the neighbourhood were de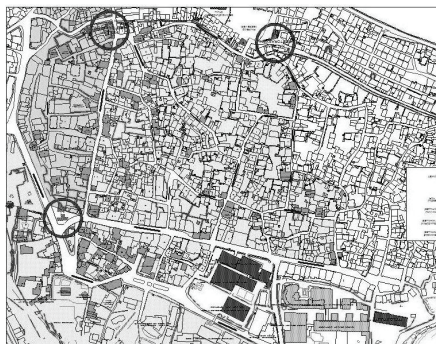termined. Furthermore, their degree of awareness to and responsibility of sustainability which are two of the principle components of sustainability culture were also tried to be determined. The survey was applied to two groups of residents, living either in traditional houses or in newly constructed apartments in the same environment, 160 inhabitants in total.

The socio-cultural characteristics of the settlement were determined with the questions concerning age, length of residence, education and income levels of the inhabitants. Determination of the psychological characteristics of the residents had three consecutive steps, the first of which was the consciousness of the inhabitants about value of their environment, in other words their perception and evaluation of the environment. Questions of identity focusing on place identity and attachment together with residential satisfaction were the determinant of this step. Determination of the consciousness of the inhabitants about the importance of sustainability for this environment was the second step. Questions about the meaning and implementations of sustainability, and their intentions about sustainable development criteria were included in the second step. Finally, the inhabitants' opinions about their acceptance of participation in the studies of sustainable urban development of their home environment and in which way they want to participate to this process had been tried to be determined. These three steps also provided to identify the existing circumstances of the settlement relative to the sustainability culture which is the main message of this paper.

Conclusions of the Fieldwork

As the result of archival data analysis and observations made in the selected neighbourhood, physical, historical and socio-cultural data had been obtained regarding this area. Housing pattern of *Hisar* area consist mostly of wooden houses bearing traditional Turkish features, narrow roads in human scale or blind alleys in some places, small squares with a small mosque or a public square with an awesome tree in the centre. This structure contributes to the maintenance of social living. What's more the area includes a lot of facilities and social opportunities due to its being in a walking distance to the city centre. However, today, level of social interaction around the neighbourhood is not satisfactory for the residents. Home population of the settlement constitutes a high percentage of middle aged or young inhabitants who have mostly an average education and income level. About half of these people belong to nuclear families. Residents of traditional houses mostly own their dwellings some of who are heirs to the previous owners, the other part are new owners, who had bought and restored the houses which were sold due to lack of funds. Residents of apartment buildings of the same neighbourhood are mostly tenants and a part of them are owners.

As the result of the conducted interviews, it is determined that about half of the inhabitants of *Hisar* are absolutely satisfied by the location of their neighbourhood

within the city, relations with their neighbours, social life and houses and that they would not prefer to reside in another neighbourhood or another house despite their houses' being underdeveloped due to lack of funds. It is determined that the inhabitants of this traditional environment have powerful identity and attachment feelings, whether they live in a traditional house or in an apartment. Additionally, it is found out that they are almost conscious about the cultural and historical values of their environment and agree to the idea of preservation and regeneration. Although most of them, especially the younger and well educated group of the inhabitants have knowledge about the meaning of the term sustainability, but they don't exactly know how it can be provided. On the other hand, it is meaningful that, without any distinction of the type of the residential unit, they are all ready for cooperation in anyway and want to help to the authorities of the municipality for the well-being of their environment, in the other words sustainable development of their neighbourhood.

When factor analysis and multiple correlations were applied to the data gathered, results revealed a relationship between some of the psychological and socio-cultural features of the settlement and components of sustainability culture which were identified in the conceptual framework as *awareness, responsibility* and *participation*. The identified psychological features having intense relationships with the components of sustainability culture are as follows;

- Sustainability responsibility and the feelings of belonging and attachment ,
- Participation and the feelings of belonging and attachment,
- Sustainability responsibility and environmental satisfaction,
- Participation and environmental satisfaction.

The degrees of the intensity of the relationships of these two groups of components identified by k² analysis [9] can be seen in table 1.

Table 1. The degree of relationships between psychological features and
         sustainability culture

	Awareness	Responsibility	Participation
Belonging & attachment	52	7.4	5.9
Perception	77	20	35
Evaluation	32.2	44.1	49.3
Satisfaction	59.2	0.3	7.5

The identified socio-cultural features having intense relationships with the components of sustainability culture are as follows;

- Sustainability awareness and age,
- Sustainability awareness and level of education,
- Participation and age
- Participation and level of education.

The degrees of the intensity of the relationships of these two groups of components identified by k² analysis can be seen in table 2.

Table 2. The degree of relationships between socio-cultural features and sustainability culture

	Awareness	Responsibility	Participation
Age	7	48.2	7.5
Level of education	6.3	47	0
Length of residence	26.6	70.6	52.9
Type of residential unit	87.5	57.3	14

CONCLUDING REMARKS

In the context of this study, sustainable urban development is investigated with a socio-cultural approach, in order to express the important role of individuals and societies in this process. The relationship of the discussed concepts are tried to be explained clearly with the help of related socio-psychological approaches of social sciences. The framework explains the transactional relationship between sustainable urban development and sustainability culture with a holistic approach. The empirical study carried out in this aspect justified that psychological and socio-cultural features have a great vitality to develop sustainability culture. Besides, it is proved that the idea of making people adopt the concept of sustainability and its requirements through their way of perception of the environment by the help of place identity, belonging, attachment and satisfaction would be a positive approach. Furthermore it is found out that, the better their perception about the environment, the greater their agreement to idea of participation in the required process of sustainable development.

So as to conclude, we can say that sustainable urban development can be achieved by transforming sustainability culture into a way of life. Thus, cities can regain their meaning and importance as cultural and economic centres having the opportunity to meet today's needs. What's more, they can conserve their historical values so as to be affirmative and constructive references to the changing life style of society today. At this point, Gandhi's statement [8] should be emphasized*; "to reduce the conspicuous consumption by self-restraint is indispensable in order to adopt the changes in life-styles, if we want to achieve sustainability".* Similarly, Goulet(1995)'s statement summarizes the necessity of reconstruction of the relations of people and environment in favour of sustainability consciousness; "*there can be no social development ethics without environmental wisdom and conversely no environmental wisdom without a social development ethic".*

ENDNOTES

[1] Sustainable development;"development that meets the needs of the present without compromising the ability of future generations to meet their own needs" Brundtland Report (WCED, 1987), (Redclift, Woodgate, 1997), (Sachs, 1997).

[2] Achterberg 1993: 84

[3] Ekins 1992: 62-71: LGMB 1995

[4] Full Ecology view advocates always considering the human dimension in its psychological, social, cultural, economic, and historical aspects as a central aspect of every ecosystem (Bonnes, Bonaiuto,2002).

[5] The transactional approach is the study of changing relations among environmental aspects of holistic entities with spatial, socio-cultural, psychological and temporal features (Altman,Rogoff,1987)

[6] This definition is from the report of "Forum for the Future" (DETR,2000).

[7] This definition is compiled from (Nijkamp, 1990, 1994), (Haughton, Hunter, 1994).

[8] Sachs,I.,(1999), "Social Sustainability and Whole Development: Exploring the Dimensions of Sustainable Development" in Sustainability and the Social Sciences, p.27

[9] k² analysis is an statistical analysis method which shows the intensity of the relationships between two variables having an evaluation scale from 0 to 9   expressing the most intensive relationship as 0.

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ENVIRONMENTAL KONTROL

Environmental Noise Management Guidelines for a Better City
Papatya Nur Dökmeci, Semiha Yılmazer

**Air Pollution and the Relationship Between some Meteorological Factors
in the Eastern Black Sea Region of Turkey: As a Case, Trabzon**
Mustafa Kavraz, Yelda Aydın Türk

ENVIRONMENTAL NOISE MANAGEMENT GUIDELINES FOR A BETTER CITY

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ABSTRACT

The physical requirements of people, such as thermal, visual and acoustic comfort in livable environments have become an important issue in the modern era, especially, regarding the varied architectural formations offering different functions to their users. In such context, well designed atmospheres and user sportive spaces can best be created by the guidance of the codes and regulations. In the recent years, the noise control policies and regulations became crucial for creating better acoustic environments. The European Parliament and Council directive "2002/49/EC-The Assessment and Management of Environmental Noise" and the European Union's projects entitled "IMAGINE" and "Harmonoise" are the most important and ongoing examples. In Turkey, the final regulation of the Ministry of Environment and Forestry that is the "Environmental Noise Management and Control Regulation" has been validated on March, 2008. Although the preparation process and wording of such regulations are important, a strategic approach to put the policy into practice is the crucial point. As a part of the countries' individual development, there is a need for effective and affordable solutions regarding environmental noise management. Monitoring and controlling noise exposure can be possible by proper action plans. These action plans are the key factors for implementations of the regulated noise policies. This paper briefly explains the recent ongoing projects and developments especially in Europe, in addition with Turkey's national regulation and policy. The main concern is to set the principles for environmental noise management and to introduce basic action plans that are relevant for the nation's needs. Soundscape design and soundscapegraphy is also explained in general with its relevance to evaluation of noise annoyance and sonic environments.

Keywords: Acoustic comfort, Noise control policy, Environmental Noise Management, Noise mapping, Soundscape design

INTRODUCTION

Acoustical conditions for outdoor and indoor environments are crucial for the physiological and psychological health of individuals. Indoor spaces as well as outdoor areas uniformly create the living environments. They both should be considered together for designing better livable environments. Noise is one of the important environmental pollutants that lowers the comfort level of the community. Extensive or long term noise exposure should be controlled and avoided by

regulations. The formation of such regulations can only be possible by the interest of the public, individual justices or rule makers regarding these certain subjects (Can, Özçevik 2008). Turkey's aim of inclusion to EU forced government to renovate/renew (in 2005 and 2008) the "Environmental Noise Management and Control Regulation". The regulation has been prepared by the Ministry of Environment and Forestry of Turkey with the guidance of the European Parliament and Council directive '2002/49/EC-The Assessment and Management of Environmental Noise'.

The development of noise policies and regulations should be followed by action plans and noise mapping projects that are financed and carried out by government, related municipalities and ministries. The collaborative work should be put forth for minimum time use and maximum efficiency.

Noise management and prevention methods are needed to be introduced as the final step for the sake of public's health and acoustical comfort. Obtaining acoustical comfort in indoor/domestic areas can be achieved by implementations on the structural scale. When urban/open spaces are considered the implementations on environmental noise should be assessed. It should be noted that urban environments rather than indoors are crucial for the community and has to be well considered by city planners and urban designers. In recent years, soundscape design and soundscapegraphy technique has begun to progress. Especially, for urban noise management by means of attaining acoustical comfort and preventing unwanted sounds, soundscape approach can be used.

EU REGULATIONS AND PROJECTS

2002/49/EC Directive

Environmental noise is one of the major problems that create complaints from the public. Yet, it has a low priority when compared with air or water pollution. In 1990s 'Green Paper' that was prepared by the European Commission had been introduced to "stimulate public discussion on the future approach to noise policy" (1996, p. 1a). In the new framework of this Green Paper, a proposal had been written for a directive that provides the harmonization of methods assessing noise exposure. It can be said that 'Green Paper' is the previous step leading to the formation of the 2002/49/EC Directive.

As stated in of EU, noise is one of the main problems in Europe (EP & the Council 2002). At first, in its Resolution of 10 June 1997, the Commission had noted that specific measures and initiatives should be laid down in a directive for the reduction of environmental noise. This consensus leads to formation of the final Directive. At first, the objectives and scope has to be stated, in order to comprehend the proposed Directive.

The objective of 2002/49/EC Directive of EU has been stated as;

"1- to define a common approach intended to avoid, prevent or reduce…the harmful effects, including annoyance, due to exposure to environmental noise…and following actions shall be implemented progressively:

a) the determination of exposure to environmental noise, through noise mapping, by methods of assessment common to the Member States;

b) ensuring that information on environmental noise and its effects is made available to the public;

c) adaptation of action plans by the Member States, based upon noise-mapping results, with a view to preventing and reducing environmental noise where necessary and particularly where exposure levels can induce harmful effects on human health and to preserving environmental noise quality where it is good.

2- …provide a basis for developing Community measures to reduce noise emitted by the major sources, in particular road and rail vehicles and infrastructure, aircraft, outdoor and industrial equipment and mobile machinery…" (EP & the Council 2002, Article 1).

The scope has been noted as;

"1- this Directive shall apply to environmental noise to which humans are exposed in particular in built-up areas, in public parks or other quiet areas in an agglomeration, in quiet areas in open country, near schools, hospitals and other noise-sensitive buildings and areas.

2- this Directive shall not apply to noise that is caused by the exposed person himself, noise from domestic activities, noise created by neighbors, noise at work places or noise inside means of transport or due to military activities in military areas" (EP & the Council 2002, Article 2).

IMAGINE-Harmonoise Project

As a result of the growing population and mobility in Europe, the need of certain noise indicators, noise maps and action plans became crucial to lower the environmental noise annoyance noted by the citizens. Such noise maps that are necessary for preparing noise action plans provide information to the Commission as well as to citizens (IMAGINE Project 2007).

The goal of the IMAGINE project is to provide guidelines, examples and databases for a quick and easy implementation of the harmonized noise computation methods in the Member States of the European Community. The IMAGINE project has been progressed parallel with the Harmonoise project. The difference is that, the Harmonoise project mainly focus on road and railway noise predictions, while the IMAGINE project extends its limits to aircraft and industrial noise sources. The results that have been provided by Harmonoise and IMAGINE are planned to be used for the production of strategic noise maps and to predict the efficiency of noise action plans by the Member States which have been prepared accordingly with the EU Directive (IMAGINE Project 2007).

REGULATIONS IN TURKEY

Until recent years, the content, action plans and applications of noise policies and regulations, for creating better acoustic environments to obtain acoustical comfort had been insufficient. The development and implementation process of governmental regulations require long formal collocation periods. In Turkey, the first technical regulation had been proposed in 1986 as "Noise Control Regulation" which put forth criterion regarding source, receiver and environmental noise. In 2005, 2002/49/EC Directive of EU had been revised and the Ministry of Environment and Forestry of Turkey had adapted the "Environmental Noise Management and Control Regulation". Between 2006 and 2008, detailed analysis of the absent articles and related problems of the Regulation had been tried to be added and solved with the efforts of EU synchronization project (Bilgili 2008).

The final valid and in force document, "Environmental Noise Management and Control Regulation" validated on March, 2008 had been adapted from 2002/49/EC Directive of EU with the necessary additions. Although the Regulation includes fifteen main sections, it can be classified under four main titles regarding the informative content as; 1- Environmental noise-urban scale, 2-Structure-structure scale, 3-Occupational safety and health, 4-Noise sources (Can, Özçevik 2008).

The main sections of the regulation should be well understood in order to comprehend the whole content. These fifteen main sections are (Republic of Turkey Ministry of Environment and Forestry 2008);

1. Aim, scope, basis, definitions and general principles
2. Duty, authority and responsibilities
3. Noise source sound levels
4. Environmental noise criterion
5. Environmental vibration criterion
6. Basic criterion for design period
7. Strategic nose mapping and criterion
8. Action plans
9. Information to the public, data collecting and reporting
10. Noise mapping and action plans approval procedure
11. Noise control permission document and assessment criterion
12. Measurement, noise mapping and assessment
13. Qualification document assessment criterion
14. Complaint assessment, inspection, incitement, managerial sanctions
15. Various and resulting sentences

Transportation (road, railway, seaway, aircraft), industrial facilities, open air activities, leisure spaces, construction sites, ateliers, factories, business spaces and similarly functioned spaces act as sources of unwanted sound named as noise that highly effects the physiological and psychological health of the public should be well listed and analyzed for preventive act assessments to provide acoustically comfortable living environment for individuals of the community during day, evening and night (Can, Özçevik 2008).

ACTION PLANS, PROPOSALS AND SOUNDSCAPE APPROACH

Recent Work on Noise Mapping

As a part of the EU synchronization project, between 2006 and 2008, five plot cities had been chosen and accordingly noise maps and action plans were prepared. The cities and areas were; Ankara - Railway and vicinity, Adana - Main road and vicinity, İzmir - Main road and vicinity, İstanbul - Atatürk Airport and vicinity, Bursa - Industrial area and vicinity. The project was carried out by; German Federal Ministry of Environmental and Natural Conservation and Nuclear Security, Republic of Turkey Ministry of Environment and Forestry, Ministry of Transportation, İstanbul, Ankara, Adana, İzmir and Bursa Metropolitan Municipalities.

During the project necessary documentation had been prepared as; noise mapping guide, important information on actions plans for noise control, guide for noise management and prevention, budget analysis of noise mapping actions and finally this process had been used for stating the conformity strategies with the 2002/49/EC Directive of EU (Bilgili 2008).

Action Plans

In Turkey, work regarding action plans and noise mapping has been started by the Ministry of Environment and Forestry after the Regulation is renewed and validated in 2008. According to the action plans, cities having a population of over than hundred thousand people, areas with the population crowd of one thousand people for one kilometer square and main transportation routes are primarily handled regarding noise mapping and developing noise control and prevention methods. At the first stage (Bilgili 2008);

-Main traffic routes used by six million cars per year,
-Main railway routes used by sixty thousand trains per year,
-Main airports used by fifty thousand aircrafts per year,
-Areas having a population over than two hundred and fifty thousand people,

Until 30/06/2011 will be determined,
Until 30/06/2013 noise maps will be prepared,
Until 18/07/2014 action plans will be developed.

At the second stage (Bilgili 2008);

-Main traffic routes used by three million cars per year,
-Main railway routes used by thirty thousand trains per year,
-Areas having a population over than hundred thousand people,

Until 30/06/2014 will be determined,
Until 30/06/2018 noise maps will be prepared,
Until 18/07/2019 action plans will be developed.

Continuous work and developments are planned with a scheduled time table and necessary studies regarding noise mapping and action plans will be put forth by the Ministry of Environment and Forestry.

Soundscape Design and Soundscapegraphy

The definition of the word soundscape is noted in the literature as; "similar to the word 'landscape' which refers to visual scenery, soundscape refers to the auditory scenery, that is, the scenery that can be caught hold of by ears" (Ge et al. 2009, p. 65). This definition also explains the psychological aspect of audition. The auditory perception and behavior brings out the concept of sound environment and design.

Research on soundscape and related studies has begun to be important in the field of community noise for about fifteen years now and new techniques with highly extended analysis have been progressing. One important study regarding soundscape research for assessing noise annoyance at the community level with respect to 2002/49/EC Directive of EU is Lercher and Schulte-Fortkamp's in 2003. The key factor in soundscape research is the relationship between the aural space and the living environment. Studies are mainly concentrating on noise that the community has been exposed to and the annoyance from such unwanted sound.

Understanding soundscape approach is possible by stating the methods used to analyze the sound environment and auditory perception in addition to putting forth the design techniques which follows the in-dept analysis. Psychoacoustic analysis as well as noise annoyance surveys and acoustical comfort ratings are the important tools that have been developed to obtain a measure for such subjective issues. So, it can be said that "soundscape is a qualitative evaluation method and has introduced a shift from a strict physical point of view to a more phenomenological one" (Schulte-Fortkamp, Dubois 2006, p. vi).

The soundscapegraphy is formed parallel with the nature of soundscape, bringing out a more concrete and palpable instrument to understand the concept. As soundscape means the sonic environment in which the society experience and live within, the relations of "1- physical sounds and sound environment, 2- people's perception and understanding of sounds and sound environment, and 3- comprehensive environment where sound environment exists" (Ge et al. 2009, p. 67) have to be considered and all three parts should be analyzed together.

Noise mapping can be seen as the same technique with the soundscapegraphy, yet noise maps do not use software that includes the GIS (geographical information system) data. Although there are many tools developed for preparing noise maps of populated areas on different scale, such computer modeling programs keep out the subjective and geographical factors. Soundscapegraphy, on the other hand, tries to combine and model maps with varied inputs. It seems that combining subjective and geographical factors with foreseen and simulated sound pressure levels would give more reliable results coming from a wider perspective of unified information.

CONCLUSION

Creating livable and highly comforting environments are crucial for community's well being and public health. Environmental noise is one of the major issues that lower the acoustical comfort of the community. Therefore, noise control and management are important and should be well-concerned by governments and municipalities. It should also be noted that noise annoyance is highly effective on the psychological and physiological health of the individuals and society. Turkish Ministry of Environment and Forestry has adapted "Environmental Noise Management and Control Regulation" in 2008 from the "2002/49/EC-The Assessment and Management of Environmental Noise" Directive of EU. Right after the renewal of the Regulation in Turkey, government began to work on a pilot study progressed in defined areas of five cities, Ankara, İstanbul, İzmir, Adana, Bursa. When the implementations and developments of EU are analyzed, projects as Imagine and Harmonoise seems to be similar yet more fulfilled in comparison to action plans and pilot study accomplished in Turkey. On the other hand a new technique of soundscape analysis is developing entitled, soundscapegraphy. Noise mapping strategies would become more meaningful with the unison of subjective and geographical factors that are added in soundscapegraphy approach.

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AIR POLLUTION AND THE RELATIONSHIP BETWEEN SOME METEOROLOGICAL FACTORS   IN THE EASTERN BLACK SEA REGION OF TURKEY: AS A CASE TRABZON

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ABSTRACT

Air pollution is one of the most important environmental problems in the Eastern Black Sea Region of Turkey. Trabzon one of the cities which is located in this area, especially have important air pollution level during the winter months. Also one of the factors which affect level of air pollution is meterologic factors as moisture, wind, temperature. And it is known that there is a relationship between meteorological factors and air pollutants (SO_2 and PM). This study investigated the statistical relationship between some of the meteorological factors, such as wind speed, temperature and humidity and the air pollution parameters of SO_2 and PM concentrations in the city of Trabzon between 2000 and 2007 winter seasons using the Statistical Package for Social Sciences (SPSS 13.0).

According to the results of the study, there are strong relationships between the meteorological factors and the SO_2 and PM concentrations in the urban Trabzon. It was found that there is, in general, a reverse relationship between the air pollutants and meteorological factors, and that the level of this relationship is high (the R^2 values are between 88% and 97%). But, there is not a relationship between meteorological factors and air pollution concentrations (APCs) for certain years.

Keywords: Air pollution, Meteorological factors, Regression analysis, Trabzon

INTRODUCTION

Air pollution can be defined as the presence of such pollutants as sulphur dioxide (SO_2), particle substances (PM), nitrogen oxides (NO_X) and ozone (O_3) in the air that we inhale at levels which can create some negative effects on the environment and human health (Bayram and et al., 2006). This pollution damages the natural processes in the atmosphere and affects the public health negatively. Currently, several cities stand out as worst cases of air pollution (Kilburn, 1992). It was found

that until the 1980s, 1.3 billion people lived in cities where pollution was above the air quality standards (Bayram and et al., 2006).

There are several factors in the creation of air pollution; however, the most important factors are urbanization and industrialization. As is the case of all environmental problems, the two primary causes of air pollution in Turkey are urbanization which has been rapid since the 1950s and industrialization. Before industrialization more than 80% of the population lived in rural areas; but now more than 60% live in the cities and industrial complexes. Among the developments contributing to air pollution in the cities are incorrect urbanization, low quality fuel and improper combustion techniques, a shortage of green areas, an increase in the number of motor vehicles and inadequate disposal of wastes (Özer and et al., 1997).

In addition to these, the air pollution in cities also depend on meteorogical (wind, humidity, temperature, rain etc.), geographical and topographical properties of the urban area. Meteorogocical factors can be effective on the level of air pollution.

There are studies reported in the literature which determine the relatationship between meteorological factors and the level of air pollution concentrations (SO_2 and PM). Chao (Chao, 1991) has related SO_2 and PM concentrations with meteorological factors, and based on this relationship, he has proposed some policies for Shanghai. A.K. Gupta et. all (Gupta and et al., 2004) used statistical analysis to assess the relationship of SO_2 and PM concentrations with wind speed between January 1997 and December 2000. Tirabassi et all. (Tirabassi and et al., 1990) found that there is a close relationship among wind speed, SO_2 and PM in the coastal city of Ravenna.

In an investigation, Demirci and Çuhadaroğlu (Demirci and Cuhadaroglu, 2000) statistically analyzed the relationship between air pollution and wind speeds of different directions (between 1994 and 1997). According to the results obtained through linear regression analysis, there is a weak relationship between the air pollution concentrations and wind speeds in urban Trabzon.

Yıldırım et all (Yıldırım and et al., 2002) developed a non-linear simple air-quality model for the air control volume of Erzurum city center and tested it using daily average values of SO_2 and meteorological data obtained during the winter seasons in Erzurum, Turkey, from 1994 to 1998. The agreement between model predictions and measured data was found to be very satisfactory with standard deviations less than 20 µg/m^3.

In a study in Balıkesir, Turkey, İlten and Selici (Ilten and Selici, 2008) correlated the relationship between the daily average total suspended particulate (PM) and sulphur dioxide (SO_2) concentrations between 1999 and 2005 winter seasons with the meteorological factors. According to the results obtained through the analysis, higher PM and SO2 concentrations are strongly related to colder temperatures, lower wind speed, higher atmospheric pressure and higher relative humidity. The statistical models of SO_2 and PM gave correlation coefficient values (R^2) of 0.735 and 0.656, respectively.

In a study in Karabük, Turkey, Çelik and Kadı (Çelik and Kadı, 2007) investigated the relationship among SO_2 and PM, wind speed, relative humidity and air temperature

from 1998 to 2001 on the basis of 24-hour continuous measurements. The relationship between air pollution and the meteorological factors was statistically analyzed. According to the results of the analysis, for some years, there is a moderate and weak level relationship between meteorological factors and PM concentrations in Karabuk city.

Air pollution is an important problem during the winter periods in Trabzon. This study aims to investigate the correlation of SO_2 and PM pollution with meteorological factors. For this purpose, the data for temperature, humidity, wind speed and air pollution concentrations in the winter months between 2000 and 2008, have been recorded and statiscally analyzed.

FIELD OF WORK

The City of Trabzon is situated in northeast of Turkey (Figure 1). The city of Trabzon lies on the North sides of the Eastern Black Sea Mountains, and between longitudes 38° 30' - 40° 30' E and latitudes 40° 30' - 41° 30' N (URL-1). The area of Trabzon is about 4.664 km^2 and the total population of the city is about 293.000. The population density is about 5.000 people per square kilometer.
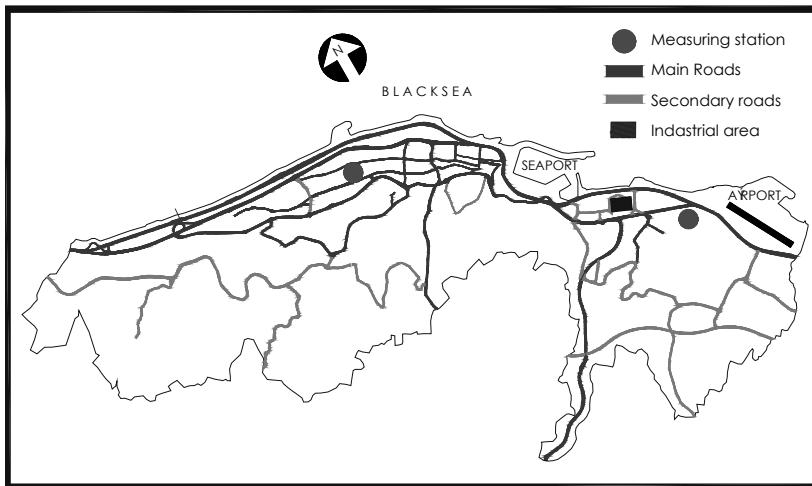

Figure 1. Trabzon city map

Trabzon has a typical Black Sea climate, with rain all the year round. Summers are cool and winters are mild and damp. Towards the South the climate becomes colder. Trabzon has a thick vegetation and receives ample rain (URL-2). Though, in general, Trabzon has a rainy climate all the year round, the rain reaches its peak from September on untill late june (URL-3). The average annual rainfall is 800-850 kg/m^2 and about 152 days of the year are rainy. Starting from the sea level, the elevation

reaches up to 3000 m in the South. The annual average temperature in Trabzon is 14.57^{0}C. (URL-1). The dominant wind directions are South-southwest in December, southwest in April, South in June, and west-north in other months. April and especially May are rather foggy. Relative humidity reaches its peaks in May and June as 79% and 76% respectively. The humidity starts to decrease in summer months and reaches 67% in December, which is the minimum level. Sometimes the humidity reaches 99% (URL-3).

AIR POLLUTION IN TRABZON

The level of SO$_2$ and PM increases during the winter especially between November and April in Trabzon as it does in the other cities in Turkey. There is a high air pollution in the residential areas along the coast line in the west of the city. These parts of the city are characterized with high buildings. This prevents the removal of the pollution by the dominant winds in the city (Uzunali, 2004). Because the pollution is not transported out of the city by the air, a cloud of pollutant particles can easily be seen in winter months.

As in other cities with fast urbanization, many factors such as population growth, irregular and intense urbanization, increase in the number of buildings in the valleys that can be considered as the air corridors of the city, and increase in the number of motor vehicles cause air pollution in Trabzon. The intense air pollution in the city especially between November and April is caused by fuels used for heating purposes in the residences. A study by Uzunali (Uzunali, 2004) showed that the main factor that causes air pollution is PM and that this was the result of the use of coal for heating purposes in the residences. When we investigate the annual amounts of coal (Kg) used fort he purpose of heating in the city, we see that there is a gradual increase in the amount of this type of fuel (Figure 2).
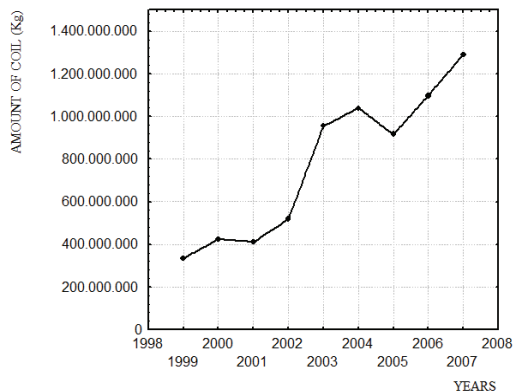

Figure 2. Annual amounts of coal consumed for the purpose of heating in Trabzon

Natural gas is not yet used in the city for heating purposes. However, the necessary infrastructure works for this have been in progress. The active use of natural gas in the future will decrease the PM pollution. In their study, Akkoyunlu and Ertürk (Akkoyunlu, 2002) investigated the effect of the increased share of natural gas in residential areas on air pollution levels. The pollution map indicated that the increased use of natural gas in residential areas significantly improved air quality.

In addition to the aforementioned factors, the light industrial complexes that may contribute to the air pollution in the city are located in the east of the city. Air pollution in this part of the city where there is a cement plant is high but is lower than the pollution in the west. For there is no residential settlement in this area (Uzunali, 2004).

EVALUATION OF THE DATA

The air pollution measurements were carried out by the Local Directorate of Environment and Forestry in Trabzon for the past 7 years (2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007) in the winter months (November, December, January, February, March and April).

Continuous daily observations of SO_2 and PM have been measured in the city at 2 stationary stations, which are located at different places in the city. The locations of these stations are shown in Figure 1.

The monthly average APCs and meteorological data such as wind speed, relative humidity ratio and temperature data were taken into consideration in this study and are presented in Table 1. The meteorogical data have been provided by the Trabzon branches of the State Meteorological Service.

Table 1. The monthly average APCs and meteorological datas in Trabzon

		November	December	January	February	March	April
	Humidity	64,8	67,9	71,3	66,7	68,5	80,2
2000-2001	Temperature	13,6	10	8,7	9	11,9	12
	Wind speed	2,4	2,8	2	2,6	2,3	1,8
	SO2	67	53	63	57	60	41
	PM	38	58	64	58	63	45
	Humidity	65,4	67,9	68,4	64,8	74,3	81,2
2001-2002	Temperature	12,6	10	5,8	9,1	10,4	10,7
	Wind speed	3,4	3,3	2,7	2	1,9	1,8
	SO2	44	63	85	86	72	71
	PM	46	74	93	107	72	71
	Humidity	66,6	67	65,4	71,9	76,2	80,4

2002-2003	Temperature	14,5	6,8	9,5	5,8	5,4	9,1
	Wind speed	2,5	3,4	2,3	3,3	2,3	1,8
	SO2	79	80	73	59	66	72
	PM	87	90	92	69	74	81
2003-2004	Humidity	78,6	68,4	63,3	68,8	69,3	69,1
	Temperature	11,6	9,2	8,2	7,2	9,3	12,3
	Wind speed	2,5	2,6	2,7	2,9	2,6	2
	SO2	71	86	109	77	72	67
	PM	90	133	101	73	84	81
2004-2005	Humidity	70,9	71,1	65,6	60,6	75,8	69,1
	Temperature	12,5	8,2	9,2	8,4	7,6	12,6
	Wind speed	2,7	2,5	2,5	2,9	2,8	1,8
	SO2	81	98	95	82	88	49
	PM	89	111	79	110	107	58
2005-2006	Humidity	68,6	73,1	73,5	73,1	67,1	80,6
	Temperature	12,7	10,2	5,5	6,4	10,2	11,4
	Wind speed	3,1	2,4	2,5	1,9	2,6	1,9
	SO2	79	80	92	64	56	9
	PM	96	127	132	208	119	81
2006-2007	Humidity	70,6	70,2	57,1	68,1	75,2	74,8
	Temperature	10,9	6,6	8,4	6,6	8,6	9,7
	Wind speed	2,8	2,3	2,2	2,3	1,8	1,9
	SO2	56	88	100	30	30	19
	PM	77	128	122	100	67	54

Figure 3 and Figure 4 show that in winter seasons until 2007, the limit of Turkish Air Quality Control Regulation (AQCR) was exceeded significantly both for SO_2 and PM . But the limits in AQCR are less stringent than the standards recommended by the World Health Organization (Table 2) (URL-4). When compared to the WHO standards, the PM value increased especially in December, January, February and March after 2003. The limits of air pollutant concentrations recommended by the Turkish Standards and WHO Guidelines are plotted as horizontal lines.

Table 2. Air quality limits in Turkey and comparison to WHO Standards

	Turkish Standards		WHO Standards	
	LTS	STS	Long Term	Short Term
SO2 µg/m³	150	400	50	125
PM µg/m³	150	300	50	120

LTS: long-term standarts
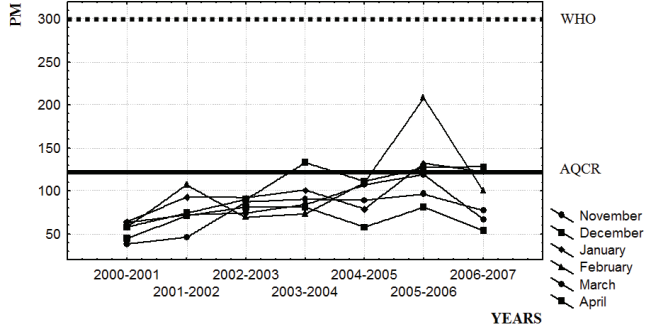STS: short-term standarts (maximum daily average)

Figure 3. Measured and calculated mountly mean PM concentrations in winter seasons from 2000 to 2007

Figure 4. Measured and calculated mountly mean SO_2 concentrations in winter seasons from 2000 to 2007.

DATA ANALYSIS

The air pollution in urban areas has different characteristics on account of the changing meteorological factors in the urban area. The level of air pollution concentrations (APCs) is correlated with the combination of the various meteorological factors. For that reason, APCs and meteorological data should be evaluated statistically in order to correlate them (Çuhadaroğlu, 1997).

The relationship between SO_2, PM and meteorological parameters (temperature, wind speed, relative humidity and pressure) in the winter periods between 2000 and 2007 were analyzed with stepwise multiple linear regression analysis. In this study, the APCs (PM and SO_2) are considered to be the dependent variables and

meteorological parameters (wind speed, relative humidity ratio and temperature) are considered to be the independent variables. The SPSS 13.0 was used for the statistical analysis, and because of the number of independent variables, multiple linear regression analysis was used.

The multiple regression models used are linear as;

$$Y = A + B_1 X_1 + B_2 X_2 + B_3 X_3 + E \qquad (1)$$

Where A is the constant of regression and B is coefficient of regression. The values of the constant and the coefficients were determined using the least-squares method which minimizes the error, appearing as E in the above regression equation. The significance level of the constant and coefficients were statistically tested using the t distribution (Norusis, 1990).

The coefficient of determination is R^2. It determines the direction and significance level of the relation between the variables in the mathematical model. It is defined as the proportion of the variation in the dependent variable. It is expressed as:

$$R^2 = 1 - \frac{\sum \left(\hat{Y}_i - \overline{Y} \right)^2}{\sum \left(Y_i - \overline{Y} \right)^2} \qquad (2)$$

Where $\hat{Y}_i$ is the value of Y predicted by the regression line, Y_i is the value of Y observed, and $\overline{Y}$ is the mean value of the $Y_i s$. If there is no linear relationship between the dependent and independent variables, $R^2 = 0$. It is assumed that a high R^2 assures a statiscally significant regression equation and that a low R^2 proves the opposite (Norusis, 1990).

In the present study, a stepwise regression model was used. A stepwise regression of independent variables is basically a combination of backward and forward procedures in essence and is probably the most commonly used method.

After the first variable is entered, stepwise selection differs from forward selection: the first variable is examined to see whether it should be removed according to the removal criterion as in backward elimination. In the next step, variables not included in the equation are examined for removal. Variables are removed until none of the remaining variables meets the removal criterion. Variable selection terminates when no more variables meet entry and removal criteria.

In the statistical analysis, the correlations between PM and SO_2 concentrations and meteorological parameters were analyzed. To express the best regression model: *Y=f(Xl), Y=f(X2) .....,Y=f(X2, X3) ..... Y=f(Xt, X2, X3)* equations were analyzed

separately and the independent variables with the lower R^2 values were eliminated. Using the remaining variables, equations having one, two, three variables were developed. A multiple regression analysis was applied for each year. For instance, in 2000-2001, it was found that there is no relation between SO_2 and temperature and wind speed. Temperature and wind speed were eliminated from the equation. In this context, the regression equation was expressed as:

$$[SO_2] = 296.969 - 2.59x[Humidity] \qquad (R^2 = 0.97) \qquad (3)$$

Acording to this equation, the SO_2 level decreases with the increasing humidity. 97% of SO_2 depends on humidity and wind speed. In 2001-2002, the regression equation obtained for SO_2 is expressed as follows:

$$[SO_2] = 194.275 - 0.586x[Humidity] - 14.800x[Windspeed] \qquad (4)$$

The above equation reveals that the SO_2 decreased with the increasing wind speed and humidity.
In 2006-2007, a relationship was found between the independent variables and PM.

RESULTS AND DISCUSSION

As known in general, APC's decrease with an increase in wind speed. According to the results of 7 years obtained from data analysis, as the wind speed increases, so does the SO_2 concentration, as seen in Figure 5. In addition, PM concentration decreases slightly with the increasing wind speed. The results of the statistical analysis show that there is a strong relationship between APCs and windspeed for some years. SO_2 concentration has a strong relationship and also 97% of coefficient of determination with the wind speed in conjunction with the humidity ratio in 2000-2001. In 2001-2002 and 2003-2004, there is a strong relationship between SO_2 concentration and wind speed, humidity, with 97% and %92 of R^2 respectively. As regards the suspended particle (PM) concentration, there is not a relationship with wind speed and humidity for certain years. The reason why there is not a strong relationship between wind speed and PM is that the prevailing wind is affected by the buildings on the coastal line of the city and the wind can not transport the APCs away from the city.
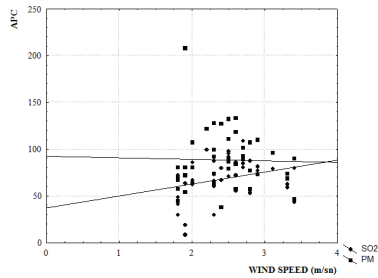
Figure 5. The relationship of the wind speed and APCs in 2000-2007

As seen in Figure 6, SO_2 and PM concentrations decrease with increasing humidity ratio. According to the statistical analysis results, there is a strong level of relation between SO_2 and humidity ratio in 2000-2001 and 2003-2004, where the value of R^2 is 95% on an average. In the same years, there is no PM relationship.
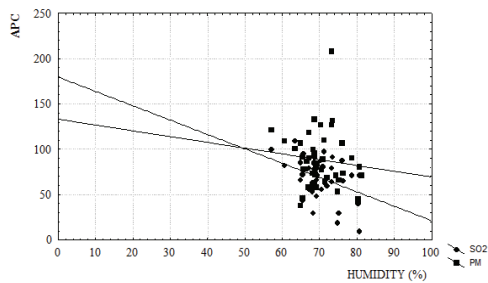

Figure 6. The relationship of the humidity and APCs in 2000-2007

The relationship between the APCs and temperature is interesting. According to the results obtained from the data, SO_2 and PM concentrations decrease with increasing temperature and the results of the statistical analysis show that there is a strong relationship between temperature and APCs. The reason for this is that especially in winter months the use of solid fuels increases and consequently the values of APCs increase. This is also shown in Figure 7.
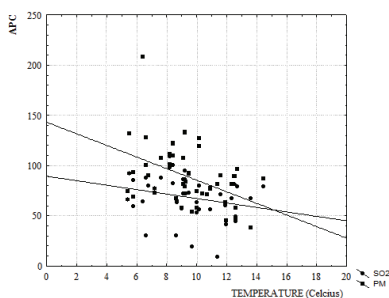
Figure 7. The relationship of the tempeture and APCs in 2000-2007

According to the results of this study, there are strong relationships between the meteorological factors and the SO_2 and PM concentrations in urban Trabzon. Significant correlation and regression coefficients have been found between the meteorological factors and the air pollution parameters. It was found that there is, in general, a reverse relationship between air pollutants and meteorological factors, and that the level of this relationship is high (the R^2 values are 88% ile 97%). But, there is not a relationship between meteorological factors and APCs for certain years.

A similar study which investigated the relationship between the meteorological factors and air pollutants in Trabzon in the years 1994 and 1995 (Çuhadaroğlu, 1997) found that there are no strong reationships between the meteorological factors and APCs. However, similar findings were obtained in this study, too. For example, in this study, the suspended particle (PM) concentration, there is not a relationship between wind speed and humidity for certain years. However, in Çuhadaroğlu's study, there is a weak level of relationship with wind speed. In addition, in both studies, no statistically significant relationship was found between the meteorological factors and APCs in certain years.

Furtheremore, in a study carried out by Topbaş et al. between 1994 and 2000, it was found that the SO_2 concentartions increased especially in the winter months in Trabzon.

The other two studies carried out for the city of Trabzon at different times and this study can be considered complementary, and are important due to the fact that they show the variations in the air pollutants in the city of Trabzon. The aforementioned studies (Çuhadaroğlu, 1997; Topbaş and et al., 2004) and this study show that the SO_2 and PM values increase especially in winter months. Because of the use of low quality coal for the heating of residences, Trabzon has a high level of air pollution in winter months.

The problem of air pollution can be solved with a multidisciplinary approach. The use of natural gas, and a reduction in coal particles should be encouraged by the Official Institutions in Trabzon to be used for heating. For a short term solution, high quality coal and fuel-oil can be used for the heating of residences and for energy. In addition, the direction of wind throughout the winter months should be taken into consideration in the urban structure plan. To improve the wind circulation in the city,

buildings, streets and heights of buildings should be planned and designed by taking into consideration the direction of the prevailing winds. In this way air pollution can be reduced.

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