

UNDERSTANDING FAÇADE BETWEEN DESIGN AND
MANUFACTURING:
A CASE STUDY ON HIGH-RISE OFFICE BUILDINGS IN İSTANBUL

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ABSTRACT

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The thesis aims to examine how the formation of architectural façades, that is, the interface with a dual response both to interior functioning and to the exterior urban fabric, is separated from the totality of architectural design by new technological developments and design intentions. This aim is accomplished in three sections, respectively: “analysis of the façade, the properties and formation process of the façade in time”; “examining the façade formation of the high-rise office buildings in Levent-Maslak area in respect to the analysis” and “examining the working principles and marketing attitudes of façade manufacturing firms in terms of their role in façade formation.”

The focus is on the description of a façade, its characteristics and the process that generated the autonomy of the exterior surface in time is examined. In this sense, the thesis analyzes that the 'free-façade' application, by which physical autonomy is totally gained, transforms the façade to a "production element" by using the technological developments and specifications of curtain-wall system in the Turkish context, in particular in Levent-Maslak area. Besides the technical availability, the representational qualities of the new materials transform this production based character of the free-façade to a more representational character as an "object-façade." The transformation of outside response by technical attitudes and the elaboration of the representational character of the exterior surfaces can be seen in the examples of Levent-Maslak area in İstanbul, which are discussed in this context. Finally, the study investigates how the technical knowledge inherent in the new façade systems gives the authority, in formation process of façades, to the manufacturing firms instead of the architect. It is therefore stressed that the changing role of the architect in the formation process of façades is often based on the working principles and marketing attitudes of façade manufacturing firms at present.

Keywords: façade, curtain wall, autonomy, production, technology, representation, marketing principles, manufacturing firms

ÖZ

TASARIM VE İMALAT ARASINDA CEPHEYİ ANLAMAK: İSTANBULDAKİ YÜKSEK OFİS BİNALARI ÖRNEĞİNDE BİR ÇALIŞMA

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Bu tezin amacı iç mekandaki işleve ve dış mekandaki kentsel dokuya bağlı ikili karakteri ile bir ara yüz olan mimari cephe oluşumunun yeni teknolojik gelişmelerle ve tasarım amaçları ile nasıl dönüşüme uğradığını incelemektir. Bu amaca sırasıyla üç adımda ulaşılmıştır: “Cephe, özellikleri ve zaman içindeki oluşum sürecinin analiz edilmesi”, “bu analiz ile Levent-Maslak alanındaki yüksek ofis binalarını cephe oluşumunun incelemesi”, ve “bu oluşumunun nedenini bulmak için cephe imalat firmalarının çalışma prensiplerinin ve pazarlama yaklaşımlarının incelenmesi.”

İlk olarak, cephe tanımına ve özelliklerine odaklanılmıştır. Çalışma zaman içerisinde dış yüzeyin özerk karakterini edinme sürecini incelemektedir. Daha sonra, bu süreç Türkiye bağlamında, Levent-Maslak alanı içerisinde incelenir. Bu anlamda tez giydirme cephe sistemindeki teknik

gelişmeler ve tanımlamalar ile fiziksel özerkliğin kazanıldığı özgür-cepheyi uygulamasının cepheyi daha çok bir imalat elemanına dönüştürdüğünü analiz eder. Teknik kullanılabilirliğin yanında yeni malzemelerin temsili kaliteleri özgür-cephenin bu üretime dayalı karakterini daha temsili karakterli obje-cepheye dönüştürmektedir. İstanbul Levent-Maslak alanındaki örneklendirmelerde de cephenin dış çevreye karşı sorumluluğunun teknik yaklaşımlar ve dış yüzeyin temsili karakterinin vurgusu ile değişime uğradığı görülmektedir. Son olarak, çalışma yeni sistemin teknik bilgisinin imalat firmalarına mimar yerine cepheyi oluşturma yetkisini nasıl sağladığını araştırmaktadır. Böylece, günümüzde mimarın cephe oluşumundaki değişen rolü cephe üretim firmalarının çalışma prensiplerine ve pazarlama yaklaşımlarına dayandırılacaktır.

Anahtar sözcükler: cephe, giydirme cephe, özerklik, üretim, teknoloji, temsil, pazarlama prensipleri, imalat firmaları

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CHAPTER I

INTRODUCTION

1.1 Aim of the Thesis

This study is an inquiry into how the formation of the outside surface of the architectural construction, which is an interface with a dual response to both interior and exterior, is separated from the architectural design by the new construction methods and design intentions. The study in this sense discusses the changing formation methods of the façades in relation to the changing role of the architects and the manufacturing firms in the design process of buildings within the context of the high-rise office buildings in Levent-Maslak area in İstanbul.

The main consideration of the study is on the deficiencies of the design intentions in the formation process of the exterior surfaces. The focus is on the influence of the new materials and technologies on the formation of the end product instead of the variety of the materials and techniques. In other words, the stated idea is that the manufacturing firms have recently gained a priority in the formation of the façades with their technical knowledge, especially in high-rise business complexes, against the designers and architects of the buildings.

The research firstly examines briefly the processes that generated the autonomous character of the exterior surfaces in history from the masonry to curtain wall system and also how the façades seen in the Modern period of the Turkish architecture are affected from this process of autonomy. The latest technology, curtain wall system, transformed the significance of façade to an object based production in the context of large scale constructions. This system is composed of the standard prefabricated units, which are produced away from the construction site as a dry-construction. After the manufacturing process, the façade is attached to the structural system of the building. This system is preferred especially in the commercial and institutional buildings, due to its economy of manufacturing and also application ease resulting from standardization. The representational quality of the new materials, besides the economy of construction, is another reason for the preference of curtain-wall system in institutional buildings. Therefore, the “cost-economization”, “optimization of use” and “representational quality” constitute the common design intentions in the formation of the façades at present.¹ Thus, the high-rise business complexes in Levent-Maslak area in İstanbul are investigated in terms of their design intentions and the formation of their exterior surfaces in order to study the effects of the manufacturing firms in the façade formation process. Following the case studies on high-rise buildings, the study examines a group of façade manufacturing firms in Turkey. Therefore, the working principles of these manufacturing firms implies, often explicitly, that the authority of the architect on the façade design is increasingly replaced by the architects, engineers or the assembly teams working for the manufacturing firms.

¹ Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 3.

The definition of the word “façade” has a primary importance in this research that investigates the autonomization process of the exterior surface. As a word, “façade” is originally a Vulgar Latin word whose root comes from “facies”, “facia”; meaning respectively “front” and “face” and corresponds to the word “appearance” which is a visual term in English.² Besides its dictionary definitions, a façade can be defined also as the face of the building that confronts with the inner structure with the outer world. Therefore, when the façade of building is the subject in architecture, the intended meaning is the face of the building which corresponds to the outside environment of the construction; the main face or elevation of the building seen from the street or urban fabric.

The initial essence of a façade ramifies into a double direction. First of all, a façade has a more private relationship with the inhabitants of the building; the aim of the exterior surface is to create a shelter for the inhabitants. A façade therefore should provide a good quality protection against the environmental and climatic effects, including rain, snow, wind, heat, cold, moisture and noise, for both the inhabitants and the internal structure of the construction. In addition to providing a physical protection to the building, the cover also has an ability to create an intimate place for the interior life. On the other hand, façade confronts with the urban life as well. Besides producing a living space for the inhabitants, a façade faces the street; thus has a responsibility to the surrounding urban fabric. In other words, the façade has a public character that shapes the city fabric too. A façade in this respect is expected be visually “impressive, inviting or deterring,

² Merriam-Webster Online Dictionary [online] (2006.) from: <http://www.m-w.com/dictionary/façade> [Accessed at August 2006].

informative, etc.”³ Consequently, the building cover becomes an interface between private and public, interior and exterior, by mediating in between two scales and contexts. Thus, an architect has to generate a world which integrates the interior and exterior at the same time and by the same element.

1.2 Organization of the Thesis

As mentioned above, the primary subject investigated in this study is the processes that generated the autonomous character of the exterior surface. The process can actually be studied in two major shifts, which illustrates a different sense of autonomy in each case. The first shift is identified with the Modern period when the construction technology separated the exterior surface from the interior structure. The formation of the design in Modernist era was based on an emphasis of the new considerations introduced by the technical and scientific developments. The main principle of the new perception of modernism is based on the idea which totally has to be “birth” from zero, instead of rebirth through the anti-past attitudes.

“The new architecture is the inevitable logical product of the intellectual, social and technical condition of our age . . . the spirit of age.”⁴

As indicated by Colin Rowe, the birth of this new architecture must be seen in relation to both the technical and moral aspects of the age. In this

³ Arnheim, R. (1977). “Solids and Hollows.” *The Dynamics of Architectural Form*. London: University of California Press Ltd. p. 92.

⁴ Rowe, C. (1977). *The Mathematics of the Ideal Villa and other Essays*. Cambridge, Massachusetts, and London, England: The MIT Press. p. 125.

respect, the new construction materials such as concrete, glass and steel, played a major role on the formation of the façades. The notion of 'skeleton structure' has separated the exterior surface from its construction; thus resulting on the formation of two separate architectural elements: constructional skeleton and façade.⁵

By the same token, the development path of the steel construction has become to express the exterior surface in new typologies. Steel as the new material is capable to be used in constructing higher buildings. Hence, the formation of high-rise buildings by the new techniques emerged mainly in the high-rise commercial and institutional buildings.⁶

Following the usage of concrete and steel as a skeleton structure, the potentials of new materials had been explored to generate new types of façade. The physical autonomy of the 'exterior skin' had been intensified by glass and metal curtain wall system.⁷ In other words, the emergence of new technologies has affected the way the exterior is formed. The outer surface has gained autonomy with the help of new approaches both in the technique and material specification.

The second shift is identified in a different sense of autonomy; by the emergence of Postmodernism, the formation of the exterior surface besides

⁵ Sanderson, W. (1981). *International Handbook of Contemporary Developments in Architecture*. London: Greenwood Press. p. 14.

⁶ Joedicke, J. (1959). "The Chicago School." *A History of Modern Architecture*. New York: Frederick A. Praeger Publishers. p. 24.

⁷ Kelly, S. J. and Johnson, D. K. (1998). "The Metal and Glass Curtain Wall: The History and Dignostics." In *DO.CO.MO.MO. Modern Movement Heritage*, ed. A. Cunningham. London: E&FN SPON. p. 78.

the technological developments is based on a free attitude towards responding to outer conditions. As Rob Krier states in his façade description, the ideological point of the façade became a dominant feature in twentieth century:

“The façade is still the most essential architectural element capable of communicating the function and significance of a building. I say still, having in mind its theoretical destruction proclaimed in the twentieth century where the ideology of the free-standing object, visible from all sides, became predominant.”⁸

Krier points out that the façade is defined as an element which only expresses the significance of a building in the twentieth century. As an architectural element, the shaping method is originated from the idea of representing an imagery instead of improving the quality of the outside living environment.

Different from the technical considerations of the Modern Movement on the formation of the exterior surface, the representational aspects became a primary concern on the third dimension of architecture in Postmodernism. Heinrich Klotz indicates the principles of Postmodernism in his *The History of Postmodern Architecture* as such: ‘stylistic means’ of the previous architectural attitudes regain ‘their validity’ by Postmodernism.⁹ The exterior response of the façade in Postmodernism is based mostly on the representational quality of historical elements. Hence, the ‘pluralism of styles’ has transformed the

⁸ Krier, R. (1992). “Facades.” *Elements of Architecture*. London: Academy Group Ltd. p. 60.

⁹ Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 4.

freedom of the façade from the inner structural system in different sense in that the formation is now freed from the exterior response described in the definition of the façade above. Therefore, the autonomy of the façade is treated in a different attitude with the shifts in architectural epochs: firstly manifested as a freedom from the structure in a more physical sense and secondly as a freedom from the response to the exterior conditions in a more representational aspect.

The study similarly focuses on a reading of the developments in twentieth century architecture in Turkey within a brief historical overview. The perception of the two different approaches to the autonomy of the exterior surface also influenced the formation of the end product, the façade, in Turkish architecture as well. The differences in façade formation are illustrated best within the context of the high-rise office buildings in Levent-Maslak area in İstanbul, which are discussed in some detail.

The two approaches of autonomy, the former being based on the technical developments in a more physical manner and the latter on the stylistic approaches in a more representational manner, dominates the façades of the buildings especially in the business complexes in Levent-Maslak area. Here as well, the separation of the façade from the internal structure began in a more technical manner by using the curtain wall technology.

The investigation is carried out in reference to the autonomization process of the façades of different high-rise business complexes in Levent-Maslak area. The images of the high-rise business complexes, which are formed by curtain wall system, are classified under two headings with

respect to the material specifications and the representational qualities either as “glass-box” or as “articulated.” The “glass-box” approach is described and discussed from the research and assessment on several examples which are totally made of the ‘blue’ reflected glass in different combinations. Such a façade is composed of the standard glass units to express the volume and the flatness of the building mass. The intention behind these combinations is to generate a homogenous exterior surface. The “articulated” approach on the other hand is a different formation than the glass-box. In this approach, the formation of the exterior surface is based mainly on the use of several materials and figurative elements in the sense of a ‘pluralism of styles’. In short, these exterior surfaces generate more “familiar” expressions with the representative character of the employed historical elements such as pediments, column capitals, arches, vaults etc.

When both approaches are evaluated it can be stated that the intentions behind their formation are same; to generate a representational identity of the owners of the building rather than to embrace and define a living environment for both the internal and external users. This fact inherits the two types of autonomous formation. Namely, both the former type of autonomy, which corresponds to the separation of the façade from the structure by means of technological developments, and the latter type, which referred to the separation of the formation principle from the design intentions of the building itself to create an object building for its institution, totally separated the formation process of the exterior surface design from the architectural process as illustrated in Levent-Maslak area.

The façade in this sense is regarded as a technically produced element due to the isolation of the exterior surface from the inner structure by the

technological novelties and new material specifications. In the meantime, the exterior response of the façade is transformed into a more representational manner to display the power and the prestige of the building, which eventually triggered the development of another fact: the formation of the exterior cover of the building has started to be designed under the authority of the manufacturing firms, who have the technical knowledge of the new systems, rather than the architects.

This point is further discussed in reference to the working principles and the marketing discourse of the manufacturing firms to understand the factors that led to the separation of the façade design from the architectural design process. The investigation is carried out through the analysis of the promotional methods of manufacturing firms in terms of using online web sites, printed catalogues and advertisements in printed and visual media. The catalogues used by firms which include technical information and the main constructional principles are important source of data to structure and understand the themes discussed in the study.

An assessment of this data points out that the separation of the façade formation process from the architect's authority can be related to the working principles of the manufacturing firms. The technical knowledge and the image-ready designs of the manufacturers have begun to segregate the free-standing façade from the totality of the architectural project. In general, an advertisement is attached to the exterior surface of every construction.¹⁰ This consideration for advertisement has two implications: first for the

¹⁰ Krier, R. (1992). "Facades." *Elements of Architecture*. London: Academy Group Ltd. pp. 60-64.

manufacturing firms and the second for the owner of the building. In deed, the exterior response of the façade has been transformed into an advertisement ground of the owner and institution or the manufacturing firm. Furthermore, the manufacturing firms, who use their technical knowledge of new systems and promote their working processes as totally different and isolated from the work of an architect, act as a form-maker rather than a consultant to the designer. Such firms moreover began to generate their own design teams consisting of architects and engineers to design according to the desire of the owner; and also montage teams to assemble the exterior surface according to the technical specifications. Therefore, the formation of façades has increasingly become more depended on the expertise of the firms while also loosing their connection to an architectural authority.

To conclude, this research mainly examines how two different types of autonomy of the exterior surface are transformed with the employment of new construction methods and different design intentions. It investigates this theme in the façade formation of the high-rise buildings in Levent-Maslak area in İstanbul. The working principles of the manufacturing firms are another central theme in understanding the isolation of the façade formation process from the architect's design process.

CHAPTER II

THE AUTONOMOUS CHARACTER OF EXTERIOR SURFACE: A HISTORICAL OVERVIEW ON PROCESS AND CHANGE

Exterior surface of the building is an interface between interior and exterior by mediating in between two scales and contexts. The façades have both an interior and the exterior character in its formation. Rob Krier defines façade as “an architectural element capable of communicating the function and significance of a building”.¹ One way to comprehend façade is to see it as a supplementary element of the whole construction; the other is to define it as an autonomous, self-standing element through its formation process. In this chapter, the process of acquiring the autonomous character of the exterior surface is examined. This autonomy is happened in two different types: in the first it is defined with the freedom from the structural system of the building-Modernism, and in the second with the freedom from the exterior response of the façade-Postmodernism.

First sense of autonomy is identified with the separation of the exterior surface from the internal structural system by the developing construction technologies. Exterior surface has different formation process by the improvement of the construction technologies with new materials and

¹ Krier, R. (1992). “Facades.” *Elements of Architecture*. London: Academy Group Ltd. p. 60.

techniques in Modern Movement with the help of Industrial Revolution. Actually, the separation of the external surface from the internal structure was also made possible with the masonry technique of constructing the exterior surfaces of the buildings used in Renaissance period, a technique, which is capable of carrying its own load to the soil. Namely, there was no load transmission to the interior structure. The masonry wall carried its own load; as a result, the exterior façade was totally separated from its interior construction. However, this type of separation seen in Renaissance is different from the Modern Movement.

The separation of façade from the internal structure is described as one of the guiding principles of the Modern Movement. The developments of the construction technologies in Modern period were effective in both design and the formation process of each element of the building, especially in façade. In other words, the physical autonomy of the façade is related not only with the load bearing capacity of the façade, but also, with the capacity of the façade in the formation of the whole building by the influence of the new technologies. Therefore, the Modern Movement is the first period to be investigated in the context of the process of how the façade acquired its physical autonomy.

The second type of autonomy is identified with the freedom of the façade from the exterior response of it in Postmodernism. In the twentieth century, the aim of the façade formations has begun to be based on more representational approaches instead of the technical developments. The “ideology of the free-standing object, visible from all sides”² and not the

² Krier, R. (1992). “Facades.” *Elements of Architecture*. London: Academy Group Ltd. p. 60.

response to the exterior living environment was the basic design intention for the exterior surfaces in this era. Therefore, in this chapter, these two different types of autonomy, in Modernism and Postmodernism, will be examined respectively.

2.1 Emergence of Façade Autonomy: a structure-free system

2.1.1 Late 18th Century and “Speaking Architecture” through Modernism

The eighteenth century following the several cultural changes at the beginning of late Renaissance influenced the contemporary modern civilization nearly in every sphere.³ The representational character of the exterior surface was a dominant feature in Renaissance period. In physical terms, façades were treated as self-standing elements, because of the load-bearing capacity of masonry construction. In addition, the usage of the masonry wall also referred to the exterior surrounding in this age to convey monumentalism. The main aim of the creation of the exterior surface was to give an appearance to the residence in terms of representing the institutional and the individual power, and also was treated as a sculptural part of the building.⁴ However, this attitude would lose its importance in the eighteenth century.

In the eighteenth century, the representational character of the construction turned to pure basic forms by reflecting the function of the volume. The geometries of forms instead of the ornamentation were taken as

³ Larson, M. S. (1993). “Chapter Two: Architectural Change in the Twentieth Century.” *Behind the Postmodern Façade*. London, England: University of California Press. p. 21.

⁴ Baker Ira, O. (1909). “Chapter XI: Stone Masonry.” *A Treatise on Masonry Construction*. New York: J. Wiley and Son. pp. 278-285.

sufficient in creating the exterior surfaces of buildings. This attitude can be observable in the cenotaph for Isaac Newton, designed by Etienne-Louis Boullée in 1785. Boullée used the light as the main principle of his design to emphasize the presence of divine.⁵ A masonry sphere was created to support the presence of light both at day and night. At day time, the day light was shining from the wall of the sphere, while a fire was used to light the sphere at night time superseded the day light.

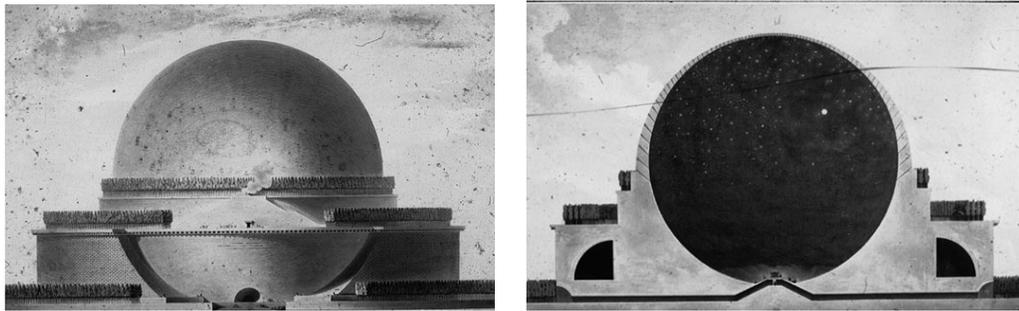


Figure 1. Day and night views of the cenotaph for Isaac Newton, 1785 (The Art History Imagebase: AH111. (n.d.). University of Illinois at Chicago [online] from: <http://www.uic.edu/depts/ahaa/classes/ah111/L26/26-32.jpg> [Accessed at November 2006].)

Furthermore, Jean Nicolas-Louis Durand was obsessed with the economy of the building typologies.⁶ In the works of Durand, a methodology was searched accepted universally. Geometric plans were utilized to produce “modular permutations of plans” in order to reduce the economy of the construction.⁷ The fundamental foundation of the alteration realized from the examples was related with the new perception of the scientific methodology.⁸

⁵ Frampton, K. (1992). “Cultural Transformations: Neo-Classical architecture 1750-1900.” *Modern Architecture*. London, New York: Thames and Hudson. p. 15.

⁶ Ibid.

⁷ Ibid.

⁸ Aslanoğlu, İ. (2002). “The International Style in Turkey: A Sign of Contemporaneity for A New Republic.” *Lecture Notes*. Ankara: Middle East Technical University. p. 4.

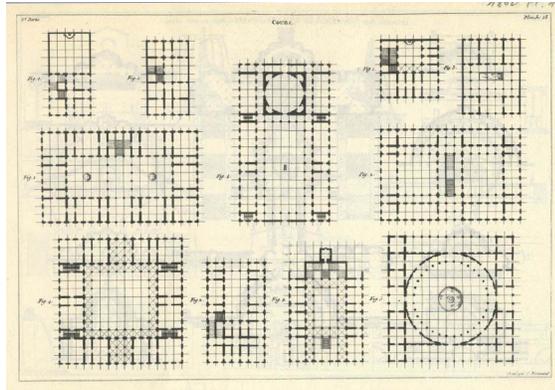


Figure 2. Durand's works: the possible permutations of plan forms in his Précis
 (Laboratoire de Theorie et D'Histoire. (2005). Marche a suivre dans la composition d'un projet quelconque [online]. from:
http://ltha.epfl.ch/enseignement_lth/documents/j_lucan/cours_III/cours_X_Durand.pdf
 [Accessed at November 2006].)

The realization of “reason” that men control themselves and their environment, and a new scientific method with the emphasis upon mathematical analysis produced a revolution in the social and economic field of the society. Architecture was also influenced by this scientific approach. Ledoux recommended that architecture had to be purified from ornamentation and symbolic formations generating the exterior surface in the light of industrialized architecture. Architecture was capable of “reshaping society” with its formation and providing a civic quality for surrounding environment. Ledoux claimed that architecture was transformed by this capacity to the “speaking” architecture, referred as *architecture parlante*.⁹ The representation of the construction including the social aspect on its surface, the purpose of the construction, was inscribed through the exterior surface. Namely, the architectural physiognomy was made up of the forms itself, which symbolized the social intentions.¹⁰ The

⁹ Vidler, A. (1990). *Claude-Nicolas Ledoux: Architecture and Social Reform at the End of the Ancien Regime*. Cambridge, Massachusetts: the MIT Press. pp. 206-207.

speaking function of the geometric forms and the material specifications of the façade intended to create a new architectural image for the social transformation whether they were successful or not.

2.1.2 Industrial Revolution and the Discovery of New Materials

After the French revolution (1789-1794) and the period of *architecture parlante*, the architectural formations were transformed in respect to “social consequences of industrialization” by the increasing population and the demanding needs of them.¹¹ The nineteenth century witnessed a new scale and complexity in the urban development by the changes of technological, social, economical and political aspects. Jeremy Bentham, a political theoretician, defined the utilitarian approach in his books *Of Laws in General* (1776) and *An Introduction to the Principles of Morals and Legislation* (1789) that the happiest level for every member of the society had to be organized in the most rational concept, the simplest capitalism. In this concept, architecture was also influenced that the purpose was to construct the buildings for the up most number of people for up most use. Therefore, the mass-production method became dominant in the construction sector. The technological approaches were firstly dominated in the mass-production of iron and then, the usage of steel, concrete and curtain wall system followed the developing path of the iron as a building material.

¹⁰ Frampton, K. (1992). “Cultural Transformations: Neo-Classical architecture 1750-1900.” *Modern Architecture*. London, New York: Thames and Hudson. p. 16.

¹¹ Larson, M. S. (1993). “Chapter Two: Architectural Change in the Twentieth Century.” *Behind the Postmodern Façade*. London, England: University of California Press. p. 21.

2.1.2.1 Iron and Industrial Revolution

The industrial revolution was reflected to the formation methods of architecture by concentrating on technical development, new material specifications. One of the new materials was iron used in transportation and agricultural machinery. After the usage of the material in engine, iron was utilized dominantly in bridge constructions by the mass production of cast.¹² At the beginning of 19th century, the new material begun to be experienced in building vocabulary together with the railway developments, especially in England. Several railway stations were designed and built with the cast iron and glass.¹³ However, the technological developments proposed several new typologies to architecture by the improving capacity of new materials. An important example was Crystal Palace, “a free-standing exhibition structure”, designed by Joseph Paxton, a gardener, in 1851. This temporary building was constructed from prefabricated structural elements and glass for its exterior surface. All structural elements and the exterior cover of construction were composed of lightweight, modular elements. The attempt of using glass for exterior surface transformed the massive quality of masonry into the lightweight cover for the enclosed space. Unlike the traditional buildings of Renaissance made from heavily masonry the lightweight materials were mounted in site. Therefore, the ‘construction speed’ was remarkable. In this respect it was an important development for the designers of the revolutionary time that the basic concern was speed, economy and quality of the end product.¹⁴ The Crystal Palace was a

¹² Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 70.

¹³ Frampton, K. (1992). “Technical Transformations: structural engineering 1775-1939.” *Modern Architecture*. London, New York: Thames and Hudson. p. 32.

forerunner of the prefabrication of standard construction elements. In other words, it was the activated attempt for the physical autonomization of the 'skin' of building.

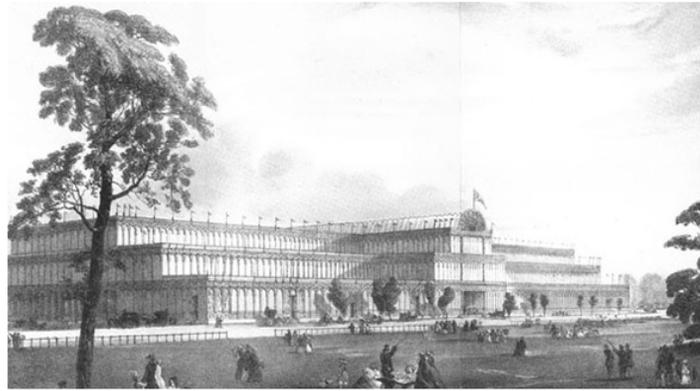


Figure 3. Front view of Crystal Palace, 1851 (Joedicke, J. (1959). " *A History of Modern Architecture*. p. 18-19.)

2.1.2.2 Steel and Early Modernism

After the usage of cast iron, wrought iron called steel became available in built environments by increasing the quality of cast iron. Steel has a high tensile strength and thus, "the constructional consequences of this attribute were quickly appreciated."¹⁵

Actually, the capacity of steel provided different formations for the new typologies. In the early nineteenth century, the using the steel as a construction element became significant in USA, especially in Chicago.¹⁶ The emergence of new material had a capacity also in evolving a characteristic of the form of the architecture. The living environments began to rise through

¹⁴ Garner, Philippe, Bayley, Stephen and Sudjic, D. (1986). *Twentieth-Century Style & Design*. New York: Van Nostrand Reinhold Company Inc. p. 19.

¹⁵ Joedicke, J. (1959). "Steel in nineteenth-century buildings." *A History of Modern Architecture*. New York: Frederick A. Praeger Publishers. p. 17.

¹⁶ Ibid. p. 24.

the sky and the new material was able to construct them by this new emerging style-the commercial style. The high-rise office towers were erected by the new image of Modernity. The development principle of the high-rise building was based mostly on the area problems in the city, the economic pressure after the industrial development and the intents of the client. Louis Sullivan emphasizes the main considerations in the presence of the high-rise buildings as such:

“in Chicago the tall office building would seem to have arisen spontaneously, in response to favoring physical conditions, and the economic pressure as then sanctified, combined with the daring of promoters.”¹⁷

The concept of the steel skeleton frame was practiced in the Chicago in the 1880s. In the first high-rise building constructions, only the internal structural system was made by steel, and surrounded by stone cladding. One of the examples of steel skeleton frame construction was Home Insurance Building in Chicago designed by William Le Baron Jenney in 1883-1885. The exterior character can be still defined as the massiveness of masonry by its stone cladding façade.¹⁸ Whether the material is stone or not, façade was totally separated from the interior structural system; in other words, the load-bearing walls were eliminated from the internal structural system.

¹⁷ Sullivan, L. (1956). *The Autobiography of an Idea*. New York: Dover Publications. p. 314.

¹⁸ Joedicke, J. (1959). “The Chicago School.” *A History of Modern Architecture*. New York: Frederick A. Praeger Publishers. p. 25.



Figure 4. Front view of Home Insurance Building, 1885 (Joedicke, J. (1959). " *A History of Modern Architecture*. p.27.)

By the rapid development of the technology, the new materials were at the service of architecture: the stone cladding exterior surface was converted to the more light material-glass. The Reliance Building by Daniel H. Burnham (1894) was one of the protagonists of the high-rise buildings, which were covered by terra-cotta bands with huge glass cladding. The building has 15 storeys with steel framing that was covered curtain wall mostly composed of glass.¹⁹ Actually, the principle of the formation of exterior surface was mainly "infill" the areas which was residue voids from the interior structural system.²⁰ The new lightweight glass surfaces were located between the columns and the floor slabs. This kind of notion on articulation of exterior surface has been still apparent similar with the early attempts of skyscrapers.

¹⁹ Ibid.

²⁰ Leatherbarrow, D. and Mostafavi, M. (2002). "Chapter 2: Framing Containment." *Surface Architecture*. Cambridge: The M.I.T Press. p. 31.



Figure 5. Front view of Reliance Building, 1890 (Joedicke, J. (1959). " *A History of Modern Architecture*. p. 26.)

2.1.2.3 Concrete and Modernism

New technological and constructional methods appeared in Modern Movement, like concrete, besides iron and steel construction.²¹ In 1774, John Smeaton first mixed quicklime, clay, sand and crushed iron slag used as "concrete" in Eddystone Lighthouse project.²² The concrete technology was improved by several inventions such as the usage of Portland cement, hydraulic cement and reinforced concrete at the end of 19th century. A French builder, Francois Hennebique, was the first designer who attempted to develop the modern reinforced concrete technique used in buildings as a construction material in 1876.²³ This was the first time that reinforced

²¹ Innes, J. (1990). *Exterior Detail: finishing touches for complete outside style*. London: Collins & Brown Limited. p. 51.

²² Frampton, K. (1992). "Technical Transformations: structural engineering 1775-1939." *Modern Architecture*. London, New York: Thames and Hudson. p. 36.

²³ Frampton, K. (1992). "Technical Transformations: structural engineering 1775-1939." *Modern Architecture*. London, New York: Thames and Hudson. p. 36.

concrete piles, beams and columns were used for constructing multi-storey structures especially in Europe.²⁴ After this development using concrete in all elements of building whether structural or not became a “normative technique” in Modern architecture.²⁵

Concrete has become to be one of the “expressing elements” in the basic building vocabularies for Modern Movement, especially in the works of Le Corbusier. His notion of independent skeleton structure was underlined by Domi-no System in 1914.²⁶ The inner structural construction has been a capacity to be organized as a skeleton frame. Reinforced concrete has been formed as columns and slabs, even the enclosing part of this structure together with glass without any divergent arrangement of the surface.²⁷

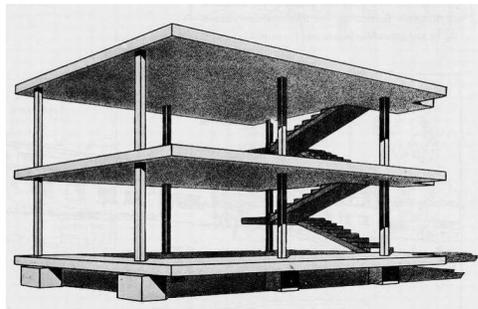


Figure 6. Drawing of Dom-ino House of Le Corbusier (Percorsi di Storia dell'Architettura e delle Arti Decorative [online]. 2004. from: <http://icar.poliba.it/storiacontemporanea/seminari/delconte/delconte03/img07.htm> [Accessed at August 2006].)

²⁴ Barry, R. (1969). “Concrete Structural Frames.” *The Construction of Buildings*. London: Crosby Lockwood & Son Ltd. p. 69.

²⁵ Frampton, K. (1992). “Technical Transformations: structural engineering 1775-1939.” *Modern Architecture*. London, New York: Thames and Hudson. p. 39.

²⁶ Sanderson, W. ed. (1981). *International Handbook of Contemporary Developments in Architecture*. London: Greenwood Press. p. 14.

²⁷ Joedicke, J. (1959). “Le Corbusier.” *A History of Modern Architecture*. New York: Frederick A. Praeger Publishers. p. 87.

The exterior face has begun to be differentiated from the reinforced concrete structure of the building. The structure carries its own load by its own concrete columns and beams, while the walls have been freed from their load-bearing function. Therefore, the self-standing skeleton structure has become to be related by another self-standing building element, the façade of the building. In other words, the independent character of the exterior surface has provided the independency to the disposition of openings on the wall in any size, in any shape and in any location. This freedom provides a physical autonomy to the exterior surface, which is expressed in the Le Corbusier's "The Five Point of Architecture" as such:

- “1. The separation of load-bearing construction from space-enclosing walls,
2. The flat roof, appropriate to the idea of a house as a cube,
3. Freedom in planning the interior,
4. Freedom in designing the exterior,
5. Horizontal ribbon windows enhanced the unity of the external appearance and are a logical expression of the system of construction.”²⁸

The identity of the formation of the design has been achieved by the emphasis of the external surface free from the internal structural system. Actually, these principles are based on the new perception of Modernism that the idea has to be totally “birth” from zero, instead of rebirth through the anti-past attitudes. Karl Gutzkow clarifies this rejection of past and states the notion of new in modern life with his slogan as such:

²⁸ Joedicke, J. (1959). “Le Corbusier.” *A History of Modern Architecture*. New York: Frederick A. Praeger Publishers. pp. 87-89.

“The slogan was to develop the character of modern life from the new facts, and not to apply the standards of the past as a moral judgment of the new.”²⁹

Similar with the scientific methodology dominated in 18th century, new formation process has begun to dominate in the architectural language of Modern architecture with rejection of any kind of past attitude. In addition to statement of Gutzkow, Le Corbusier defines the new approaches in the processes of his age that “the work of an epoch” is unique by its “own special character created by only its own age.”³⁰

The emergence of the new technologies causes to change on the perception of the notions in the architecture, which is no longer accentuated through the attached representative façades and the massive three dimensional characteristics of masonry façade. The formation of the build environments have mostly based on the industrial production. Namely, the built environment has been designated through “machine aesthetics” originated in the industrial revolution. New attitude has been concerned to establish new connections depended on structural logic together with the technology.³¹ Le Corbusier defined a house as “a machine for living.” The main aim of this definition is that architecture should not continue the normative subjective styles of the past. The architectural thought shares same

²⁹ Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 12.

³⁰ Joedicke, J. (1959). “Le Corbusier.” *A History of Modern Architecture*. New York: Frederick A. Praeger Publishers. p. 89.

³¹ Georgiadis, S. (1993). In *Sigfried Giedion: an intellectual biography*, trans. C. Hall. Edinburgh: Edinburgh University Press. pp. 57-86.

analytic ways together with science and detects technical advances and technological developments.³² The bases of the product is “to respond the needs” of the inhabitants by new technologies.³³ In other words, the architectural process, regarded in more productive manner, is transformed to construction process by technical considerations. The formation process of the exterior surfaces has most affected from this transformation. The façades have begun to be produced in standardized manner by the industrialist attitudes. The signification of exterior surfaces has been influenced in machine aesthetics in that the mediating surface between interior and exterior has been treated as an instrument only to cover the produced “machine for living.” The formation process has been instrumentalized by the rational approaches to the building types and methods together with the developing technologies.³⁴

2.1.2.3.1 Functionalism

“At the time the new architecture was wedded to a pair of principles which gave the word “functional” a double meaning: (1) The full use of modern technology and its honest expression in design: and (2) a scientific approach to human needs and uses in programming, planning and design. . . . For a brief period, much of the resulting architecture fulfilled the principles of both movements (the professional and the social democratic movement) to a very considerable extent. What

³² Kelly, S. J. and Johnson, D. K. (1998). “Introduction.” In *DO.CO.MO.MO. Modern Movement Heritage*, ed. A. Cunningham. London: E&FN SPON. p. 2.

³³ Joedicke, J. (1959). “Le Corbusier.” *A History of Modern Architecture*. New York: Frederick A. Praeger Publishers. p. 90.

³⁴ Frampton, K. (1992). “Technical Transformations: structural engineering 1775-1939.” *Modern Architecture*. London, New York: Thames and Hudson. p. 39.

I saw in Europe in 1930 was so exciting that it transformed me from an aesthete into a housing reformer.³⁵

Catherine Bauer indicates the industrial productive considerations have begun to be transformed in Functionalism. Functionalist attitude rejects to use the mass-produced and fabricated notions to form their architectural language; on the contrary, the fabricated elements are described as lacking “any expression of utility.”³⁶ Main consideration to form a space is flexibility. The exterior surfaces have been formed according to this flexible function of the interior. The transparent characteristics have been applied to the space in the respect of flexibility. The construction principles have generated flexible interiors freed from the load-bearing walls with new industrialized world. Moreover, interior flexibility has been generated by this separate façade from the structure, but the outside surface has been totally related with the interior function through its transparency; in other words, construction has been designed form inside out. The interior life should benefit from the exterior qualities, developed by interior function. At this point, the view of Ernst Bloch describes the will of transparency as to create openness and more healthy spaces which are full of light, sun and vistas for inhabitants.³⁷ Main logic is to ensure a mutual relationship between interior and exterior through transparency. This reciprocal relationship leads the private space more into the public realm.

³⁵ Bauer, C. (1965). “The Social Front of Modern Architecture in the 1930s.” *Journal of the Society of Architectural Historians* 24, March, no.1. p. 48.

³⁶ Frampton, K. (1992). “Introduction.” *Modern Architecture*. London, New York: Thames and Hudson. p. 10.

³⁷ Bloch, E. (1995). *The Principle of Hope*, vol.2. Cambridge: The M.I.T Press. pp. 250-270.

There are different attitudes of Functionalists. One of them is stated by Gülsüm Baydar Nalbantoğlu. She argues about the exposition of interior individualization to the outside world in her essay “Modern Ev’in Çeperleri.” The notion of dwelling embodies privacy and security. Private and secure have become more open and transparent through the façade characteristics of the buildings. The house no longer reflects the character of privateness and individuality; instead it is considered to be shaped as a “shop window”.³⁸ For instance, according to Beatriz Colomina, this shop window locates the viewer and the viewed on distinct places.³⁹ Furthermore, she declares that the modern life is formed according to the observation of the public and the private each other; public space being viewed through large openings in the walls and private space being viewed from outside by a stranger. Public space provides an image for the individuals living inside and façades become a shop window where the outer world is viewed through.

Besides from the shop window description for the transparency of exterior surfaces, the same issue has been defined in opposite direction to approach of Colomina. Walter Benjamin explains the transparency in different sense as such:

“For it is the hallmark of this epoch that dwelling in the old sense of the word, where security had priority, has had its day. Giedion, Mendelsohn, Le Corbusier turned the abiding places of man into a transit area for every conceivable kind of energy and for waves of light

³⁸ Baydar Nalbantoğlu, G. (1999). “Modern Ev’in Çeperleri.” In *Bilanço 1923-1998*, ed. Z. Rona, vol. 1. pp. 305-313.

³⁹ Beatriz C. (1994). *Privacy and Publicity: Modern Architecture as Mass Media*. Cambridge: The M.I.T Pres. p. 9.

and air. The time that is coming will be dominated by transparency. Not just the rooms, but even the weeks, if we are to believe the Russians, who want to abolish Sunday and to replace it movable days of leisure.”⁴⁰

Similar to Benjamin, Nalbantoğlu has a significant contribution to this counter argument that the real object being observed is the individual inside. As a result, the free-living elements of modernism leave their places, which are defined by the “eye” of the outside. The house is no longer a space that the user of the space integrates the individuality of himself that the individual internalizes. It becomes a space which is redefined by the eye of the stranger from the outside. Therefore, the transparent surfaces have not been exposed to be a space where internal organization reflects its experience to exterior; on the contrary it creates only an enclosing scene by its framing elements.

2.1.2.4 Curtain Wall and International Style

Besides the usage of concrete and glass as free-standing exterior surface in dwellings, the capacities of new materials have been explored to organize the exterior skin of the structure especially in the buildings having corporate identity. World War Two has great influence on new technologies and using new materials, especially glass and metal curtain wall for façades in the Western tradition.⁴¹ After the war, together with the reconstruction of the damaged cities, the aim is to “restructure society” by the emergence of consuming attitudes, which the design statements has been mainly turned to

⁴⁰ Tiedemann, R. (1988). “Dialectics at a Standstill: Approaches to the Passagenwerk.” In *On Walter Benjamin*, ed. G. Smith. Cambridge: The M.I.T Press. pp. 260-291.

⁴¹ Kelly, S. J. and Johnson, D. K. (1998). “The Metal and Glass Curtain Wall: The History and Dignostics.” In *DO.CO.MO.MO. Modern Movement Heritage*, ed. A. Cunningham. London: E&FN SPON. p. 78.

mass production.⁴² Industrialized living conditions have forced the constructional practices in terms of speed and economy that the masonry construction techniques have been utilized to the curtain wall construction.⁴³ The new techniques and materials are capable of the fast processes; as a result, the representational function of façade again is put into question.

In technical terms, the curtain wall is defined as “an exterior building wall made of non-load bearing panels that are supported on a structural frame.”⁴⁴ The working principle is to cloth the exterior of the building independent from the inner structure with its non-load bearing character. The curtain wall is composed of prefabricated units. The physical autonomy is much more obvious in this system compared to the other technologies. The system is produced as identical units in the dry construction area. Thus, manufacturing and assembly processes are continued in more precision. All this advantages also provide an economic advantage in terms of mass-production and reduced assembly time in construction.⁴⁵ Heinrich Klotz mentions the basic consideration of the system as such:

“Lightness of construction is combined with technical progress; the bareness of the façade with rationalization and enlightenment; the multiplication of standardized elements with logical sequence.”⁴⁶

⁴² Garner, Philippe, Bayley, Stephen and Sudjic, D. (1986). *Twentieth-Century Style & Design*. New York: Van Nostrand Reinhold Company Inc. p. 151.

⁴³ Kelly, S. J. and Johnson, D. K. (1998). “The Metal and Glass Curtain Wall: The History and Dignostics.” In *DO.CO.MO.MO. Modern Movement Heritage*, ed. A. Cunningham. London: E&FN SPON. p. 78.

⁴⁴ *Ibid.* p. 77.

⁴⁵ Oesterle, Lieb, Lutz, Heusler. (2001). *Double-Skin Facades: Integrated Planning*. Munich, London: Prestel publ. pp. 130-136.

Klotz emphasizes the minimization and standardization in this new construction technique. The existence of the building have began to be considered as technically produced instrument like the Corbusian notion “machine for living.” The construction has been treated in more reductionist manner especially in large scale projects. David Leatherbarrow and Mohsen Mostafavi state the revival of the productional attitude in the formation of exterior surfaces in *Surface Architecture* as such:

“The autonomy of the surface, the “free-façade,” presumes a distinction between the structural and nonstructural elements of the building, between the frame and the cladding . . . The discovery of the free façade was accompanied by unprecedented transformations in its tectonic and material qualities . . . once the skin of the building became independent of its structure, it could just as well hang like a curtain or clothing. The relationship between structure and skin has preoccupied much architectural production since this period and remains contested today. The site of this contest is the architectural surface.”⁴⁷

When the production attitude dominates the formation process of the façades, the representational consideration again becomes a subject in architecture. The express in the total volume of the construction together with its new free-façade, is stated as the main characteristic of the International style by Philip Johnson and Henry-Russel Hitchcock.⁴⁸ The

⁴⁶ Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 33.

⁴⁷ Leatherbarrow, D. and Mostafavi, M. (2002). “Introduction: Why Surface Architecture?.” *Surface Architecture*. Cambridge: The M.I.T Press. p. 8.

⁴⁸ Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 15.

Modern intentions have been utilized in more commercial manner through the emphasis of the International Style.

One of the greatest examples of this skeleton structure and curtain wall façade combination is Seagram Building which was designed by Ludwig Mies Van der Rohe and constructed in 1954-1958 in New York. It emphasizes the principles of the International Style in the light of Chicago tradition. Mies published the drawings of the building in *Berlin Magazine* and asserts that:

“We reject all aesthetic speculation, any doctrine, and all formalism. Architecture is the will of the age conceived in spatial terms. Living, Changing, New. Not yesterday, not tomorrow, only today can be given form. Only this architecture creates. Create form out of the nature of the task with the means of our time. This is our work. Office building. The office building is a house of work, of organization, of clarity, of economy. Bright, wide workrooms, easy to oversee, undivided except as the organism of the undertaking is divided. The maximum effect with the minimum expenditure of means. The materials are concrete, iron, glass. Reinforced concrete buildings are by nature skeletal buildings. No noodles nor armoured turrets. A construction of all girders that carry the weight, and walls that carry no weight. That is to say, buildings consisting of skin and bones.”⁴⁹

When Mies decided to use curtain wall at façade, the design consideration was not only based on the function of the building; he was also aware of the fact that the glass building embodies a danger in terms of loosing its unity and visual stability because of the reflective character of

⁴⁹ Van Der Rohe, L. M. (1970). “Working Theses.” *Programs and Manifestoes on 20th - century Architecture*, ed. U. Conrads. Cambridge: The M.I.T Press. pp. 74-75.

glass. In order to eradicate this reflective quality, he proportioned the façade, which was articulated with gridal subdivisions for reading it in reference to human dimensions.



Figure 7. Front view of Seagram Building, 1957 (Joedicke, J. (1959). " *A History of Modern Architecture*. p.77)

Whatever the articulation attempt is, the main characteristics of time are obvious that it indicates a decrease signification of the façade treatment through the "strong internal support" and only "a continuous outside covering" at the exterior. The notion on the transformation of wall/window interchange is asserted in *Surface Architecture*, that: "The frame changed all of that: windows ceased being openings in walls and became walls themselves."⁵⁰

⁵⁰ Leatherbarrow, D. and Mostafavi, M. (2002). "Introduction: Why Surface Architecture?." *Surface Architecture*. Cambridge: The M.I.T Press. p. 8.

The depth of the exterior surface has been superseded to the mere planes of glass. The free façade, supported steel structure and covered by smooth glass, is treated as a window. This window façade is transformed as a covering screen itself by the emphasis only on the volumetric plane and flatness of the visual construction.⁵¹

The physical autonomy of exterior surface treated together with different methodologies and theories is gained through the technological developments and material specifications. However, technology becomes more available with the instantaneous communication and global improvements for any type of building in 21st century. When the internal function of the façade has been satisfied with several technologies, the exterior response of the façades has begun to be argued in the formation process. Hence, this exterior response has begun to be treated in different type of autonomy by the new architectural approaches in the light of representational capacity of new techniques and materials.

2.2 Progress of Façade Autonomy: exterior response-free

2.2.1 “Pluralism of Styles” and Postmodernism

The notion of ‘Postmodernism’ is originated as a critique of Modern Movement and to create architecture of “narrative contents.”⁵² Along with the functional and productional characteristics of the construction in Modern Movement, the emphasis on the contemporary architecture has begun to change its direction through “non-architectural as well as architectural

⁵¹ Hitchcock, H. R. and Johnson, P. (1966). “The International Style.” New York: Norton. pp. 14-18.

⁵² Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 128.

concepts.”⁵³ In *Conversations*, Charles More criticizes the Modern architecture through the formal approaches as such:

“A building itself has the power, by having been built right or wrong or mute or noisy, to be what it wants to be, to say what it wants to say, which starts us looking at buildings for what they’re saying rather than just accepting their pure existence in the Corbusian manner. This narrative function that we have been talking about is all of these things together, the building being as descriptive as it can, about what is interesting about it – either the way it’s built or the way people use it; the message is either shouting, or being quiet, or hiding, . . . but letting you know what is going on.”⁵⁴

The “productional manner” of the formation of Modern Movement has been transformed to more “representational manner” by the term “Postmodernism.” The Post-Modern attitude is a reaction to the defined contemporary life, which is generated by the “scientific-industrial complexes” of Modern Movement.⁵⁵ The architecture is not the product of any technical solutions; on the contrary, “architecture becomes a work of the visible emergence of beauty.”⁵⁶ Furthermore, the architectural attitude rejects the new, the dominated notion of Modernism. Heinrich Klotz characterized the principles of Postmodernism in *The History of Postmodern Architecture* that “previously revoked stylistic means regain their validity”, called the method

⁵³ Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 128.

⁵⁴ Cook, J. W. and Klotz, H. (1973). *Conversations with Architects*. New York: Praeger. p. 243.

⁵⁵ Frampton, K. (1992). “Chapter4: Place, Production and Scenography: international theory and practice since 1962.” *Modern Architecture*. London, New York: Thames and Hudson. p. 306.

⁵⁶ Ibid.

as “the *fictionalization* of architecture.”⁵⁷ He emphasizes “the pluralism of styles” provides the architecture to create its own meaning through the representational quality of production.

Postmodernism affects mostly the formation of the exterior surfaces with its main principles. The façades are regarded as representation grounds, which embellishes with historical elements arbitrarily to create an imagistic appearance. However, the production of architecture has still been practiced under the terms of “cost economization” and “optimization of use.”⁵⁸ The historical styles have begun to be integrated with the new techniques and materials. Thus, the exterior respond of the façade is totally distracted by “conscious ruination of styles and the cannibalization of the architectural form”, because traditional usage of historical elements together with “the tendency of the production/consumption cycle” reduces the civic character of the exterior surface in terms of any kind of “consumerism and undermined traditional quality.”⁵⁹

The Post-Modern attitude is more predominantly seen in high-rise commercial and business complexes in 21st century.⁶⁰ The exterior cover of the high-rise buildings is treated by the latest technology of the curtain wall

⁵⁷ Frampton, K. (1992). “Chapter4: Place, Production and Scenography: international theory and practice since 1962.” *Modern Architecture*. London, New York: Thames and Hudson. p. 306.

⁵⁸ Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 3.

⁵⁹ Frampton, K. (1992). “Chapter4: Place, Production and Scenography: international theory and practice since 1962.” *Modern Architecture*. London, New York: Thames and Hudson. p. 307.

⁶⁰ Ibid.

system with aluminum and glass; whereas, the historical elements are also used together with this new system to give a priority in the surrounding environment instead of responding to it. This situation is described by Kenneth Frampton in *Modern Architecture* as such:

“... where high-rise towers are either reduced to the ‘silence’ of their totally glazed, reflective envelopes or alternatively dressed in devalued historical trappings of one kind or another.”⁶¹

The statement of Frampton emphasizes the freedom of the exterior surfaces from the outer conditions. The formation of façades is defined to reduce to “large-scale packaging” by the usage of same techniques with similar historical elements.⁶² The internal structure is only covered from outside with the “dematerialized historicism” by the attached façades.⁶³ The formation of attached façades freed from the exterior respond can be understood with Robert Venturi’s the notion of “decorated shed.”

2.2.2 The Emergence of “attached façades”: “the decorated shed”

Robert Venturi, one of the forerunners of the Postmodernism, criticizes the *tabula rasa* reductivism of Modern architecture. He emphasizes the usage of traditional styles in his book *Complexity and Contradiction in Architecture* as such:

⁶¹ Frampton, K. (1992). “Chapter4: Place, Production and Scenography: international theory and practice since 1962.” *Modern Architecture*. London, New York: Thames and Hudson. p. 307.

⁶² Ibid.

⁶³ Ibid.

“The old clichés involving both banality and mess will be the context of our new architecture and our new architecture significantly will be the context for them. I am taking the limited view, I admit, but the limited view, which architects have tended to belittle, is as important as the visionary view, which they have tended to glorify but have not brought about. The short-term plan, which expediently combines the old and the new, must accompany the long-term plan. Architecture is evolutionary as well as revolutionary. As an art it will acknowledge what is and what ought to be, the immediate and the speculative.”⁶⁴

In addition to his discussion about Postmodernism, Venturi specifies his argument on the formation of exterior surfaces. He criticized the functional reflection of the internal organization to façades. The formation of exterior surfaces has not to be treated only as ‘a vehicle of signs’⁶⁵ or only treated as ‘exterior is interior’ and vice versa. However, he accentuates the significance of façade as a reflection of “its own particular functions.”⁶⁶ Namely, Venturi maintains the exterior surface in its own meaning in that it is not related with the “meaningless correspondence between interior and exterior.”⁶⁷ He bases on his discussion by explaining the theory of ‘decorated shed’ in his other book with Denise Scott Brown and Steven Izenour, *Learning from Las Vegas*, (1972), which is totally against the Modernist ‘interior generates exterior’ principle. He suggests a building as a simple box; whereas, a façade as a decorated element to attached to this box. The

⁶⁴ Venturi, R. (1977). *Complexity and Contradiction in Architecture*. New York: The Museum of Modern Art. p. 42.

⁶⁵ Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 150.

⁶⁶ Venturi, R. (1977). *Complexity and Contradiction in Architecture*. New York: The Museum of Modern Art. p. 71-89.

⁶⁷ Ibid.

façade is just “an ornamented wall connected to the shed.”⁶⁸ The description of “decorated shed” is clarified as such:

“Where the architectural system of space, structure and program are submerged and distorted by an overall symbolic form, this kind of building-becoming-sculpture we call the duck, in honor of the duck-shaped drive-in. . . . illustrated in God’s Own Junkyard by Peter Blake. Where system of space and structure are directly at the surface of program, and ornament is applied independently of them. This we called the decorated shed. The duck is the special building that is a symbol; the decorated shed is the conventional shelter that applies symbols. . . . We think that the duck is seldom relevant today, although it pervades Modern architecture.”⁶⁹

The notion of ‘decorated shed’ can be examined in one of his projects, in the Quaker home of aged in Philadelphia (1960-1963) which is called Guild House. Heinrich Klotz examines the building in terms of planimetric organization, which is complex by its zigzag corridors. However, the exterior of building has been treated simply by conventional window-wall arrangements. Actually, the front façade has a symbolic aspect with a “commercial looking sign over the entrance.”⁷⁰ Façade looks like ‘an attached surface’ because of the corner treatment of the construction as well. Klotz explains this appearance as such:

⁶⁸ Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 154.

⁶⁹ Venturi, R., Scott Brown, D. and Izenour, S. (1972). *Learning from Las Vegas*. Cambridge, Massachusetts MA: The M.I.T Press. p. 89.

⁷⁰ Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 149.

It is also emphasized in the book that: “the use of prefabricated mass products in an ennobling context – a novel idea around 1960 – is comprehensible in its relation to Pop Art, as Ventury always stresses.”

“The front of Guild House stands out as an independent surface, a ‘billboard.’ This two dimensional quality is amplified by the two corners, and by segmental arched window, which reaches up to the façade’s end and there by makes it seem weightless.”⁷¹



Figure 8. Front, back and front top view of Guild House

AUDC [online]. (n.d.). from: <http://www.audc.org/expensive/tower/tower3.html>. [Accessed at August 2006].)

The similar treatments have become ordinary especially in the exterior surfaces of high-rise commercial and business complexes, although the work of Venturi is a house for elderly. The high-rise buildings have been designed in typical plan organization, giving an advantage to exterior surfaces formed

⁷¹ Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 150.

in homogenized manner. The technique of curtain wall system also supports this homogeneity by its capacity in covering the whole building by continuous glass surfaces. The façades treated either as a flat enclosing envelope or repetition of the historical styles are separated from the design intentions of the internal organization and regarded as a mask. This attitude is same as the formation of the decorated shed: the building is not a symbol itself, but, the symbols are applied on the exterior surface of it. Therefore, the façades have gained a different type of autonomy, defined as free from the outside conditions.

Consequently, formation of the high-rise commercial and business complex façades has to be understood in the light of developments and discussions above, with in all this theoretical and practical developments in historical context. In this respect, the first type of autonomy of façades has gained by the separation of the exterior surfaces from the internal structural system through the technological developments. In addition, a different type of autonomy has defined by the separation of the exterior response of façades in Postmodern attitudes.

The next chapter in this context investigates the influence of these two different types of autonomy in the high-rise buildings covered with the curtain wall system in Turkey. In that chapter, the formation differences of the exterior surface are analyzed within the context of high-rise commercial and business complexes in Levent-Maslak area in İstanbul.

CHAPTER III

THE TURKISH CONTEXT: LEVENT- MASLAK AREA

3.1 The Modernist attitudes in Turkish Architecture

The architectural developments in Turkey show parallels to the Western attitudes, mostly to Modernism. First of all, one of the fundamental themes following the foundation of new Republic of Turkey in 1923 was to 'restructure the society' and 'economy' according to Western models.¹ As a result, Modern Movement was introduced in 1930s as an initial step of this Westernization period.

In this respect, the concepts embodied by the Modern Movement coincided with the aims of the new Republic in that the main concern was to break all the ties with the Ottoman past through scientific rationalization.² Doğan Kuban expresses the principles of this era as such "Simplicity, Functionalism, Rationalism and 'economy' became the catchwords of architectural theory."³ The traditional taste gradually disappeared especially

¹ Kuban, D. (1981). "Turkey." In *International Handbook of Contemporary Developments in Architecture*, ed. W. Sanderson. London: Greenwood Press. p. 473.

² Aslanoğlu, İ. (2002). "The International Style in Turkey: A Sign of Contemporaneity for A New Republic." *Lecture Notes*. Ankara: Middle East Technical University. p. 1.

³ Kuban, D. (1981). "Turkey." In *International Handbook of Contemporary Developments in Architecture*, ed. W. Sanderson. London: Greenwood Press. p. 474.

by the emergence of new materials and the dominating elements of Modern architecture, such as the use of concrete in all elements of the building, pure forms without any ornamentation or pattern on it, white surfaces, flat roof, strip window on façades.⁴ Kuban described the representational character of these elements of Modernism as:

“. . . two dimensional geometric play in different colors of plaster on the façades became the essential elements of a stereotype modern style that radically changed the traditional appearance of Turkish cities.”⁵

After the Second World War, the formation of the living environment was in a period of change by the political transformations, in around 1950s, the single party system is transformed to a multi-party system.⁶ Besides from the political transformations, the relations between foreign countries were also improved. For example, The Law of Encouragement of Foreign Capital (Yabancı Sermayeyi Teşvik Kanunu) was amended in 1951 and Turkey was admitted by NATO in 1953.⁷ The power of “labor unions and professional organizations” became emphasized by the promulgation of the new legislations.⁸ The liberation process became a strong motive in the position of

⁴ Kuban, D. (1981). “Turkey.” In *International Handbook of Contemporary Developments in Architecture*, ed. W. Sanderson. London: Greenwood Press. p. 474.

⁵ Ibid.

⁶ Ibid.

⁷ Yerasimos, S. (1974). In *Az gelişmişlik Sürecinde Türkiye*, trans. B. Kuzucu, 3rd ed. İstanbul: Gözlem Yayınları. p. 723.

⁸ Yücel, A. (2005). “Chapter VII: Pluralism Takes Command: The Turkish Architectural Scene Today.” In R. Holod, A. Evin, S. Özkan, ed. *Modern Turkish Architecture*. Ankara : Chamber of Architects of Turkey. p. 120.

Turkish policy. The new industrialization period was thus accelerated by establishing closer ties with the Western world. This close relationship affected the structure of society in both “intellectual” and “urban” terms.⁹ Namely, the contemporary styles of Western models became rapidly adapted to the build environments.

These development processes were effective in the production stage of architecture as well. New construction methods and materials, even those that were expensive for the Turkish market like steel, began to be imported from the West. Concrete was utilized as a structural material instead of steel due to its availability and easy manufacturing process; whereas the curtain wall system as the exterior surface.¹⁰ International Style had become a leading principle for the formation of the new building environment due to its “multi-national” approach,¹¹ however, the regional characteristics were affected and lost their importance against the standardized curtain wall treatments of the exterior surfaces of constructions.¹² Kuban clarifies the

⁹ Ibid.

¹⁰ Kuban, D. (1981). “Turkey.” In *International Handbook of Contemporary Developments in Architecture*, ed. W. Sanderson. London: Greenwood Press. p. 475.

¹¹ Sorkin, M. (1981). “American Architecture since 1960: Quo Vadis.” In *A&U*, extra ed. p. 24 Sorkin actually claims that: “The period of expansion and corporate wealth of the fifties and sixties demanded a truly imperial building program...overweening government buildings, opulent palaces of culture, majestic corporate headquarters in urban and suburban versions (the same building done either vertically or horizontally), giant retail complexes, vast highways and sprawling pseudo-Georgian suburbs were thrown up in the heavy ersatz classicism of the Multinational Style...The multinational mentality, unlike the modernist, had a profound sense of the symbolic unity of architecture, subscribing as it did not the philosopher’s truth, but to the sophist’s.”

¹² Tapan, M. (2005). “International Style: Liberalism in Architecture.” In *Modern Turkish Architecture*, ed. R. Holod, A. Evin, S. Özkan. Ankara : Chamber of Architects of Turkey. p. 108.

results of the similar treatments in covering the buildings with curtain wall system with more productional attitudes as such:

“ . . . modern jargon was too easily converted into the most banal box-architecture that expresses a complete disregard for past architecture.”¹³

Besides the technical and stylistic developments in architecture, the social transformation also affected the formation of build environments in Turkey. The liberational policies accelerated also the migration from rural areas to big cities. The increasing population by migration caused demands for shelter, which became a major problem in cityscapes. The urban structure was transformed in various ways to fulfill the demands of increasing population. Municipalities received authorization as an institution to control both the social and cultural structure of cities and also neighborhoods, after 1950.¹⁴ In consequence, the master plans had to be prepared for every city. However, the population growth rate was much faster than the growth of the planned city structure. The available lands were not responding to the requirements of population densities. New building methods started to be utilized to cope with the densities in limited land. Therefore, a new building typology, high-rise buildings, was introduced to Modern Turkish Architecture to structure the cities and the cityscapes.

After the mid 1970s, the business sector was also improved by the rapid development in industry and technology. The growth affected the

¹³ Kuban, D. (1981). "Turkey." In *International Handbook of Contemporary Developments in Architecture*, ed. W. Sanderson. London: Greenwood Press. p. 476.

¹⁴ Ibid. p. 481.

constructions in that large programs were generated for “big businesses”.¹⁵ The large-scale buildings regarded as “prestige buildings” for institutions allowed “a free interpretation of forms.¹⁶ Reinforce concrete was suitable to construct the structural system of high-rise office buildings in terms of its availability and capacity to create large column free spaces; as, the curtain wall system was suitable for exterior surfaces of the large scale projects in terms of its fabrication and “ready made”, identical units.¹⁷

After the 1980s the panorama of Turkey was again affected from the liberal understanding. Turkish president, Turgut Özal marked the historical end of nationalist developments in every area.¹⁸ A growing policy that totally depended on the foreign systems was encouraged by the government. The system gave more importance to “private sector and subsidiary policies”.¹⁹ National institutions became smaller while the priority was to increase the private sector.²⁰

¹⁵ Yücel, A. (2005). “Chapter VII: Pluralism Takes Command: The Turkish Architectural Scene Today.” In R. Holod, A. Evin, S. Özkan, ed. *Modern Turkish Architecture*. Ankara : Chamber of Architects of Turkey. p. 121.

¹⁶ Ibid.

¹⁷ Tapan, M. (2005). “International Style: Liberalism in Architecture.” In *Modern Turkish Architecture*, ed. R. Holod, A. Evin, S. Özkan. Ankara : Chamber of Architects of Turkey. p. 110.

¹⁸ Bozdoğan, S. (1994). *From Kubik to Arabesque: Architectural Culture and the Predicament of Modernism in Turkey*. Paper for MIT. p. 9.

¹⁹ Aslanoğlu, İ. (2002). “The International Style in Turkey: A Sign of Contemporaneity for A New Republic.” Lecture Notes. Ankara: Middle East Technical University. p. 5.

²⁰ Altaban, Ö. (2005). “Politikalar ve Kentler UIA 2005 İstanbul Kongresi.” [Electronic version]. *Mimarlık Dergisi*, 327. from: <http://old.mo.org.tr/mimarlikdergisi/index.cfm?sayfa=mimarlik&DergiSayi=41&RecID=1015> [Accessed at August 2006.]

The tendencies in architecture also proceeded in the same direction. The dominance of private sector could be perceived mostly in construction sector. The availability of new techniques and materials increased by the rapid expansion of private sector, affected the practicality of the building, which has been observed from the formation of exterior surfaces especially in curtain wall system. Actually, the exterior surface became more instrumentalized by the technical approaches of the private sector.

The instrumentalization of exterior surfaces is defined mostly in high-rise commercial and business buildings covered with curtain wall. Levent-Maslak area in İstanbul dominated by such examples is suitable to be investigated in order to understand the attitudes of private sector in the formation of exterior surfaces.

3.2 Levent-Maslak Area in İstanbul

3.2.1 The Formation of Levent-Maslak Area

“During the centuries of the Ottoman Empire’s ascendancy, Istanbul was a great cosmopolitan capital of the Mediterranean world.”²¹ This importance had also continued, when the Turkish Republic was founded. Together with the new founded country, the physical structure of the city began to be changed by the several reforms in the light of Modern movement.

The modernization period in Turkey began in mid 19th century and mostly influenced the European part of İstanbul, because the center of the

²¹ Kuban, D. (1981). “Turkey.” In *International Handbook of Contemporary Developments in Architecture*, ed. W. Sanderson. London: Greenwood Press. p. 473.

city was surrounded by the city walls of Marmara and Haliç.²² Namely, the core of the city remained as a non-changed, historical area; whereas, the European part of the city was influenced by the new developments. The office buildings were mainly located along the Bankalar Caddesi during this modernization process in 19th century. However, there was an exceptional case in the historical peninsula. The railway line constructed at the beginning of the era was the main factor for the location of the new office blocks in the historical part. The railway stations were constructed inside the city in order to connect the two sides.²³ The train station in Sirkeci brought commerce to the historical peninsula of the European side (Golden Horn). Thus, the office buildings were built near the station area.

“The macro form of İstanbul remained nearly in the same structure and borders until 1930s.”²⁴ After the foundation of the new republic, the capital was moved to Ankara. Hence, İstanbul remained far from the economic and political developments. In the 1930s the legislation was prepared in that a master plan had to be prepared for every city.²⁵ French urban planner, Henry Prost had prepared a master plan for İstanbul. Prost, first of all had proposed an urban park between Taksim-Maçka-Dolmabahçe valleys. His second proposal was a linear axis, beginning with a public square arranged in the Taksim and continued to Şişli.²⁶ This axis also united

²² Bilgin, İ. (2002, October 30). “Modernizmin Şehirdeki İzleri 1.” *Arkitera*, [online]. from: <http://www.arkitera.com/v1/diyalog/ihsanbilgin/modernizm1.htm>. [Accessed at August 2006.]

²³ Ibid.

²⁴ Ibid.

²⁵ Kuban, D. (1981). “Turkey.” In *International Handbook of Contemporary Developments in Architecture*, ed. W. Sanderson. London: Greenwood Press. p. 480.

the Maçka, Teşvikiye, Kurtuluş, Osmanbey and Şişli. The physical structure of the city was organized according to this plan in 1930s.

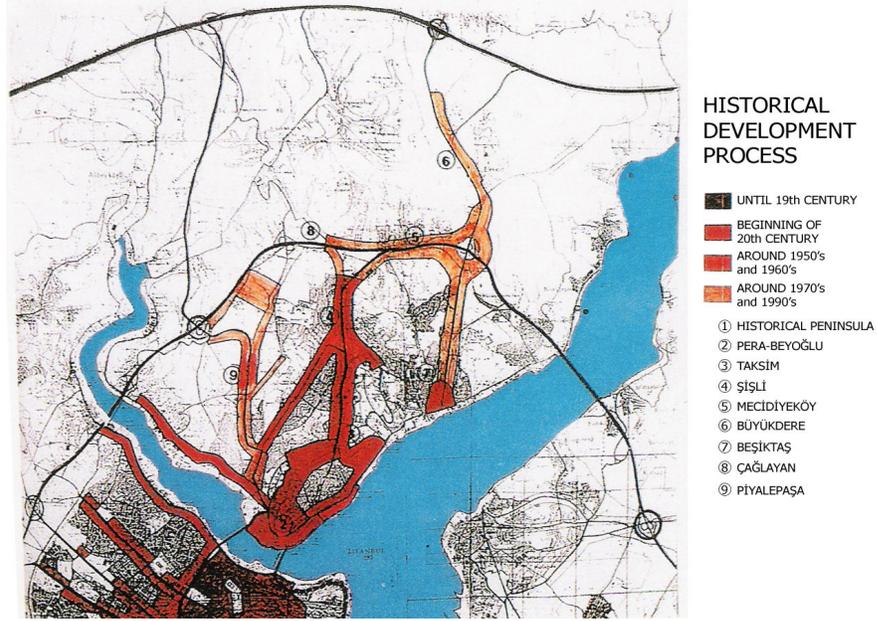


Figure 9. Historical development process of İstanbul (Kaptan, H. (1995). ""İstanbul İçin Bir Düş" Üzerine..." *Tasarım*, 51. p. 71.)

The new urban formation of İstanbul actually was accelerated especially in terms of road constructions devised by authorities after 1950s, when the Liberal Party was in government under the leadership of Adnan Menderes.²⁷ One of the proposed roads, which connected Beşiktaş to Zincirlikuyu, was called Barbaros Boulevard. This boulevard continues through the northern part of the city to join the Maslak Road.²⁸ The

²⁶ Bilgin, İ. (2002, October 30). "Modernizmin Şehirdeki İzleri 1." *Arkitera*, [online]. from: <http://www.arkitera.com/v1/diyalog/ihsanbilgin/modernizm1.htm>. [Accessed at August 2006.]

²⁷ T.C. Devlet Arşivleri Genel Müdürlüğü [online]. (n.d.). from: www.devletarsivleri.gov.tr/yayin/genelmd/basbakanlik/146_19tchukumeti [Accessed at August 2006.]

²⁸ Bilgin, İ. (2002, October 30). "Modernizmin Şehirdeki İzleri 1." *Arkitera*, [online]. from: <http://www.arkitera.com/v1/diyalog/ihsanbilgin/modernizm1.htm>. [Accessed at August 2006.]

residential areas composed of as single storey houses with their gardens were located between the coast-line and Levent - Etiler area.²⁹ However, with the construction of new roads, the residential areas, which spread the inside art of the European part away from the coast-line, began to be expanded along the sides of the Maslak road.

The emphasis on industrialization process affected the urbanization of İstanbul in 1970s.³⁰ The industrial areas diffused gradually in both Anatolian and European parts of the city. At the European part the London highway was transformed into an industrialized zone including textile, leather processing, metal processing workshops and factories.³¹ The industrialized areas were located in two rows of line perpendicular to the main axis of London highway. One of these rows was extended from Merter to İkitelli.³²

The development of the industrial areas and residential areas have not been planned or organized in a conscious manner. The residential areas spread from the coast-line to more inner part through Maslak, while industrial zone was expanded through the residential. The areas, which are different from each other in terms of their function such as residential, industrial or business, expanded according to the developments of the

²⁹ Karabey, H. (2005). "Maslak Plazalar Dünyasına İki Bakış: Levent ve Çeliktepe Perspektifleri." *Arkitera*, [online]. from: <http://www.arkitera.com/article.php?action=displayArticle&ID=89>. [Accessed at August 2006.]

³⁰ Tapan, M. (2005). "International Style: Liberalism in Architecture." In *Modern Turkish Architecture*, ed. R. Holod, A. Evin, S. Özkan. Ankara: Chamber of Architects of Turkey. p. 110.

³¹ Bilgin, İ. (2002, October 30). "Modernizmin Şehirdeki İzleri 1." *Arkitera*, [online]. from: <http://www.arkitera.com/v1/diyalog/ihsanbilgin/modernizm1.htm>. [Accessed at August 2006.]

³² Ibid.

density of the population. Consequently, the borders of these two areas began to be disappeared.

The developments in the construction of new roads continued in the northern part of the city, in 1980s. The area between Beşiktaş and Büyükdere was organized to respond to the growing density of the new typologies.³³ In 1984, a new legislation provided the authority to control and approve all the application plans to local administrations.³⁴ Accordingly, the area between Levent, Büyükdere and Maslak Road was designated as a commercial and business area. The importance of Barbaros Boulevard was emphasized by the construction of a second ring road. Since the boulevard connected the old high way to the new one, the transportation to Atatürk airport became easier. Therefore, the spread of the commercial and business based constructions dominated the cityscape from Levent to Maslak.



Figure 10. Location of Levent-Maslak area (Imaged captured from Google Earth [online]. [Captured at 1 September 2006.]

³³ Ibid.

³⁴ Dülgeroğlu Yüksel, Y. (1994). "İstanbul'da Son Dönem Büro Binaları." *Yapı*, 157. p . 72.

The developments in İstanbul after 1990s totally followed the scope of the globalized world. Today, Levent-Maslak area has become ‘a skyscraper axis’ by the developments in the northern sections of İstanbul. This area has become an agglomeration of several high-rise buildings of several institutions and their plazas rather than keeping its residential character composed of small houses with gardens.³⁵



Figure 11. Location of the examined buildings (Imaged captured from Google Earth [online]. [Captured at 29 November 2006.]

³⁵ Karabey, H. (2005). “Maslak Plazalar Dünyasına İki Bakış: Levent ve Çeliktepe Perspektifleri.” *Arkitera*, [online]. from: <http://www.arkitera.com/article.php?action=displayArticle&ID=89>. [Accessed at August 2006.]

3.2.2 Analysis of High-Rise Commercial Buildings in Levent-Maslak Area

Levent-Maslak area has begun to be dominated by the commercial and business buildings since 1990s. According to a research of the German Journal *Oer Spiegel*, there are 2.108 high-rise buildings in İstanbul, which are 35 meters and higher.³⁶ These high-rise buildings, especially commercial and business buildings are mostly located at European part of İstanbul, around Levent-Maslak area.

In this chapter, the focus is on the perception of the two different type of façade autonomy observed on the curtain wall façades of high-rise commercial and business buildings. In the curtain wall system, the cladding panels have a capacity to be attached or hung through structural system; as exterior surfaces gain total autonomy in physical terms. The problematic prospect of the current situation in formation is based on the relation between 'expression' and 'technology'. Since the exterior surface has been separated from the internal structure by new technologies, the working premises was transformed particularly more technical.

The standard and fabricated production used in the formations of façades also has standardized the appearance of physical environment. The exterior respond of the façades has become to be disappeared by the similar approaches. The study investigates the formation methods of the high-rise building examples built in Levent-Maslak area in order to understand the formation process of the standard appearances. Eventually, the similar

³⁶ Emporis Buildings [online]. (2004). from: <http://www.emporis.com/en/bu/sk/st/ma/cil> [Accessed at August 2006.]

exterior images can be classified into two main categories: glass-box, in which the building is covered with smooth, continuous, blue glass and articulated, in which the different kinds of materials are used in more articulated combinations in exterior surfaces.



Figure 12. General view of Levent. (CenkCelik. (2005, July 06). Message posted to <http://www.wowturkey.com/forum/viewtopic.php?t=1549&postdays=0&postorder=asc&start=20> [Accessed at August 2006.]



Figure 13. General view of Maslak. (Merek. (2006, May 26). Message posted to <http://wowturkey.com/forum/viewtopic.php?t=215&postdays=0&postorder=asc&start=60>. [Accessed at August 2006.]

3.2.2.1 Glass box

One of the prior examples of skyscraper that has a large continuous glass skin is Sabancı Center completed in 1992. The center is located at the intersection node of Büyükdere and Fatih Sultan Mehmet Bridge Road.

Actually, the center is composed of two business towers; the 39 storey first tower is the Akbank tower and the 34 storey second tower is the Sabancı Holding, a main branch office and two subordinated blocks that consist of conference halls. The car park, service rooms, cafeterias and computer center are located in the five storey basement levels. The construction is approximately 110.000 m² with all these facilities.³⁷



Figure 14. Views from Sabancı Center (Mehmet Öz. (2004, July 28). Message posted to <http://www.wowturkey.com/forum/viewtopic.php?t=1549&highlight=cenk>. [Accessed at August 2006.]

The architects are F. Haluk Tümay and Ayhan Böke while the interior design is prepared by Swanke-Hayden-Connell Architects from USA. The construction system is conventional reinforced concrete; while, the curtain wall system with aluminum, steel and glass is used for the exterior surface and for the huge main entrance canopy. The application of the exterior

³⁷ Tümay, F. H. (1994). "Sabancı Center Planlama Hedefleri." *Tasarım*, 49. pp. 76-80.

surface is done by Çuhadarođlu Aluminum with the expertise of IFFT Institut für Fassadentechnik, Frankfurt. (the curtain wall system is 24.000 m² and all the skylight, interior glazing, doors and windows are totally 1.000m²)³⁸

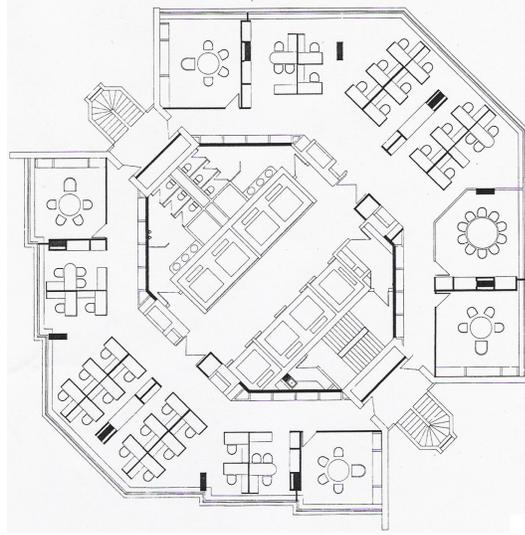


Figure 15. Typical floor plans of buildings of Sabancı Center (Tümay, F. H. (1992). "Proje Konsepti." *Tasarım*, 20. p. 54.)

In their plan scheme the nuclei of the skyscrapers are located at the center of the blocks. In other words, the plan is divided in three sections: the middle section, vertical circulation elements and the service space are located in one section and the other two sections include the office spaces. The solid concrete nucleus area is covered with granite, whereas the other two office parts with reflective blue glass; even, the glass surface continues on all the exterior surfaces even in the roof part.

The formal considerations of Sabancı Center concerning Akbank and Sabancı Holdings came together in one complex, has begun in 1988. F. Haluk

³⁸ References. (n.d.). Çuhadarođlu Aluminum [online]. from: <http://www.cuhadaroglu.com.tr/html/references>. [Accessed at August 2006.]

Tümay, one of the architects stated that several discussions were organized with the client. The first thing expected to be designed by the client was the planning of the complex in two blocks; one for Akbank Headquarters and the other for Sabancı Holding.³⁹

Another expectation of the client was to design the complex as a symbol for displaying the prestige of the institution.⁴⁰ In this respect, the exterior expression of these two buildings became into question. The two buildings were treated with the same plan organization and same treatment in exterior surfaces. The middle section of plan organization including the nucleus was covered with granite. Different from the nucleus, the façades of office spaces were made up of smooth, reflected, blue glass. The buildings become mere planes surrounding a volume both as a 'reality' and as a 'visual effect.'⁴¹ The visual consideration is transformed into a volumetric aspect by the granite solid nucleus and continuous glass surfaces surrounding this solid nucleus. All the design considerations focused to create a prestige building. The complex is tended to be seen an object by its volumetric expression through its continuous exterior surface. There are some attempts to break the flatness of the surface; the buildings have horizontal recessions arranged in four levels on the surface. Although, these four recessions create a slight impact to create a sculptural effect, they added motion to the flat surface in different view angles and in different lighting conditions.

³⁹ Tümay, F. H. (1994). "Sabancı Center Planlama Hedefleri." *Tasarım*, 49. pp. 76-80.

⁴⁰ Ibid.

⁴¹ Leatherbarrow, D. and Mostafavi, M. (2002). "Chapter 1: Introduction: Why Surface Architecture?." *Surface Architecture*. Cambridge: The M.I.T Press. p. 7.

Indeed, several experienced foreign professionals consulted in both production and construction process of different parts of the complex for example in façade character, functional assessment, construction technique and alike. The technique consultant of the curtain wall system was IFFT-Frankfurt, an expert on construction physics: whereas, the manufacture and assembly was in a responsibility of a national firm, Çuhadaroğlu Aluminum. All physical capacities of materials and the curtain wall system was calculated and tested in the authority of IFFT, directed the architects with their technical knowledge.

In curtain wall system, the façade has gained its physical autonomy, which can be understood from the example. The internal response was fulfilled with the technical applications. However, the external response of the façade is transformed to a more representative aspect in that the design intention was to create “an object building that would become a symbol for the institution.”⁴²

The symbolic intention of Sabancı Center has been realized from its formation. Yet, the attempt to create an object building through the continuous smooth surface became widespread in any kind of large scale project, not only for business centers but also for any commercial or residential ones.

One year after the completion of Sabancı Complex, a new mixed-use center covered by curtain wall was designed in Levent. The Akmerkez complex is different from the Sabancı Center in that it is composed of 14 and

⁴² Krier, R. (1992). “Facades.” *Elements of Architecture*. London: Academy Group Ltd. p. 77.

17 storey high two office towers, a 23 storey high residential tower and a 4 storey high shopping mall acting as a base for the towers. The complex is located at the Etiler-Ulus junction and is approximately 180.000 m² with all the facilities.⁴³



Figure 16. Views from Akmerkez (Burç. (2002, May 13) and Faruk. (2005, October 11). Message posted to <http://wowturkey.com/forum/viewtopic.php?t=29&postdays=0&postorder=asc&start=10> [Accessed at August 2006.]

The plan of complex has a triangular geometry in which the three buildings are located at the corners. The designing principle totally depended on recycling the investment of the client.⁴⁴ The aim was to create an introverted complex fulfilling all the desires of the users by offering an attractive outside character with the help of new technologies.⁴⁵ In this plan organization the importance was to satisfy functional requirements. All the spaces open to the users are situated at the center of triangle; whereas all the

⁴³ Uran, F. (1995). "Akmerkez." *Yapı*, 158. p. 71.

⁴⁴ Ibid.

⁴⁵ Ibid.

service spaces are located at the edge of the triangle. Therefore, the capacity of façade used from the street at ground level is reduced by the placement of the service spaces to the edges.

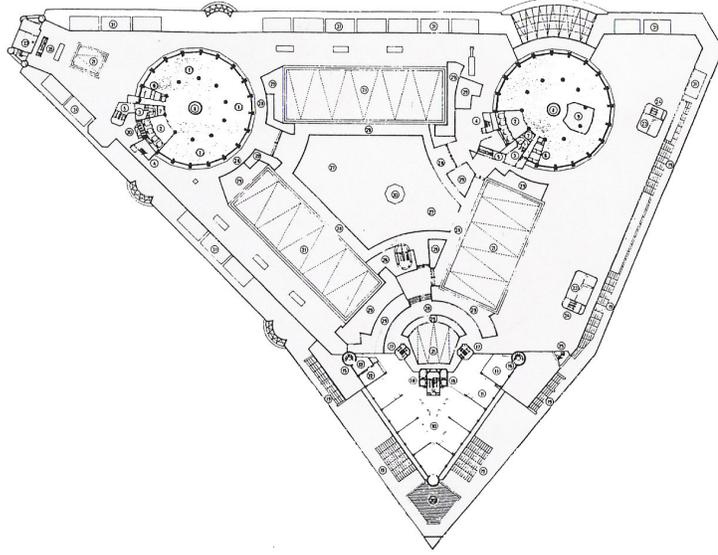


Figure 17. Garden floor plan of Akmerkez (Uran, F. (1995). "Akmerkez." *Yapı*, 158. p. 75.)

The architects of the complex are Fatih Uran and George Lang. The construction system is conventional reinforced concrete in which steel frame construction and glass-aluminum are used only for the exterior surface of both the shopping mall and the high-rise buildings.⁴⁶ Similar to the Sabancı Center, the application of exterior surface is done by Çuhadaroğlu Aluminum with the expertise of IFFT Institut für Fassadentechnik, Frankfurt. (Aluminum frame: 7.500 m², alucobond: 7.000 m², skylight, automatic doors and interior glazing: 3.500 m²)⁴⁷

⁴⁶ Completed Projects. (n.d.). Yüksel Construction Co., Inc. [online]. from: <http://www.yuksel.net/www.yuksel.net/ebiten/be5akmer.htm> [Accessed at August 2006.]

⁴⁷ References. (n.d.). Çuhadaroğlu Aluminum [online]. from: <http://www.cuhadaroglu.com.tr/html/references>. [Accessed at August 2006.]

The office and residential buildings are different from each other in terms of their geometries. The office blocks are circular in form that is divided into 20 radiant slices. Four slices of circles are designated as the nuclei of the blocks, located at the exterior surface of the circle. The residue space is organized as a free plan office that was covered totally with reflecting blue glass. Different from the office blocks, the residential building is triangular in form, which the nuclei are located at the inside of one edge and at the corners. The exterior surface treatments of the buildings made up of reflective blue glass are similar, though the different geometries and functions. The openable windows of the residential buildings are the only difference.

The design process in this complex actually requires great attention. The buildings with different functions are brought together in the same premises. The forms of the buildings are different; however, their appearances are standardized. The exterior surface is totally dependent on the 'ideality of image' of building rather than on the 'identity' or 'civic character of the urban fabric.'⁴⁸ The standardized cladding panels emphasize the repetitive plan organization of offices in each floor. While, the circular buildings became a volumetric 'soap bar'. Although, the buildings are totally different in terms of their function, formal qualities and also the organizational principles, the residential building tends to act like the others. Colin Rowe expresses this kind of attitude as such:

"Since it soon became increasingly possible to see the frame structure as the nakedly irresponsible agent of a too ruthless

⁴⁸ Leatherbarrow, D. and Mostafavi, M. (2002). "Chapter 6: Premade-Remade." *Surface Architecture*. Cambridge: The M.I.T Press. p. 178.

commercialism, so it became, not around the office building conceived as paradigmatic and normative, but around the alternative program of the residence that idealist and progressivist and sentiment was able to effect a coherent expression."⁴⁹

The anxiety of Rowe is mostly about the standardization of exterior image in every construction, whatever its program is. Akmerkez complex displayed the truth of this anxiety. Buildings having different programs were treated in similar formations, because of the availability of the curtain wall technology to any type of building in any geometry. Namely, the formation of exterior surfaces is based on the technical perfection. Thus, the identification of the final image is "devisualized" by technical attitudes that every constructional image now follows one another by their similar constructional methods with the standardized appearance.⁵⁰ The technical maximization and representational qualities of the new materials produce the different sense of autonomy to the façades, which is free from the exterior respond in its formation.

Besides the formations examined in Sabancı Center and Akmerkez, more conscious design intentions are seen in mixed-use complexes composed of different functions, with respect to the formation of exterior surfaces. One of these examples is Metrocity Millennium, finished in 2000 and located in Levent.

The Metrocity Millennium is a mixed used center composed of two 27 storey residential buildings, one 23 storey office building, four storey

⁴⁹ Rowe, C. (1977). "Chicago Frame." *The Mathematics of the Ideal Villa and Other Essays*. Cambridge, Massachusetts, and London: The MIT Press. p. 108.

⁵⁰ Ibid.

shopping mall and car park. The construction is approximately 215.000 m² including all the facilities.⁵¹



Figure 18. View from Metrocity (Farmir. (2004, October 20) Message posted to <http://www.wowturkey.com/forum/viewtopic.php?t=225&postdays=0&postorder=asc&start=10> [Accessed at August 2006.]

The program is nearly same as in Akmerkez. One of the architects, Doğan Tekeli states that the clients of the project decided the whole program from the beginning; then the architectural process has began. Actually, three preliminary architectural projects were prepared by three different architectural offices in 1994. The client also contacted with foreign architectural offices such as Kohn Pederson Fox, Swanke Hayden and Skidmore, Owings & Merrill, besides these three projects. Finally, in 1997, the architectural project of Doğan Tekeli and Sami Sisa was chosen for construction.⁵²

⁵¹ Completed Projects. (n.d.). Yüksel Construction Co., Inc. [online]. from. <http://www.yuksel.net/www.yuksel.net/ebiten/be5metroc.htm> [Accessed at August 2006.]

⁵² Karabey, H. (2003, October). "Metrocity: Konut-Alışveriş Merkezi. Interview with Doğan Tekeli." [Electronic version]. *Yapı*, 263. <http://test.yapi.com.tr/turkce/Roportajlar.asp?ArticleID=73&yazar=Do%C4%9Fan%20TEKEL%C4%B0> [Accessed at August 2006.]

In terms of plan organization, the base shopping mall is linear in organization. The high-rise buildings are situated above the shopping mall. The office building is on one edge, where the complex faces the Büyükdere Road. The residential blocks are located on the other corner of the complex a distance from the office building. The structural system of the all complex is same with each other-reinforced concrete. However, façade treatments are different in each of these three buildings in terms of their formation: the residential ones are easily recognizable with their conventional window arrangement made of concrete in which the attitudes of the architects are important. Tekeli clarifies their position in the formation of the exterior surface as:

“We have always avoided designing glass buildings. I think they do not give any clue about their real dimensions. However, we try to think the window configurations that reflect the real dimensions and number of floors of the construction.”⁵³

The design intention can be specified in residential buildings. The window openings in solid, concrete walls produce a massive expression to exterior. The solid walls, windows, the protrusions of the building from some points and the recessed parts express the exterior architectural language of the residential buildings. However, the system in the office block is totally different. First of all, the system is curtain wall – glass and aluminum. The configuration of the façade is based on the height of the floors. The expression of concrete is superseded by the cladding materials. Tekeli states about their attitude as such:

⁵³ Uluğ, M. (2003). “Bir Metropol Yapısı Olarak, Metrocity.” *XXI*, 18. p. 56.

“There is a façade which expresses the plan and function in residential buildings. When the office block was considered, we had thought that the office and residential buildings have to be separated from each other or not. All this considerations had led us a division which is continuous in horizontal and as reflects the given dimensions in vertical. As I mentioned before, we search for the divided office building expression.”⁵⁴

The office building actually reflects a double character in that the back part facing the residential building is treated in the same manner with residential buildings. The windows are punched in the concrete wall of the side surface; on the contrary, the curved façade facing the Büyükdere Road and main entrance of shopping mall is covered by cladding strips. The difference of tectonic expression is not only between residential and office buildings but also, between the side and the front façade of the office building itself. The façades of residences are tectonic, whereas the façades of the office block transform the “tectonics as a new façade system in itself.”⁵⁵



Figure 19. Views from residential and office blocks (Karabey, H. (2003, October). “Metrocity: Konut-Alışveriş Merkezi. Interview with Doğan Tekeli.” [Electronic version]. *Yapı*, 263. <http://test.yapi.com.tr/turkce/Roportajlar.asp?ArticleID=73&yazar=Do%C4%9Fan%20TEKEL%C4%B0> [Accessed at August 2006.]

⁵⁴ Ibid.

⁵⁵ Ibid.

Tekeli states that the main concept in the design of the façade was to emphasize civic character of the environment. In other words, the principle aim was to construct a complex harmonious with the “continuous articulation of habitat”⁵⁶ rather than expressing a “prestige image” for its institution.⁵⁷ The main concept was mostly applied to the complex in conscious manner: however, this concept had been transformed by the usage of different styles constituted on the exterior surfaces of the office building. The ‘social aspect’ has been transformed to a frontal representational expression. Rob Krier describes the frontalist attitude as:

“For certain sacred object-buildings in Rome it is only the front façade which takes on this object role - announcer of an extension of the public space towards the interior and vice versa, while the other three sides are embedded in the general fabric. We are concerned here with an object-façade. Despite the demands of urban density, *the fabric yields*, even if only slightly, to retain a widening of public space in front of the buildings or object - façades.”⁵⁸

The different types of autonomy of façades are expressed by this statement. Façades are separated from both the inner structure and outside conditions as a result of the intentions to create an object building through its exterior surface. This autonomy also separates the formation of façade from the total construction process and called as ‘object-façade.’

The representational consideration has become more important in business complexes with this ‘object-façade’ attitude. The ‘free-façade’

⁵⁶ Krier, R. (1992). “Facades.” *Elements of Architecture*. London: Academy Group Ltd. p. ix.

⁵⁷ Uluğ, M. (2003). “Bir Metropol Yapısı Olarak, Metrocity.” *XXI*, 18. p. 56.

⁵⁸ Krier, R. (1992). “Facades.” *Elements of Architecture*. London: Academy Group Ltd. p. 76.

separated from its internal structure is transformed to 'object-façade', that is, it only covers the internal organization and symbolizes the power of institution through its continuous smooth surface. "Structures and spaces are designed to serve as well as possible the purpose of those who built them."⁵⁹ The most common way to create an institutional prestige is to wrap the building with continuous glass surfaces. GIZ buildings are examples for this kind of approach.



Figure 20. Views from Spring GIZ and Beybi GIZ. (aydinsert. (2004, June 07). Message posted to <http://www.wowturkey.com/forum/viewtopic.php?t=215&highlight=beybi> and (2004, October 25) Message posted to <http://www.wowturkey.com/forum/viewtopic.php?t=215&postdays=0&postorder=asc&start=10> [Accessed at August 2006.]

There are five GIZ buildings constructed from 1994 to 2003 which were designed and constructed by the firm itself. These office buildings ranging from 24 to 34 storeys have an important role on the formation of the silhouette of Levent-Maslak area. First building is Spring GIZ constructed in

⁵⁹ Meyerson, M. (1963). "Constraints and Possibilities." *Face of the Metropolis*. New York: Random House. p. 233.

1994. The constructional system is reinforced concrete and the exterior cover is reflecting glass. The building is L shaped in plan, that is, its nucleus is located at the turning point of this L shape.

The second building - Beybi GIZ - located near the first one was treated in the same manner with Spring GIZ in both structural system and façade treatment. In addition to the construction techniques, the plan organizations are similar. The plan of Beybi GIZ is in square geometry, where the nucleus is situated at the middle section, like Spring GIZ. In both buildings, the office spaces are covered with blue reflective glass. The volume of the building mass is expressed by using the flatness of the glass surfaces to create an object building. Accordingly, the signification of façade has been reduced by the desire of creating a prestige building through the representational quality of the new materials. In other words, the reciprocal characteristic of exterior wall, where the outer and inner coincides, disappears with the domination of object façades.



Figure 21. Views from Harmancı GIZ and GIZ 2000 (Harmancı GIZ Plaza. (2005). GIZ İnşaat [online]. from <http://www.gizinsaat.com/harmanci.html> and GIZ 2000 Plaza. from <http://www.gizinsaat.com/giz2000.html> [Accessed at August 2006.]

GIZ 2000 and Harmancı GIZ are the third and the fourth GIZ buildings treated in the same manner in terms of their plan organization and façade treatments. The plans are rectangular, close to square in which the nuclei are located at the center and were topped with a cap at the top of the building. The façade materials are the same blue glass and also aluminum. Although, the intentions are similar with those in the first two buildings, there is an effort to articulate the smooth façade by covering the corners of the mass of the building with aluminum.



Figure 22. Views from IZ GIZ (Merek. (2003, March 10). Message posted to <http://www.wowturkey.com/forum/viewtopic.php?t=1121&highlight=beybi> and devrim1907. (2006, June 24). Message posted to <http://www.wowturkey.com/forum/viewtopic.php?t=7586&postdays=0&postorder=asc&start=40> [Accessed at August 2006.]

The last building is IZ GIZ which has the most articulated façade application. The construction system and materials are the same; however, the formation is different. The aim of making the façade was not to hide any part of the internal system or create a continuous 'screen' by wrapping the internal structural system; on the contrary, there is a logic in the construction

system, 'form and size' of the structural elements.⁶⁰ The building is legible from its façade treatment in that the verticals and horizontals of the solid cladding materials follow the structural grid-the columns and the floor slabs and the glass is used as an 'infill' material between them.

At this point, the formation of curtain wall façades has begun to be differentiated from the glass-box to more articulated approaches.

3.2.2.2 Articulated Buildings

For the high-rise buildings, different formations of façades have been experimented by more articulated impressions with the usage of different materials in addition to the glass box approach.

The concept in the fifth GIZ building is not to wrap the construction by smooth glass; the outside expression is rather dependent on the reflection of the structural system. Similar to the IZ GIZ, the exterior surface of Sun Plaza is treated in an articulated manner by expressing the structural grid.

The Sun Plaza is located near Beybi GIZ. The building has a podium stretching out behind the building. It has 33 stores over ground and 5 stores under ground. It is actually built on a hilly terrain in that its rear façade (38 floors) has more floors above ground than its front façade (33 floors) looking at Büyükdere Road.

The construction of the building follows the same principles seen in the others: the structural system is reinforced concrete and the exterior

⁶⁰ Krier, R. (1992). "Façades." *Elements of Architecture*. London: Academy Group Ltd. p. 80.

surface is glass and aluminum curtain wall. However, the formation of the curtain wall system resembles the system used in early skyscrapers. The structural columns and floor slabs are covered by the solid cladding materials; as the spaces between the columns and the floor slabs with glass. The walling technique and materials are contemporary; but, the concept of application is similar to the 'infill' frame.



Figure 23. Views from Sun Plaza (Merek. (2003, October 03) Message posted to <http://wowturkey.com/forum/viewtopic.php?t=3331&highlight=giz.jpg> and (aydinsert. (2004, October 25) Message posted to <http://www.wowturkey.com/forum/viewtopic.php?t=215&postdays=0&postorder=asc&start=10> [Accessed at August 2006.]

One aspect which distinguishes Sun Plaza from the other examples is that the 17 stores are treated as offices and the 5 stores above these office levels are as residences.⁶¹ The façade treatment in all floors however is same. The expression of differentiation is not reflected; on the contrary, there is a uniform exterior surface. While all the formation of exterior surface is derived from the internal structure of building, the different functioning interior

⁶¹ Konsept. (2003). Sun Plaza [online]. from. <http://www.sunplaza.com.tr/test/alt/Concept/alt.htm> [Accessed at August 2006.]

organization is not effective in this formation. As a result, the uniform exterior façade creates an inconsistency in that the formation concept of the exterior surface based on the internal organization becomes questionable.

One other aspect of differentiating the building is an internal courtyard of the building used as an interior garden: even the basement floors receive direct sun light from the skylight.⁶² In addition to this available light, the windows located between the structural frames have an openable swing. Besides the artificial ventilation system, the natural ventilation is also provided in the building. Hence, the question here was not only the appearance of the construction, but also the consideration of light, view and natural ventilation. The significance of the exterior surface is mainly based on the reflection of interior organization rather than the technical specifications of the curtain wall system and representational quality of materials.

Besides the application of uniform, reflective blue glass on façades, and the infill of constructional space, there is also another example- İş Bank Headquarters Complex- whose formation of exterior surface is based on its structural system.

İş Bank Headquarters Complex finished in 1999 is located at the crossing point of Büyükdere road and Fatih Sultan Mehmet Bridge ring road, near the Sabancı Center. Actually, the center is composed of three office towers, car park, a main branch office, two storeys shopping mall, an auditorium and an individual car park block. One 47 storey (which is the highest building in Turkey still today) and two 28 storey office buildings rise

⁶² Konsept. (2003). Sun Plaza [online]. from. <http://www.sunplaza.com.tr/test/alt/Concept/alt.htm> [Accessed at August 2006.]

above two storey shopping mall, besides the 5 storey underground car park. The construction is approximately 225.000 m² with all these facilities.⁶³



Figure 24. Views from İş Bank Headquarters (Istanbulu. (2006, May 31) Message posted to <http://www.skyscrapercity.com/showthread.php?t=356716> [Accessed at August 2006.]

The preliminary project was designed by Doğan Tekeli and Sami Sisa (architects of Metrocity), whereas the application project was prepared by foreign architects, by Swanke-Hayden-Connell Architects from USA.⁶⁴ The internal construction system is conventional reinforced concrete. The application of cladding system has been done by Çuhadaroğlu Aluminum for the exterior surfaces. (System: 68.000 m², prefabricated unitized panel system: 46.000 m², Interior glazing 7.000 m², structural glazing: 1.500 m², skylight: 2.000 m², aluminum gladding: 6.000 m²)⁶⁵

⁶³ Demir, H. (2001). "İş Kuleleri." XXI, 8. pp. 108-110.

⁶⁴ Ibid.

⁶⁵ References. (n.d.). Çuhadaroğlu Aluminum [online]. from: <http://www.cuhadaroglu.com.tr/html/references>. [Accessed at August 2006.]

The main considerations of the institution about its architectural language are expressed by Ersin Özince as:

“In Turkey, the institutions should work in buildings that symbolize of our time. This is important for our identity. The Turkish architectural style also has to interpret the contemporary attitudes.

Any branch office of our bank, which was designed in classical architectural style, was certainly affected the architectural medium of that time. But, in what style they have been constructed, the headquarters of our bank has always been the forerunners of the architectural medium, since the foundation of Republic. “⁶⁶

Apparently, the main concern for the institution was to construct their contemporary image by their building and hence to become a pioneer for the current stylistic approaches of architecture.



Figure 25. Views from the façade construction of İş Bank Headquarters (Kınıklı, T. (2001). “İş Kuleleri.” XXI, 8. p. 107.

In the plan, the nuclei of skyscrapers are situated at the center of the blocks. All four sides are surrounded by open office spaces in three office buildings. The cladding is made up of glass and aluminum. All three

⁶⁶ Cengizkan, A. (2001). “Interview: Ersin Özince.” XXI, 8. pp. 32-39.

buildings are treated with the same exterior language. Actually, the structural grid constitutes a base for this exterior cladding. The vertical aluminum bands correspond to the columns of construction, and horizontal thin window frames correspond to the floor slabs. In other words, the buildings are articulated according to the dimensions of the structural grid that is reflected to the window dimensions.

Consequently, the buildings have been treated in more human scale than the glass-box examples, like Sabancı Center, Akmerkez or GIZ Buildings. Instead of the smooth, blue glass exterior surface, the cladding is treated in an articulated manner by dividing the façade verticals and horizontals. The dimensions of windows express the real dimensions of the building. Thus, the physiognomy of the construction is derived from the specific circumstances of the window arrangement and placement of repetitive elements.

Generally, the internal constructional grid has been the first domain to articulate the smooth exterior surfaces. The idea of which “façade as an instrument of representation”⁶⁷ becomes dominant by the use of standardized methods and abstraction of the exterior surface. However it is not sufficient to fulfill the exterior response of the façades and create a civic identity for external representation.⁶⁸ Therefore, the representational capabilities of the historical elements are used instead of the reflection to the structural grid.⁶⁹

⁶⁷ Leatherbarrow, D. and Mostafavi, M. (2002). “Chapter 2: Framing Containment.” *Surface Architecture*. Cambridge: The M.I.T Press. p. 14.

⁶⁸ Ibid.

⁶⁹ Klotz, H. (1988). In *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 40.

This representational notion was clarified as – eclecticism, having an impressive effect in the high-rise buildings than glass-boxes. Heinrich Klotz clarifies the significance of the historical elements that they “supply the characteristics lacking in Modern architecture” in terms of symbolism, solemnity, seriousness, monumentality, for the freedom of choice, and for ‘good taste.’”⁷⁰



Figure 26. Views from Bank Ekspres (kerem1979. (2004, October 29) and aydınsert. (2004, June 07) Message posted to <http://www.wowturkey.com/forum/viewtopic.php?t=215&postdays=0&postorder=asc&start=0> [Accessed at August 2006.]

Eclectic attitude has spread into the build environment in Maslak after the “infill” approach. One example is Bank Ekspres building finished in the same year with İş Bank Headquarters. The building is located very close to Sun Plaza at the northern part of Şişli in Maslak. The office tower has 27 storeys and the complex is approximately 32.500m².⁷¹

⁷⁰ Ibid. p. 45.

⁷¹ Bank Ekspres Tower. (2003). Emporis Buildings [online]. from. <http://www.emporis.com/en/wm/bu?id=107298> [Accessed at August 2006.]

The façade treatment is again composed of cladding wall but it is not made up of only glass. The façade organization is similar to the conventional window-wall arrangement in that the windows are just openings in the walls. The architectural approach in this building is claimed by the architects, Sandy & Babcock International as such:

“This commercial building for a financial institution was designed to create a signature presence on the Istanbul skyline with its futuristic spires on the building's cap and entry. The horizontal emphasis of the deep overhangs at top and bottom is balanced by the building's vertical central spine and window groupings. Although modern in detail, the structure has classical proportions, balance and symmetry.

SB Architects were enlisted to complete the project after the client purchased the building while it was under construction. The steel frame had been erected, but the façades of the original design were not consistent with the image the client wished to portray. SB Architects quickly developed a variety of viable alternatives and then implemented the preferred option.”⁷²

The formation concept of the exterior surface is same: the exterior surface is treated as a vehicle of institutional representation. Respectively, the expression of power dominates to the external visual quality. However, the building conflicts to the glass-boxes with its different architectural language. Actually, the formation of the exterior surface can totally be determined in Louis Sullivan's terms in which the building has three parts. The first part is composed of ground and first floor treated as a podium for the high-rise block. The second part is the main body of the building including the office

⁷² Sandybabcock Architects [online]. (n.d.). from. http://www.sandybabcock.com/work/wrk_ekspres01.html#. [Accessed at August 2006.]

spaces with a same plan organization placed one above the other, and treated in the same manner on the exterior. Finally, the upper part of the building facing the sky is treated different from the first two parts.⁷³ (tripartite classical scheme) The eclecticism becomes more obvious with the expression of representational qualities of historical elements, that is, with the return to ‘anthropomorphic shapes (foot, body and head).’⁷⁴

Besides the tripartite scheme, Bank Ekspres building produces traditional Turkish architectural elements in its formation. The façade is organized in reference to the 1915s International aspects together with the continuous smooth curtain wall used in between two projecting parts of the building. In addition, a deep overhang at the top is treated as a reference to the traditional Turkish architecture. With all these eclectic attitudes, the building becoming a symbol of the postmodern approach transformed the advantage “free-façade” separated from internal construction to the “object-façade” with its separation of “figuration from construction.”⁷⁵

One other eclectic high-rise building is Tekfen Tower finished in 2003. The building is located in Levent with convenient access to both of the bridges at Bosphorus and the metro line between Taksim and Dördüncü Levent.⁷⁶

⁷³ Joedicke, J. (1959). “The Chicago School.” *A History of Modern Architecture*. New York: Frederick A. Praeger Publishers. p. 29.

⁷⁴ Klotz, H. (1988). In *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 49.

⁷⁵ Ibid. p. 16.

⁷⁶ Swanke Hayden Connell Architects. (2003). “Tekfen Tower Levent İstanbul.” *Yapı*, 264. pp. 88-95.

The podium block spreads linearly to the site of which the 26 storey high tower block rises above the podium on the closed side to Büyükdere Road. The podium is composed of a car park, multi purpose hall, cafeteria, the sports center and mechanical spaces, and the total construction area is approximately 35.000m².⁷⁷



Figure 27. Views from Tekfen Tower (icy. (2005, December 30) Message posted to <http://skyscrapercity.com/showthread.php?t=151454> and System_Halted. (2005, November 26) Message posted to <http://skyscrapercity.com/showthread.php?t=162215&page=2&pp=20> [Accessed at August 2006.]

The architects are Swanke-Hayden-Connell Architects from USA. The primary design consideration is to create a technically well functioning building. The architects state their attitudes in that:

“It was aimed to create an office building of Class A international standards. With this design approach an extremely good gross/net office area ratio was achieved, and the comfortable offices

⁷⁷ Swanke Hayden Connell Architects. (2003). “Tefken Tower Levent İstanbul.” *Yapı*, 264. pp. 88-95.

commanded full-circle views, were well lit, and without intermediate columns. So as to minimize the area occupied by the nucleus inside each floor⁷⁸

Similar to the designing concepts of the building, the main concern of the exterior surface treatment was based on the quality and efficiency of materials. All glass curtain walls are composed of a high-performance multi-purpose tempered insulating glass system, which is designed to allow maximum penetration of daylight with minimum heat gain.⁷⁹ Besides from the technical specifications, the curtain wall system of the building is made up of granite, glass and metal cladding in general. The windows are in a conventional organization within granite covered parts. This granite cover continues 15 stores on one side and 21 stores on other three sides. The last two stores are again covered by granite but the color is white. The blue glass curtain wall is used in rest of the building with white horizontal linings in every two storey and the middle part of the east elevation of the building.

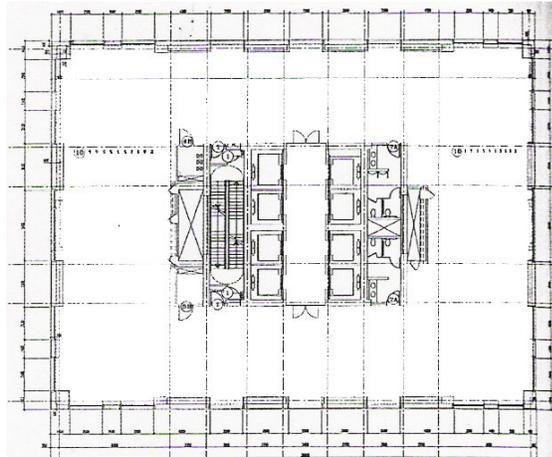


Figure 28. 2-14 floors plan of Tekfen Tower (Swanke Hayden Connell Architects. (2003). "Tekfen Tower Levent İstanbul." *Yapı*, 264. p. 92.)

⁷⁸ Ibid.

⁷⁹ Ibid.

The façade organization is totally independent from both its interior organization and its surrounding fabric. The attitude was to divide the building into three parts – ground, middle and top, which is similar to the Bank Ekspres building. However, the building itself is treated as “a column capital”⁸⁰ with the overhang of the top part and the white horizontal linings. This ‘object’ building tends to become “a symbol of the institution.”⁸¹ The expression of the exterior surface in this example is not the product of technology or the representation of interior organization or the representation of civic identity. The attitude is again to create an object building through its exterior surface similar to the glass-box buildings.

In view of these examples of office buildings, it can be said that the formation of exterior surface mostly depended on the technical specifications of the curtain wall system and the representational qualities of the materials to create an “object-façades” for institutions rather than creating a living environment both for its users and the surrounding milieu. “The temptation to opt for the object than the fabric is generally greater.”⁸² Every institutional building wants to act as an ‘object’ for its environment. In fact, the interior response of exterior surface is fulfilled more easily with the emergence of new technologies; whereas, the exterior response of the façade became questionable. The technical availability and the importance of the representation through façades disregard the dependence to the outer conditions in the formation process of the exterior surfaces. In other words, the formation of façades becomes free from the outside conditions. The

⁸⁰ Görgülü, T. and Tan, D. (2005). “İstanbul’da Üç Farklı Merkezi İş Alanındaki Ofis Yapıları Üzerine İrdelemeler.” *Tasarım*, 149. p. 125.

⁸¹ Krier, R. (1992). “Facades.” *Elements of Architecture*. London: Academy Group Ltd. p. 77.

⁸² Ibid. p. 78.

exterior surface is transformed a technically produced element, which is separated from the internal structure in production process and also separated from the design intentions of the whole project by its own “object-façade” consideration. Consequently, the façade manufacturers become to be authority in both production and design process of the exterior surfaces.

At this point, the next chapter investigates the role of the curtain wall manufacturing firms in the formation process of façades. The focus is on the working principles and marketing language of the firms to understand how the formation process is transformed to a technical process independent from the authority of architect.

CHAPTER IV

THE WORKING PRINCIPLES AND MARKETING LANGUAGE OF THE FAÇADE FIRMS

4.1 The Emergence of Manufacturing Principles

At the beginning of twentieth century, by the evolution of skeleton frame in which the exterior wall has no load-bearing function gave way to new methods in the design of external surfaces treated mostly as an enclosing skin.¹ One of the most common methods is curtain wall system.

The curtain wall which was defined by Philip Johnson and Henry-Russell Hitchcock as the identifying characteristic of International Style, is composed of a “strong internal support and continuous outside covering.”² Through the improvements in technology, the system and the materials become diversified. Furthermore, the system has become a common application for exterior surfaces especially in commercial architecture in which the International Style never lost its prominence, even in twentieth century.³ The curtain wall system composed of prefabricated, modular units

¹ Oesterle, Lieb, Lutz, Heusler. (2001). *Double-Skin Facades: Integrated Planning*. Munich, London: Prestel publ. p. 8.

² Leatherbarrow, D. and Mostafavi, M. (2002). “Chapter 2: Framing Containment.” *Surface Architecture*. Cambridge: The M.I.T Press. p. 14.

provides an advantage to the construction in terms of the economy especially in big scale commercial and business projects. Prefabrication of standard elements away from the construction site and “controlled” assembly of these elements improves the quality of the end product.⁴ This is an advantage for the construction sector in that the construction process continues more systematically with the standardized production and assembly process. Therefore, people who establish this standard process began to produce and apply the exterior surfaces to the buildings. In other words, technical knowledge is more available with the instantaneous communication of 21st century. The formation of the exterior surface, which is usually constituted with identical and standard elements, becomes to be based on the technical knowledge of manufacturers. Heinrich Klotz affirms clearly the standardized logical construction as such:

“Lightness of construction is combined with technical progress; the bareness of the façade with rationalization and enlightenment; the multiplication of standardized elements with logical sequence.”⁵

The bareness is mainly result of the standard combination of identical elements. The standardization in façade construction has transformed the signification of exterior surface from its reciprocal relationship with the interior and exterior life to a technically produced element by the increasing availability of technology. Façade is transformed to an element produced by

³ Aslanoğlu, İ. (2002). “The International Style in Turkey: A Sign of Contemporaneity for A New Republic.” *Lecture Notes*. Ankara: Middle East Technical University. p. 8.

⁴ Oesterle, Lieb, Lutz, Heusler. (2001). *Double-Skin Facades: Integrated Planning*. Munich, London: Prestel publ. pp. 130-136.

⁵ Klotz, H. (1988). In *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press. p. 33.

the new technologies instead of designed by architectural process. The new technologies respond many of the demanding rules of building construction; the façade can totally separate from the inner structure; it can elicit a perfect enclosure; it can have a great capacity to use many materials on exterior surface and alike. However, the plasticity of the shaped environment begins to disappear with using this type of façade treatments. The designing principle of exterior surface has become a “subject of repeated consideration.”⁶ In fact, the standardization of the façade elements caused the standardization of the exterior image as well. The man-made environment has begun to be dominated by an emphasis on the flatness of the glass boxes or the revival of the historical elements attached to the new technology. The characteristics of façade, which respond both to the interior and exterior, have been transformed in terms of its expressional character. Therefore, the curtain wall system, which originates with the coverage of the high-rise commercial or business architecture, has begun to be applied in several projects in different scale and function.

The research investigates the relation between the formation process of the exterior surface and the resulting expressionism of the new technology through façade manufacturing firms. The autonomy of façade signifies a new transformed materialism by its free character. The unity of the architectural construction is modified by cladding the internal structural system through exaggerated scientism and professionalism. In *Community and Privacy* S. Chermaveff discusses “technological development” in formation of the man-made environment:

⁶ Leatherbarrow, D. and Mostafavi, M. (2002). “Chapter 1: Introduction: Why Surface Architecture?” *Surface Architecture*. Cambridge: The M.I.T Press. p. 7.

“In contemporary, industrial society simple things exist side by side with those of greatest complexity. The pattern of pressures changes faster and faster with the drift of culture and the shifts in knowledge and technology. . . . As a result forms easily slip out of equilibrium and become obsolete. The old adage that worked in the craftsman era-that form is the result of individual skill and experience- no longer rings true. It seems equally doubtful that the image of either the artist-architect or the master builder is adequate to a situation that is politically, economically, and technologically high complex. No end product is better than the program behind it.”⁷

In this respect, the technological developments especially in architecture has disordered the equilibrium of the relationship between human and environment in both a physical and a mental sense. The skill and the experience, humanistic notions, are superseded by more technical and standardized aspects of the communication which are the reasons for the separation of exterior surface from the design process of architecture. When the interior structural system is covered by the cladding, the question is not only to respond to the requirements for light, air and view to outside but also, the appearance of the end product to satisfy the environmental conditions. In other words, the new technological developments and material specifications of curtain wall system have transformed the design and construction processes to be worked in more technical manner.

The main problem here actually is that the design process has begun to dissolve in the technically produced applied system. The formation of exterior surfaces is in the production phase; in other words, in practicing

⁷ Chermaveff, S. (1963). “Faith and Reason.” *Community and Privacy*. New York: Doubleday & Company, Inc. p. 114.

process rather than the design process. Therefore, the producer of these techniques started to intrude the professional sphere of the architect. The curtain wall manufacturing firms have begun to form the exterior surfaces only by their technical knowledge.

At this point, the research investigates the working principles and marketing languages of curtain wall manufacturing firms in Turkey to understand the standardization of the curtain wall formations and the separation of these formations from the architectural design process. The working principles and the illustrations of the finished works of the firms are important to be able to answer such questions: how responsible are the manufacturing firms in the formation process of the exterior surfaces? Does the technical knowledge of the firms assist the design process of the architect or separate the architectural elements from this design process?

4.2 The Working Principles and Marketing Language of Façade Firms in Turkey

The working principles and marketing languages of manufacturing firms have to be examined to understand the separation of façade design from the architectural process. The printed catalogues and online web sites of the several firms, who experienced in working on high-rise office buildings and mostly dominated in curtain wall sector, are investigated to specify the role of the manufacturing firms in the formation process of the exterior surfaces. Firstly, the Turkish firms are examined and secondly the same process is followed for foreign firms. At the end of the chapter, the attitudes of these firms are reinterpreted to understand how the authority of architect and manufacturing firm become interchangeable in the formation process of the façades.

4.2.1 Turkish Firms

One of these firms is Nif Aluminum Façade Systems, which has worked in curtain wall industry since 1995. The firm is not the producer of the elements; but, it only makes the application of ready-made elements of Çuhadaroğlu Aluminum. The working principles of the firm are described under the “how the façade works are done” heading in the web site of the firms. The dimensions of the building and the desires of the client are enough to shape the exterior surface of the building. In other words, the design of the exterior surface is in the authority of the firm instead of the architect or the contractor of the project. The system is totally based on dimensions of the building and the technical calculations of the elements.



Figure 29. Sample page from Nif Alüminyum (Şirket Profili. (2005). Nif Alüminyum [online]. from. http://www.nifcephe.com/sirket_profili.htm [Accessed at August 2006.]

As a visual material, the smooth and continuous glass surface is used to express the flatness of the material. Different pages of the site are marked with these surfaces, which have a flat and volumetric expression, at the top part of the page near the logo of the firm. The same volumetric expression can be realized from the finished works of the firm, which are mainly small

scale office buildings covered with glass and aluminum. The curtain wall system is applied any building whether it is a high-rise building or not. The images of the finished works indicate the application of the system in different scales and position in which a building adjacent to a conventionally produced façade is treated as a blue glass box by the curtain wall system.



Figure 30. Sample page from Delta Yapı Sistemleri (Hakkımızda. (n.d.). Delta Yapı Sistemleri [online]. from. <http://www.deltayapi.com> [Accessed at August 2006.]

Another firm, which has not produced the elements but only applied the elements of Fenış Aluminum since 2004, is Delta Construction Systems. The basic point in the marketing discourse of the firm is customer satisfaction. The focus is on the technical and material specifications, research and development to improve the quality of the system and technological expertise in order to fulfill the customer desires. Besides this technical language, the visual quality of the end product is emphasized by the term “modern.” Firms state the modern attitudes dominated in formation process

of the elements produce the visual quality of their works designed by their own design team constituted from architects, engineers and technical staff.

Using the images of high-rise buildings as visual illustration in the description of the curtain wall system is a common attitude used in catalogues and web sites of many firms. This method is also preferred by Delta Construction Systems that the image of Petronas Tower built in Malaysia is placed near the heading of "curtain wall systems." However, the applied projects of the firm do not include any building, which have similar characteristics with Petronas Tower. Most of them are small office buildings, whose exterior surface is treated free from their both architectural organization and surrounding.

Customer satisfaction achieved by the improvements of the quality in both production and service is the main concern in the marketing language of the Sentez Metal. However, the word "modern" is used in different sense from the Delta Construction Systems. The aim of the firm is described "to synthesize different notions with each other: technology with the respect to tradition, permanence with aesthetics and functionality with modernism". In this description, functionality and modernism are regarded that they are supposed to be different from each other; even terms are in conflict to each other. The firm states to mediate these two conflicting notions to reach the ideal solution in exterior surfaces for customer satisfaction. The irrelevant notions in the description of working principle are only used to adorn the marketing language of the firm. Although, the meaning of the word modern is used indifferent sense from the Delta Construction Systems in this description, the meaning does not have a relationship with any architectural attitude in the formation process of the exterior surface. Similar with the

other firms, all the design decisions are determined by the design team of the firm. Architect of the building has no responsibility in formation process of the exterior surface neither in production of the elements nor the application process of the designed exterior surface.



Figure 31. Sample page from Sentez Metal (Anasayfa. (n.d.). Sentez Metal [online]. from. http://www.sentezmetal.com.tr/list/list.asp?ktgr_id=220 [Accessed at August 2006.]

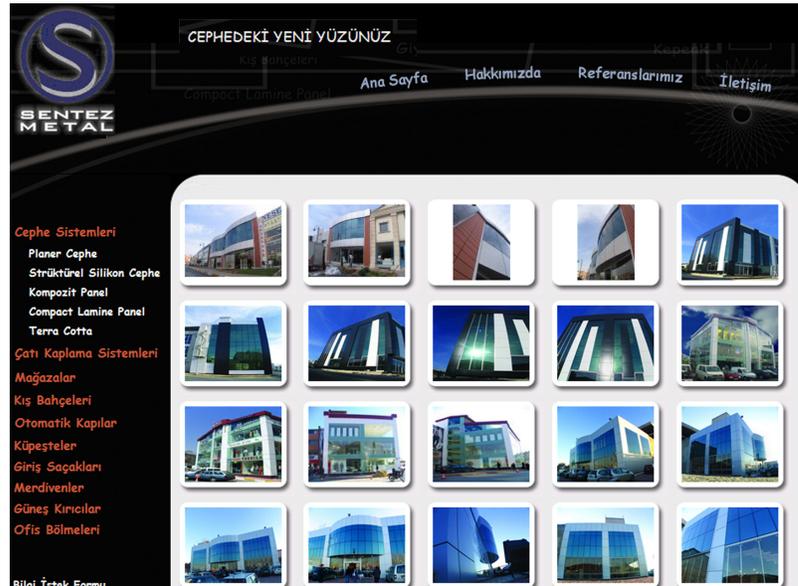


Figure 32. Some of the references of Sentez Metal (Referanslarımız. (n.d.). Sentez Metal [online]. from. http://www.sentezmetal.com.tr/list/list.asp?ktgr_id=220 [Accessed at August 2006.]

Omart is another firm in curtain wall industry, which describes itself as “an engineering, construction and installation company.” Although, the design process and architectural approach is not mentioned in this description, the firm is also defined itself “to solve the contemporary architectural concepts with aluminum and glass combinations” with the design decisions of the design team of the firm.

The screenshot shows the Omart website with a navigation bar containing links for CORPORATE, SERVICES, REFERENCES, PARTNERS SOLUTIONS, NEWS, CONTACT, and GROUP OF COMPANIES. The main content area is titled "OMART CURTAIN WALL AND ALUMINUM SYSTEMS INDU. & TRADE LTD. CO" and includes a "Corporate » About Us" section. This section contains several paragraphs of text and images. A red box highlights the first two paragraphs of the "About Us" section. Below this, there is a "Services » Curtainwall Systems" section, also with a red box highlighting its text. The page features images of a meeting, an office, and modern buildings with curtain walls.

Corporate » About Us

OMART CURTAIN WALL AND ALUMINUM SYSTEMS INDU. & TRADE LTD. CO

Omart Curtain wall and Aluminum System is a HY GROUP company.

In HY group; there are also some other companies, such as Vege İnşaat, engaged in roof and facade coating systems and a franchiser of distinguished brands, Idol Construction, engaged in construction, undertaking and steel constructions buildings, and Ege Saç, which supplies galvanized, aluminum raw material to the industrial companies, together with Omart. Omart was established as a result of the successful performance of these three companies.

OMART is an engineering, construction and installation company solving the contemporary architectural concepts with aluminum and glass combination and actualizing the original designs.

OMART is a specialized company having the knowledge and the experience necessary for the realization of the designs of the architects and the engineers such as high and prestigious buildings which requires specialization in combination with the contemporary construction techniques without depending on the standard design and details.

OMART has become the leader in many ways in the flashing sector in Turkey. Some of these leading steps consist of structural silicon curtain wall systems, systems coated with aluminum composite plates and aluminum joinery systems.

OMART always improves and implements the curtain wall systems which form the modern architectural design of our century by following the technological and architectural developments

Services » Curtainwall Systems

OMART is a company that posses knowledge and experience required for fulfilling the requirements of the construction physics with the modern construction technique. Omart, being aware of that the success can only be achieved with a team spirit, builds all kinds of designs that require special expertise, such as high buildings and prestige buildings, authentically without being depending on the standard designs and details.

OMART has adapted the customer-oriented operation in the project management. The projects are considered on the base of the requirements as expressed by the customers and prepared as 3D designs and 2D detailed analysis and color studies.

OMART combines the engineering and architecture staffs required for the following phases with the trained manufacture staffs and advances its targets day by day.

- Research & Development
- Projecting
- Production
- Manufacture and Assembly

Figure 33. Sample page from Omart (About us and Services. (2005). Omart [online]. from. <http://www.omart.com.tr/?pg=10&menuid=1202195921> [Accessed at August 2006.]

The working process of the firm first begins with technological research, second design and preparation of the exterior surface project of the building according to the desires of customer or the design decisions of the architectural team of the firm, third fabrication of the façade elements and finally assembly of these elements in site. All the process is based on the project which is designed by the team of the firm instead of the architect of the building. Furthermore, the curtain wall system is used to form “the modern architectural designs of our century” by their technical knowledge. The high-rise office buildings are exemplified as “prestigious” buildings, which represent the modernity through their façade applications. Therefore, this ‘modern’ expression of the end product, which is wanted to create especially in the exterior surfaces of high-rise office buildings, is the main point of the marketing discourse of the firm.

The screenshot shows the Omart website's main page. At the top, there is a navigation menu with icons and labels for 'KURUMSAL', 'HİZMETLER', 'REFERANSLAR', 'ÇÖZÜM ORTAKLARI', 'HABERLER', 'İLETİŞİM', and 'GRUP ŞİRKETLER'. Below this is a large banner image with the text 'Giydirme Cephe Uzmanı' (Curtain Wall Specialist) and a smaller image of a man in a suit and red hard hat. The main content area is divided into several sections: 'HABERLER' (NEWS) with a sub-section 'OMART CEPHE GİYDİRME VE ALÜMİNYUM SİSTEMLERİ' (OMART CURTAIN WALL AND ALUMINUM SYSTEMS), 'KAMPANYA' (CAMPAIGN) with a sub-section 'CEPHE GİYDİRME' (CURTAIN WALL), and 'E-Katalog' (E-Catalog) with a sub-section 'Haber Grubuna Üye Ol' (Join the News Group). There are also sections for 'Döviz Satış Kuru (T.C.M.B)' (Exchange Rate) and 'Tavsiye Et' (Recommend). The page is highlighted with red boxes around the banner, the man's portrait, and the 'CEPHE GİYDİRME' section.

Figure 34. Main page of Omart (Anasayfa. (2005). Omart [online]. from. <http://www.omart.com.tr> [Accessed at August 2006.]

The images of the high-rise buildings are used to illustrate the curtain wall system in both web page and the printed catalogues of the firm, besides the marketing discourse. The different images of the high-rise buildings are placed to support the description of the working principle of the firm under the “Services// Curtain Wall” heading. However, there are not any high-rise buildings in the illustration of the finished works; on the contrary, all the applied works are small office buildings even apartment blocks.



Figure 35. Some of the references of Omart (Referanslar. (2005). Omart [online]. from. <http://www.omart.com.tr/?pg=references&menuid=1202195931> [Accessed at August 2006.]

All the visual materials and marketing language are arranged to provide the customer satisfaction. Whatever the technological method is used, the design process is based on the customer-oriented operations. The design team of the firm works as a technical drawing team of the project, which is totally shaped by the customer desires.

Sarıca Aluminum has similar attitude with Omart that the main aim of the firm is to fulfill “the expectations of the contemporary architecture” besides the considerations on technical specifications and standards of the curtain system. Shortly, the firm tries to satisfy the clients in terms of the representational character of the glass and the aluminum with the standardized exterior image in the façades.

The firm provides several services from the fabrication to installation process including the design of both the elements and the total configuration of the façades. In the web site of the firm, there is a subheading as “Designs”, including several façade designs for office buildings of several institutions. All the examples are office buildings whose scale is reduced to apartment scale. The designs have similar attitudes with the high-rise office examples: glass-box and articulated. Technical knowledge makes the similar attitudes available for different scales and functions.

One another firm is Endem Façade Systems, which has worked in curtain wall sector since 1994. The quality of end product and customer satisfaction is the main considerations of the firm like the others. However, the firm regards the fabrication and design process as “an engineering service”, whereas the installation process as “a workmanship service”. The design process becomes in the responsibility of the engineers of the firm instead of the architects of the building. In other words, the technical considerations supersede the design process in the working principles of the manufacturing firms. The end products of this technical approach are illustrated in the web site of the firm by the images of the high-rise office buildings. Mainly, the exterior images of the buildings are standardized by the similar applications of the glass-box attitude, which the buildings are covered by blue-reflected glass to give a volumetric and sculptural expression. Therefore, the technical approach and the prestigious expressionism standardize the end product of the manufacturing firms.



Figure 38. Sample page from Endem Façade Systems (Endem Cephe Sistemleri [online]. (n.d.). from. <http://www.endem.com.tr/> [Accessed at August 2006.]

There are also several firms, which aim at providing customer satisfaction by the representational quality of glass and aluminum

combination. Namely, the formation of the exterior surface is transformed to create prestige for its owner. This purpose is stated in the slogan of Has Pancur, which is “you can transform the outside appearance of your building and your firm to a prestige.”



Figure 39. Sample page from Has Pancur (Aluminyum Cephe. (n.d.). Has Pancur [online]. from. <http://www.haspancur.com/?bolum=3> [Accessed at August 2006.]

Likewise Has Pancur, the marketing language of the firm Yedi Renk relies on the visual quality of end product. The technical and material specifications have a secondary importance after the representational quality of materials. The firm states to produce “privilege” to the building with the curtain wall system. The focus of the marketing language stated in the web site is whatever the function of the building is, whether an office or a residential building, the internal skeleton system is covered by the curtain wall system to express its privilege to its surrounding.

In the references of the firm, this is obvious that to cover the buildings with curtain wall system become available for any type of building. There are several examples covered with blue reflected glass and aluminum whether the buildings is an office building or a residence. For example, the exterior surfaces of educational buildings have also treated with the curtain wall

system. Furthermore, this attitude is emphasized literally in that to use a curtain wall system in any type of building becomes an ordinary attitude.

BASLANGIC

► **GIYDIRME CEPHE**

DOĞU YÜN

KIMIL TEKSTİL

KAYNAK MERMER

KAYNAK TEKSTİL

CEVİK TEKSTİL

PINARLAR HIRDAVAT

EKO-BİLİM DERSANESİ

JAKAR TEKSTİL

RA-TEKS

SERVERGAZI LİSESİ

KÜÇÜKER TEKSTİL

NUR TEKSTİL

KIS BAHÇESİ

KORKULUK

BİZE ULASIN

E-POSTA

Giydirme Cephe

BİNANIZIN DİŞ GÖRÜNTÜSÜNE BİR AYRICALIK KATALIM.

Giydirme cephe sistemlerinin avantajını tam olarak bilseniz şimdiye kadar niye yaptırmadığınıza çok üzüleceksiniz. Belki yüklü bir miktarda ödemek zorunda kalacaksınız ama daha sonraki boya masraflarından da kurtulacaksınız.

Su an bazı evlerde bile giydirme cephe uygulamalarına başladık. Artık sadece iş merkezlerinde tercih edilmiyor. Evinize de bir ayrıcalık katıyoruz.

Biz piyasada kendini kanıtlamış ÇUHADAROĞLU ALÜMİNYUM SİSTEMLERİ'nin giydirme cephe profillerini kullanıyoruz. En zor mimari projelerde bile her türlü detay yardımı alabileceğiniz sektörünün uzmanı bir firmanın ayrıcalığını göreceksiniz. Giydirme cephe işi uzmanlık ister. Biz bu işin uzmanıyız. Giydirme cephe sistemlerine hayatımızı verdik.

Referanslarımızdan bazılarının resimlerini sitemize koymaya çalıştık.

Giydirme cephe sistemleri artık bugünlerde işyeri inşaatlarının yükselen yıldızı. Bu uygulama ülkemizde önce İstanbul'da parladı. Şimdi ise Türkiye'nin dört bir yanına yayılıyor. Giydirme cephe uygulanan binalar artık göze normal gelmeye başladı. Giydirme cephe işlemlerinde uygulanan farklı kombinasyonlarda çok enteresan görüntülerin oluşmasına vesile oluyor. BİNALARIN RESSAMLARINA kolay gelsin.



Figure 40. Sample page from Yedi Renk (Başlangıç, (n.d.). Yedi Renk [online]. from. <http://www.7renkcephe.com/> [Accessed at August 2006.]

In Tuna Construction, the formation process of the exterior surface is similar to the other firms. Customer satisfaction constitutes the basis of their working principles. This satisfaction is achieved with the technically producing capacity and the application methods of the firm. Moreover, design, engineering and workmanship services of the firm work in the collaboration of customer. Besides the technical capacity of the firm, the economy, function and aesthetics are stressed in the projects to achieve the customer satisfaction. The visual examples used in the web site of the firm are chosen especially from the high-rise buildings which are covered by blue, continuous smooth surfaces to create a sculptural effect for its institution.

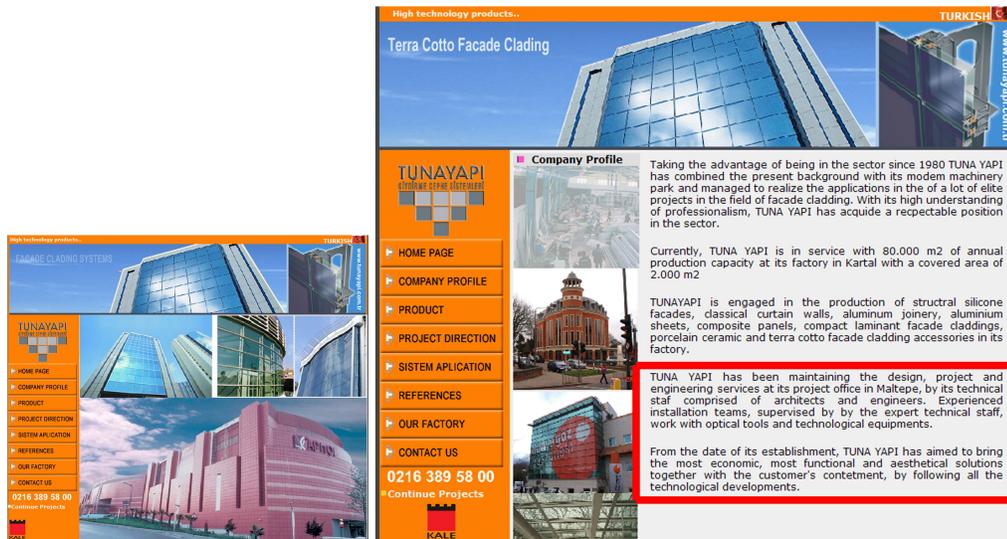


Figure 41. Sample page from Tuna Construction (Company Profile. (n.d.). Tuna Yapi [online]. from. <http://www.tunayapi.com.tr/eng/companyprofile.html> [Accessed at August 2006.]

The high-rise buildings covered by blue-reflected glass are used mostly in the web sites of the firms to illustrate the curtain wall system. However, when the finished works are compared with these high-rise buildings, the design and the application of the curtain wall system is same, whereas the scale and function of the buildings are different from each other. One of these firms is Alumaks named as “architectural aluminum systems.” However, when the working principles of the firm is investigated to understand the architectural attitude of the firm, there is nearly no difference from any other cladding manufacturing firms in terms of both working process and the marketing language. In other words, the working process does not include any designing process or any architectural design decision defined by the architect of the building. The only authority is the design team of the firm in design, project and application processes.

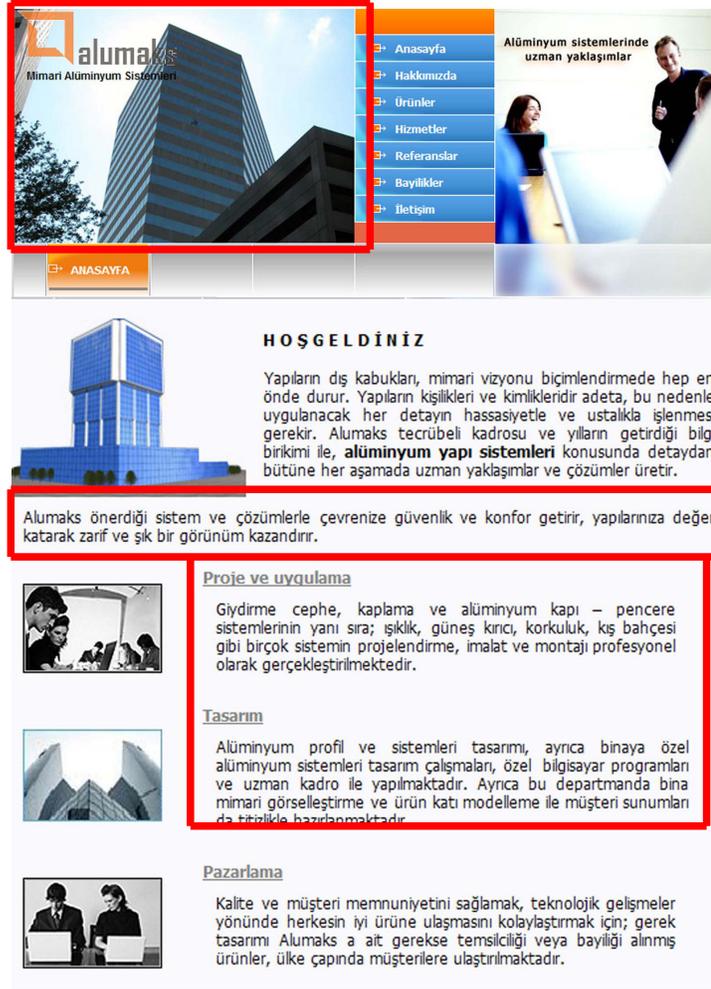


Figure 42. Sample page from Alümaks (Anasayfa. (2006). Alümaks [online]. from. <http://www.alumaks.com/index.asp> [Accessed at August 2006.]

The emphasis of the design team is also dominant in the marketing language of Metanorm Group. The firm has established an architectural office to design the exterior surfaces of the buildings instead of an architectural team. The design attitude of the exterior surfaces become more institutional attitude with this establishment in that the design process is in the authority of an individual architectural office rather than the design team of the firm or architect of the building.



Figure 43. Sample page from Metanorm (Hakkımızda. (n.d.). Metanorm Group [online]. from. <http://www.metanorm.com/hakkimizda.htm> [Accessed at August 2006.]

There are also different approaches in the marketing language of the manufacturing firms like Aygün Group. The information given in the web page of the firm begins with the history of the cladding materials and techniques. The site gives both technical knowledge about developments of aluminum, steel and glass and architectural knowledge about the developing styles together with this technical knowledge. The development process is illustrated with visual materials and detailed drawings. Finally, the firm states its position in this developing process. In addition to this beginning, the marketing discourse expresses not only the importance of the customer, but also the effect of the architect and the contractor in the design and construction process. However, the visual illustrations of the curtain wall system are similar with the other firms. All the examples are the high-rise buildings covered with blue, reflected glass. Although there are several techniques and materials in the curtain wall technology, the end product of

the firms are standardized with similar applications whatever the function or scale of the building is.



Figure 44. Main page of Aygün Group (Anasayfa. (n.d.). Aygün Grubu [online]. from. <http://www.aygun.com.tr/aluminyum.asp> [Accessed at August 2006.]

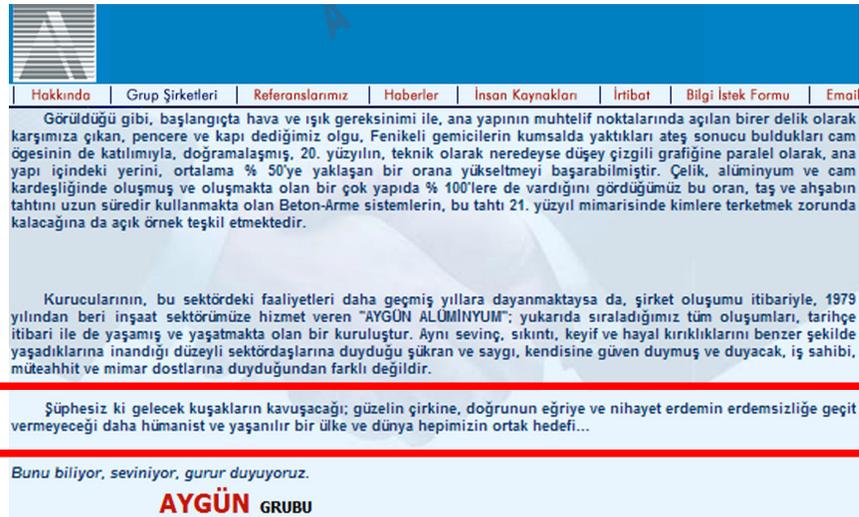


Figure 45. Sample page from Aygün Group (Grup Şirketleri. (n.d.). Aygün Grubu [online]. from. <http://www.aygun.com.tr/aluminyum.asp> [Accessed at August 2006.]

One of the common manufacturing firms is Çuhadaroğlu Aluminum, by which the exterior surface of several high-rise office buildings in İstanbul is constructed. The firm has become an expert in production and application of curtain wall system since 1965. Although the technical specifications are similar to the other manufacturing firms, the environmental consciousness is much obvious in Çuhadaroğlu Aluminum. Not only produced elements, but

also the plant and the working place are environmentally friend in terms of the health conditions. The working procedure operates systematically in the firm compared to other firms. However, the marketing discourse is developed similar to the other firms in that the main concern is the customer satisfaction. Although the firm is more conscious in terms of the material physics, performance, sustainability aesthetics and visual properties of the materials than the others, the design process is directed by the technical capacities of the system, the customer desires or the initiative of the design team of the firm. The similar consciousness on the material physics is not maintained in the design process of the exterior surfaces.



Figure 46. Main page of Çuhadaroğlu Aluminum (Çuhadaroğlu Aluminum [online]. (n.d.). from. <http://cuhadaroglu.com.tr/html/company.html.asp> [Accessed at August 2006.]

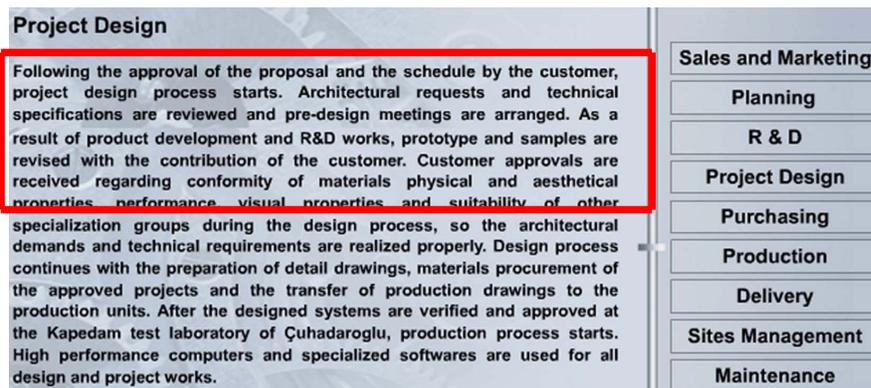


Figure 47. Sample page from Project Design of Çuhadaroğlu Aluminum (About the Company. (n.d.). Çuhadaroğlu Aluminum [online]. from. <http://cuhadaroglu.com.tr/html/company.html.asp> [Accessed at August 2006.]

Mission and Vision

MISSION: The reason of existence of our company is," to design, develop and produce Aluminium Structures for Buildings to make life more comfortable."

VISION: Çuhadaroğlu Aluminium Industry & Trade Inc. is a world company, who responds completely and accurately to the entire expectations, whether clearly specified or not, of its customers.

Çuhadaroğlu Aluminium Industry & Trade Inc. is consisting of employees, who are content and happy together with their families, friendly, healthy, innovative, creative, respectful to their work, responsible, honest, loyal, having no reserve to criticize and to be criticized, participating continuously in social activities.

Çuhadaroğlu Aluminium Industry & Trade Inc. takes its suppliers, subcontractors and distributors as a partner, and the contacts with associations, state organizations and universities are taken in serious consideration and is known as an exemplary Industrial Company who actively participates in Institutional cooperation programs.

Çuhadaroğlu Aluminium Industry & Trade Inc. owns an "environment friend" plant, and a healthy working atmosphere.

VALUES AND RULES: ● We never give concessions to the quality. ● We work without any financial risk and our financial reliability is well accepted. ● We surely complete all of our undertakings. ● We always know what we are doing and we have confidence in our product. ● We always work to succeed for the "Firsts". ● When we notice our mistakes, we convert them into an opportunity. ● And we never give up.

History

Aims and Objectives

Mission and Vision

Areas of Activity

Safety At Work

Environmental Consc.

Production Plant

Quality Concept

Human Resources

Figure 48. Sample page from Mission and Vision of Çuhadaroğlu Aluminium (About the Company. (n.d.). Çuhadaroğlu Aluminium [online]. from. <http://cuhadaroglu.com.tr/html/company.html.asp> [Accessed at August 2006.]

4.2.2 Foreign Firms

The working principles and marketing language of the foreign based firms differentiates from the attitudes of Turkish firms. One of these firms is Schüco. The basic aim of the firm is highlighted in their mission statement as:

“Our job, as we see it, is not merely to transform demanding requirements perfectly and reliably into reality. Our aim is also to demonstrate new possibilities, to inspire new, workable ideas, or simply to awaken dreams.”

First of all, the working principles of the firms are not based on the visual quality of the new materials or representational quality of the end product. The firm trusts its technological expertise and know-how from which the building elements are developed. At Schüco, the emphasis is on the consultancy with know-how to the people involved in building project like architects and even contractors. Therefore, the firm does not ignore the role of the architect in formation process of the end product; on the contrary,

the targeted profession in the marketing discourse is not only the customer, but also everyone having an authority in the formation process.

The screenshot shows the Schüco website with a navigation bar at the top containing a search field and buttons for 'Schüco', 'Ürünler', 'Hizmetler', and 'Bize Ulasin'. A left sidebar contains a menu with items: Mission statement, History, Business divisions, Consultancy, and Vision 2012. The main content area is divided into three sections:

- Mission statement:** A red-bordered box containing the text: "Our job, as we see it, is not merely to transform demanding requirements perfectly and reliably into reality. Our aim is also to demonstrate new possibilities, to inspire new, workable ideas, or simply to awaken dreams. Schüco aims to capture the most attractive energy saving and renewable energy solutions, combining these with emphases on automation, security and design." Below this is an image of a modern building and the sub-section "Innovation and timelessness" with a paragraph of text.
- Business divisions:** A section with the heading "Our corner stone is integrated thinking." followed by a paragraph: "The development and implementation of systems for this building envelope is what Schüco technological expertise is all about. It includes façades, glass roofs, windows, doors, as well as building management and solar technology. Here, Schüco commands the whole range of materials. From this collective know-how, a system of building components was developed which is still unique in its scope. And one which leads to minimising of quality problems at the interface between different components." Below this is the sub-section "Consultancy" with a paragraph: "The Schüco Technology Centre in Bielefeld is one of the most efficient test centres for window, door, façade and solar technology worldwide. It represents the high quality, durability and reliability of all Schüco products. Before being assessed by official test institutes, all of our new developments are tested here for their compliance with current industry standards. On the façade test rig, we can test two-storey façade units under extreme loads and even simulate a hurricane or an earthquake. Schüco's system reliability, tested at the Technology Centre, helps architects and designers to create secure, approved solutions from their individual design ideas." Below this is another paragraph: "Technological expertise is one side, design and implementation the other. At Schüco, a high level of emphasis is placed on comprehensive consultancy with everyone involved in the building project, covering all technical and aesthetic questions. There are special software solutions for designers, architects, for sales staff and fabricators. With the know-how and reliability of German engineering, Schüco guarantees the smooth implementation of sophisticated projects worldwide." To the right of this text is an image of a modern building and a photo of two men in hard hats reviewing blueprints.

Figure 49. Sample page from Schüco (Schüco [online]. (n.d.) from <http://www.schueco.com.tr> [Accessed at August 2006.]

One other foreign based manufacturing firm is Reynaers. The working principle and marketing language are similar to Schüco. The firm firstly states its technical knowledge and material quality which is tested with several laboratory tests, research and development facilities to emphasize their technological expertise in the curtain wall industry. Secondly, the firm accentuates how the firm works with whom. At this point, the firm clearly defines its working system as giving technical support to manufacturers and architects. In other words, the formation of the elements of the façade system and also the configuration of these elements for any building are designed according to the designed project of the architect. Therefore, the firm can easily draw the border of its own authority in the formation process of the exterior surface of the building.

Reynaers
ALÜMİNYUM

Firma | Faaliyetler | Ürünler | Referanslar | Download | Reynaers.com | Reynaers Institute | Linkler .tr

Hoşgeldiniz

Reynaers Alüminyum'a hoşgeldiniz!

Kalite ve teknik yeniliklerin dünyasını keşfedin. Reynaers Alüminyum'un önerdiği sistemler ve çözümler çevremize konfor ve güvenlik getirir; mimari uygulamalara değer kazandırır.

Yüklenici misiniz? Reynaers'in size, orijinallığın ve güzelliğin nasıl uzun süreli sürdürülebileceğini göstermesine izin verin.

Üretici ya da tasarımcı misiniz? Reynaers'in size, profesyonel ortaklıktan neler bekleyebileceğinizi göstermesine izin verin.

Projelerinizi nasıl destekleyebileceğimizi bilmek ister misiniz? Hangi ürün ve hizmetleri önerebileceğimizi? En iyi işlerimizden bazıları görmek ister misiniz? Tüm bunları burada bulacaksınız. Size eğlenceli bir keşif yolculuğu dileriz!

Üyelik

Genel bilgiler arasında serbest olarak arama yapabilirsiniz. Eğer mimar ya da üreticisi iseniz ve daha detaylı bilgi istiyorsanız, sayfanın sol alt köşesindeki "Giriş" butonuna tıklayarak bağlantı kurabilir veya üye olmak için "Üye Kayıt" butonuna tıklayarak kayıt talebinde bulunabilirsiniz. Böylelikle daha detaylı ve spesifik bilgiye ulaşabilirsiniz.

Araştırma ve Geliştirme

Araştırma ve geliştirmeye yapılan sürekli yatırımlar sebebi ile Reynaers pazara düzenli olarak yeni ürünler sunmakta ve eski sistemlerini yenilemektedir. Reynaers, mimarlar, üreticiler ve son kullanıcılar arasındaki sürekli fikir alışverişini standart ve spesifik ürünlere dönüştürmektedir. Reynaers, mimarlar, üreticiler ve son kullanıcılar arasındaki dinamik işbirliği, yeni ürünler ve yenilikler için "başının anahtarıdır".

Testler

Tüm ürün geliştirme faaliyetleri, Avrupa Standartları ve kanunlarına uygunluk onayı için test edilmektedir. Uluslararası bağımsız ve tanınmış test merkezlerinden önce her yeni ürün ilk olarak Reynaers test merkezinde test edilmektedir. Bu merkezde Reynaers örnek olarak pencere ve giydirme cephe ürünlerinin rüzgar ve su geçirimsizliğini test eder. Reynaers ayrıca birçok bağımsız test merkezi ve danışmanlık kuruluşuyla işbirliği halinde çalışmaktadır. Almanya Roshenheim' deki Institut Für Fenstertechnik, Paris' te CSTB, Bath Üniversitesi Pencere ve Kaplama Teknoloji Merkezi vb. bunlardan sadece bir kağıdır. Dahada önemli Reynaers temsil ettiği ülkelerdeki sertifikasyon kuruluşlarından da belge almaktadır.

Depolama & Dağıtım

Reynaers şu anda Avrupa'da binlerce profil ve aksesuar stoklanan 75.000 m² depolama alanına sahiptir.

Figure 50. Main page from Reynaers (Faaliyetler. (2004). Reynaers [online]. from. <http://www.reynaers.com.tr/> [Accessed at August 2006.]

Alüminyum Üreticilerine Destek

Reynaers alüminyum sistemleri özenle bitmiş ürünlere dönüştürülür ve tecrübeli ekipler tarafından monte edilir. Reynaers özel donanımlı merkezlerinde eğitim kursları düzenlenmektedir. Reynaers aynı zamanda üretim, hesaplama ve çizim programlarını sağlamaktadır. Teknik ve ticari ekibi, Reynaers sistemleri ile ilgili bütün aktivitelerde üretime destek vermektedir.

Mimarlara Destek

Reynaers her binanın kendi kimliği olduğuna inanmaktadır. Mimari danışmanlık ekibi mimarlara bina doğrama ihtiyacına cevap verebilecek Reynaers sistemlerinin spesifikasyonları hakkında kişisel destek vermektedir. İstek üzerine spesifik dokümanlar verilir.

İnternet yardımı

Reynaers web sitesi Reynaers Grubu beraberinde ürün yelpazesini de genel olarak tanıtmaktadır. Site için yakın gelecekte planlanmış gelişmeler ile kullanıcılara daha kapsamlı bilgiler verilmesi hedeflenmektedir. Bu şekilde kullanıcıların en son teknik ve ticari bilgilere çabuk ve kolaylıkla ulaşması sağlanacaktır.

Reynaers 1965 yılında Belçika'da aile firması olarak kuruldu. Bugün Reynaers Grubu dünya çapında, tecrübeli alüminyum imalatçıları tarafından imal ve monte edilen alüminyum sistemlerinin tasarımı ve satışını yapmaktadır.

Reynaers Grubunun etkinlikleri araştırma ve geliştirme, üretim koordinasyonu, profil ve aksesuarların yüzey işlemi ve izolasyonu, pazarlama, dağıtım, mimarlar ve üretici firmalar için teknik ve ticari destek sağlanmaktadır.

Brüksel yakınlarında bulunan genel merkezli Reynaers Grubunun Birleşik Krallık, İskoçya, Fransa, Almanya, İsviçre, İspanya, Hollanda, Polonya, Çek ve Slovak Cumhuriyetleri, Romanya, Macaristan, Bağımsız Devletler Topluluğu Ülkeleri, Baltık Cumhuriyetleri, İskandinavya, Türkiye ve Avusturya'da merkezleri bulunmaktadır. Reynaers aynı zamanda Orta Doğu, Asya ve Afrika ülkelerine doğrudan ihracat yapmaktadır.

Tüm ürünlerin tasarımı ülkelerdeki teknik koşullar çerçevesinde yapılır ve her pazardaki mimari istekler esasına dayanır. İyi tasarım sonucunda Reynaers ürünler mükemmel termal ve akustik izolasyon ile kabul edilebilir rüzgar ve su geçirimsizliği sağlar. Geniş renk seçenekleri ile Reynaers sistemleri modern mimarinin yaratıcılığına adapte edilmektedir.

2001 yılında Reynaers Grubu, 760 kişilik kadrosu ile 16.500 tonun üzerinde alüminyum ekstrüzyonunun satışını gerçekleştirmiştir. Reynaers Grubu pazar büyüme ve ürün geliştirme stratejisine devam edecektir. **Öncelikli hedefimiz müşteri ihtiyaçlarını dinlemek; en iyi ürün ve servise cevap verebilmektir.**

REYNAERS Alüminyum Sanayi ve Ticaret Ltd. Şti.

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Yeşilköy / İstanbul / TÜRKİYE

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Figure 51. Sample page from Reynaers (Faaliyetler. (2004). Reynaers [online]. from. <http://www.reynaers.com.tr/> [Accessed at August 2006.]

4.2.3 Concluding Remarks

After the investigation of the working principles of several curtain wall manufacturing firms to understand the formation process of façades, there are three basic considerations which is directly related with this formation process. Firstly, the working principles of the manufacturing firms are based on the technical specifications of the curtain wall. Domination to the technical knowledge provides a freedom to the industry in terms of the application of the system. First of all, curtain wall system satisfies the desired economy with its “light-weight framing” and “dry walling techniques.⁸ After

⁸ Oesterle, Lieb, Lutz, Heusler. (2001). *Double-Skin Facades: Integrated Planning*. Munich, London: Prestel publ. pp. 130-136.

its physical separation from the structural construction, the production area and the process in the manufacturing also separated from the in-situ construction. The prefabrication of the unit construction system of exterior surface provides a “controlled” assembly for the construction and great advantages for the today’s world of speed. Buildings that have been resulted from the combination of the small standardized units have dominated instead of the in-situ construction in the respect of the perfection and speed. The distinction between the constructional methods is claimed by Kenneth Frampton in *Technology, Place and Architecture* that:

“It is precisely this schism between wet and dry construction together with the split between craft-practice and industrial technique, that compels one to acknowledge the hybrid character of building. Within this mixed activity it is possible to apply various levels of productions to different parts of a given work not only for reasons of economy and efficiency but also for the realization of certain expressive values.”⁹

The technical approach in general is supported by the material variety and technological methods. In curtain wall systems, the supporting system of the covering elements is aluminum or steel. Glass, aluminum, natural stone, ceramic and composite panels can be used as cover elements. In addition, there are many types of curtain wall systems such as ‘stick, silicon, semi-panel and panel systems.’¹⁰ Nearly every manufacturing firm practicing in Turkey can apply every curtain wall systems in their work.

⁹ Frampton, K. (1998). “Introduction.” *Technology, Place and Architecture The Jerusalem seminar in Architecture*, ed. K. Frampton. New York: Rizoalli International Pub.Inc. p. 13.

¹⁰ For the cladding panel systems see Appendix A.

Since the systems are same for every manufacturing firm, only a unique character can make one firm dominate the other. Therefore, the marketing principles are based not only on the material specifications. Secondly, one other concern is to research and develop all techniques and materials to produce privilege in the industry. Several laboratory tests concerning technology and material improvement are applied to express the quality of product. The performance tests of resistance to climatic conditions, noise and earthquake are the main processes to challenge the quality of the materials.¹¹

The formation of exterior surfaces is transformed in more technical manner together with all these technical specifications. In other words, façade is defined as a production of the technical knowledge. The main concept has become to create “technical perfection” in the constructions to create the desired living conditions with façades. The question of maximum efficiency in economy through speed finds its answer in the technical specifications of building construction. With these technical considerations, façade utilized its reciprocal relationship, for both interior and exterior, in the circumstances of production. The technical attitude abstracts the exterior surfaces by the autonomy of façades from the total designed unity of constructed image as only a cover or an attached element.

Kenneth Frampton states the decreasing creation in the formation of constructions to only the production by technical maximization that:

¹¹ “Dosya – Giydirme Cephe Sistemleri, Kaplamaları.” (2005). XXI. 32. p. 72-78.

“The very opposite of this mediatory attitude is made evident by the maximization of technique. I am thinking say of the optimization of air-conditioning in hot-dry climates where protection from the sun has been traditionally provided by thick walls overhangs a cross-ventilation or in this century by the provision of brise soleil and by the possibility of opening and closing windows and shutters or will. The capacity to open a structure to natural ventilation is equally crucial in temperate climates. Who has not experienced the situation where in fine weather it is impossible to open a window because the fenestration has been fixed in order to maximize the efficiency of the air conditioning system? Similar observations may be applied to the traditional roof and its capacity to shield a building from inclement weather. Moreover all such responsive elements can be said to be automatically expressive of the climate and hence of the place in which the structure happens to be situated. ”¹²

The signification of the exterior surface has been transformed to technically produced element for increasing the efficiency of the technical practices. The profession, who has the technical knowledge, becomes to be the authority in both the formation and the application process of the façades, because of this technical approach. Namely, the manufacturing firms have gained the authority to form the exterior surface. H. Kern and C. Sabel clarify the role of the producer as such:

“Complex products are increasingly conceptualized as systems of subsystems, or modules. Instead of developing each subsystem itself, the final producer defines the characteristics of the product as a whole and the functional relations between the different modules of which it is composed. Whenever possible, each of these is then developed in collaboration with a system supplier who posses the relevant technical

¹² Frampton, K. (1998). “Introduction.” *Technology, Place and Architecture The Jerusalem seminar in Architecture*, ed. K. Frampton. New York: Rizooolli International Pub.Inc. p. 13.

expertise and know-how. Final assembly, however, remains the responsibility of the final producer.”¹³

The technical availability provides a different mission for the producers who become also the form maker of this technique. However, the used system is same for every producer. This creates a problematic situation for the firms in that every firm accentuates the uniqueness of their working system in the industry. Consequently, another consideration, which affects the formation process of the exterior surface, is emphasized apart from the technical perfection. The consideration is to express the representational quality of new materials used in curtain wall system. The façades have lost their exterior response by the technical approaches dominated in working principles of the firms. This situation is also recognized by the manufacturing firms so that the underlying concept of the marketing language concentrates on the visual expression of the end product. Frampton specifies the intent of the producer created by its technology as such:

“Technological maximization also has the tendency to reduce the creation of built-form to the production of freestanding objects whether the object in question is merely a technological instrument or the occasion for a spectacular aesthetic display.”¹⁴

The concentration of the architectural process has attempted “to give new substance to the alliance between techniques of visual communication

¹³ Kern, H. and Sabel, C. (1991). “Trade Unions and Decentralized Production: A Sketch of Strategic Problems in the West German Labor Movement.” *Politics and Society*. Los Altos, CAL. USA : Butterworth publ. p.378.

¹⁴ Frampton, K. (1998). “Introduction.” *Technology, Place and Architecture The Jerusalem seminar in Architecture*, ed. K. Frampton. New York: Rizooolli International Pub.Inc. p. 14.

and industrial production”¹⁵ rather than to deal with dual characteristics of exterior surface. Therefore, the aim is to create ‘an image’ for the manufacturing firms by their technical knowledge. The formation of the exterior surface is based only the implications of the firms rather than any conceptualized approaches of the architect. Namely, the formation is based on the initiative of the design teams of the manufacturing principles instead of the architect of the building. F. Kiesler asserts how the image based consideration is generated from the material fact as such:

“The new idea has now become material (1) and the creative cycle begins anew. By a change in the preponderance of the life-forces, the center of interest and attraction may shift from material fact (1) to the idea (2) from the idea - to the object (3); and in this continuous flux any other shift of emphasis is equally possible.”¹⁶

The material constituting the construction presents itself as an idea of its designed whole, but the idea is transformed by the industrial production, which is only based on the image. Actually, to give a name to an attached element as ‘an object’ is a practical way for manufacturing firms. The attitude based on creating an object is only to attract the customer who is much interested in the expression of his institution rather than the technical matters. Therefore, the representational quality of the object building does not “in pursuit of an architectural idea”; on the contrary, this quality is “simply guided by the results of calculation.”¹⁷

¹⁵ Tafuri, M. (1969). “Toward a Critic of Architectural Ideology.” In *Architecture Theory since 1968*, ed. K. M. Hays. Cambridge, Massachusetts, London: the MIT Press. p 29.

¹⁶ Kiesler, F. (2003). “Frederick Kiesler: Pseudo-Functionalism in Modern Architecture.” *Endless House*. Ostfildern-Ruit, Deutschland : Hatje Cantz. p. 31.

The problem is to separate the exterior façade as a technically produced element from the architectural design process because of the availability of new techniques. In addition to this technical approach every building covered by curtain wall has tended to act as an object building. The formation of façades according to representational attitudes become ordinary: many commercial and business buildings in different scales, even the residential buildings want to consolidate their “tone, even if they do not capture its cadences.” Similar physiognomies are applied to different type of buildings in different scales and forms.

The repetition in the formation of the enclosing skin decreases the representational quality of the construction. Rob Krier expresses this repetition as such:

“As building objects have multiplied, they have thus lost their value as exceptions. Nowadays, planning rules and repetitive methods of production confer an object-status upon buildings whose content and significance are ordinary. These buildings are repeated not so much as types adapted to the site, but as models reproduced almost identically.”¹⁸

The situation in twentieth century has been clarified by the Krier’s statement. The technological maximization of new techniques affects the practicality of building. The new techniques are available for every manufacturing firm so that the firms have used the representational attitudes to create privilege in industry. However, this representational quality is

¹⁷ Le Corbusier. (1987). *Towards a New Architecture*, trans. F. Etchells, 13th ed. London: Architectural Press. p. 33.

¹⁸ Krier, R. (1992). “Town and Monuments.” *Elements of Architecture*. London: Academy Group Ltd. p. 77.

attached the figuration of the exterior surface, which has been applied in similar attitudes of manufacturing firms, is based on the creation of object buildings by neglecting the existing fabric.¹⁹ The dominant visual characters of the institutional buildings have been configured in any type of building by standardization and repetition, which are the results of technical availability in 21st century.

Consequently, the exterior surface is separated from the architectural process to construction process. The formation of façades becomes to be in the authority of the manufacturing firms who are a part of this construction process. The formation process is determined by the attitudes of these firms “based upon engineering, imagination and technique.”²⁰ However, the character of façade does not come from its technical maximization or representational quality. Architectural quality is not achieved only to determine the function or to give the pattern to the façade. The unity of design cannot be achieved through the decorated frontalist façade with no integration to its whole designed formation. In Krier terms, if created thing is an object then the importance comes from its ‘space quality and massiveness’, not from its attached surface.²¹ The reason is the transformation of architectural and constructional processes by manufacturing firms with the technical availability “without any such theoretical support.”²²

¹⁹ Ibid.

²⁰ Ibid.

²¹ Krier, R. (1992). “Composition of the Object: Articulation and Continuity.” *Elements of Architecture*. London: Academy Group Ltd. p. 89.

²² Rowe, C. (1977). “Chicago Frame.” *The Mathematics of the Ideal Villa and Other Essays*. Cambridge, Massachusetts, and London: The MIT Press. p. 103.

CHAPTER V

CONCLUSION

The primary aim of this study is to examine how the formation of the outside surface of building is transformed with the new construction methods and design intentions. The study investigates the changing roles of the architects and manufacturing firms in the design process of buildings within the context of the high-rise office buildings in Levent-Maslak area in İstanbul.

The exterior surface of the construction gained an autonomous character after the Modern Movement; however, this autonomy has undergone significant transformations following the developments of technology especially in curtain wall systems in Turkey in the 20th century. The formation of Levent-Maslak area is dominated with high-rise office complexes whose exterior surfaces are treated as an attached element separated from the internal construction rather than being treated as an interface between the interior and exterior. The study in this sense argued that the separation of the façade from the internal structure began to be treated in a more technical manner by the emergence of the curtain wall technology. Therefore, the experts, who have the technical knowledge of the new technology, became the “designer” of the exterior surfaces of the constructions, instead of the architects. In other words, the physical

autonomy has been modified by the working systems and the marketing principles of façade manufacturing firms in Turkey; as a result, the architectural process is now being interfered by the curtain wall firms.

The separation of the exterior surface from the internal structure by using the new materials and techniques was one of the main principles of the Modern Movement. Le Corbusier claims “the separation of load-bearing construction from space-enclosing walls”¹ as one of the principles of architecture described in his *The Five Points of Architecture*. Fundamentally, a technical advantage became the reason of the separation of the exterior surface. This separation is related with the load-bearing capacity of the new materials; like concrete carries its own load as a structural system and steel and glass carry their own load as an exterior cover of this structural system. Hence, the relation between design and construction processes is articulated and changed by the new techniques and materials. However, this relationship has been weakened by the rapid pace of the change in technological developments. The usage of the new techniques and materials totally based on the standardization separate the design and construction processes rather than relating them. The curtain wall system, whose elements are standard prefabricated units, changed the logic of the building production. The exterior surface is now modified as a manufacturing product installed to the structural system, instead as an architectural element.

The curtain wall system is mostly used to cover the exterior surfaces of business complexes in Levent-Maslak area. Actually, the prefabrication

¹ Joedicke, J. (1959). “Le Corbusier.” *A History of Modern Architecture*. New York: Frederick A. Praeger Publishers. p. 87-89.

system, whose primary rule is repetition, is suitable to cover big scale projects because of its economical advantages. In addition, curtain wall system is generated by highest technology in building industry. It has a capacity in managing the climatic and environmental control of the interior. However, the system is treated in more mediocre position to satisfy the exterior response of the building, although it has an advantage to satisfy the demands of the user in inside. In other words, the buildings formed by this system, which is composed of standardized elements, began to resemble each other. Although, every building seeks a unique physiognomy for its institutional identity in Levent-Maslak area, their exterior images resemble each other due to the similar usage of the standardized units of the curtain wall system. In other words, the façades have the same physiognomy or very similar to each other in which the only change is use and the choice of the materials.

In the study, the standardized exterior images of the high-rise business complexes in Levent-Maslak area are classified into two in respect to the treatments of different materials within different organizations: glass-box and articulated. The former approach is defined with several examples in which the façade is made up of the 'blue' reflected glass. The intention in this approach is based on the homogeneity of the exterior surface with standard units to express the volume and flatness of the mass in the light of the Post-International Style. The latter approach is described as different from the former one in respect to the usage of several materials and figurative elements on façades. The exterior surfaces are more articulated than the smooth glass surfaces; yet, the historical elements are used to create a representative character similar to the Post-Modern attitude.

When the two approaches are considered, it can be stated that the intentions behind their formation; to generate a representational quality and identity of the owner or the institution of the building rather than to embrace and create a living environment for both internal and external user. The exterior surface separated from the design process by productional and technical attitudes searched for a new logic to generate its own formation. The physical autonomy of the façade therefore is transformed into a functional thing. The exterior surface is not regarded as an element which responds to both the interior and exterior living environment; on the contrary, it is produced as a cover to represent the power and identity of the institution.

The façade is abstracted from the design consideration of the whole of the building formation by the technical considerations of the manufacturing firms as well. The autonomous character of façade gained a new dimension by the non-integrated cooperation between manufacturers of the exterior surfaces and the architects. When the technical perfection isolates the exterior surface from the structure in physical terms, the discipline which leads to this technical knowledge began to separate the formation of the exterior surface from the designing intentions of the architect. In other words, the formation of the façade is regarded as a technical problem, which is solved under the authority of the manufacturing firms with their technical knowledge.

From this point onwards the form began to be generated according to the intention of the manufacturing firms. The working principles of the firms, which produce and apply the curtain wall system to cover the high-

rise buildings, specify how the exterior surface is treated as a manufacturing element and isolated from the design process of the architect.

The reason for this separation, foremost, is the one-sided marketing principles of the façade manufacturing firms. All of the discourse of the façade industry is actually based on the advertisement of the products and the working techniques which are totally utilized according to the demands of the client. Namely, all the advertisement policies and the language used to describe the working methods are designed to convince the owner of the construction, but not its architect.

Secondly, the marketing approach of the firms does not aim to act as a consultant to the architect. The firm is ready with all its technical background to generate the exterior surface by using the curtain wall system. As such, the different types of the autonomy of façade have never been as obvious as in the contemporary construction industry in Turkey. The two dimensional plan organization of the building and the general form of the end product are solved with the expertise of the architect; whereas, the third dimension of the construction is created according to the technical considerations of the manufacturing firms. The system becomes a “trend”, a “fashion” mostly in commercial buildings by the technical availability. It can also be realized from the investigation of the manufacturing firms in that the system starts to be applied in any type of building in any scale, a residential or a commercial in high-rise or in low-rise buildings. Therefore, the productional attitudes and technical availability reduce architecture to a condition in which the technical knowledge defines the formation of the exterior surface, while the

architect is reduced to defining only the plan and the silhouette of the building.²

Thirdly, the façade firms begin to generate their own design teams of architects and engineers to design and produce the exterior surface according to the desire of the owner. The materials are ready, made of standard units with calculated capacities. The carcass system of the two dimensional plan organizations are ready for the firm to be surveyed and covered by the cladding system in respect to the design decisions of the design team of the firm and the special demands of the owner. Therefore, the autonomy of façade is transformed in different directions by eliminating the architect from the design and construction process of façades. The professional role of the architect is interrupted by the manufacturing discipline, which actually has to consult the architect in the design process of exterior surface with their technical knowledge and to improve the quality of the living environment. In other words, the subordinate principle disrupts the design process of the architects instead of assisting them.

Consequently, the curtain wall industry starts to assert its own autonomy in the construction sector. Besides the two different senses of façade autonomy, the producers of the exterior surface become free from the work of the architect. Façade become an element to be produced, designed and installed to any type of building formed separate from the architectural design process.

² Frampton, K. (1992). "Chapter4: Place, Production and Scenography: international theory and practice since 1962." *Modern Architecture*. London, New York: Thames and Hudson. p. 307.

The architectural design and construction process require re-thinking because of the improper developments in the marketing sector of the façade manufacturing firms. The image has been separated from the essence of building only to create an invertebrate representational quality by the working principles of the manufacturing firms instead of the architect. The interruption of the manufacturing firms has blurred the authority of the architect in the design process of the building. The changing role of the designer compelled by the technical knowledge of the manufacturing firms is embodied through the formation of the exterior surfaces of the high-rise business complexes in Levent-Maslak area. In the thesis, the standardized formation of the high-rise business complex façades is based on the change of the architects' authority on the exterior surface design process due to the technical developments and marketing principles of the manufacturing firms.

REFERENCES

- Altaban, Ö. (2005). "Politikalar ve Kentler UIA 2005 İstanbul Kongresi." [Electronic version]. *Mimarlık Dergisi*, 327. from: <http://old.mo.org.tr/mimarlikdergisi/index.cfm?sayfa=mimarlik&DergiSayi=41&RecID=1015> [Accessed at August 2006.]
- Alumaks [online]. (2006). from. <http://www.alumaks.com/index.asp> [Accessed at August 2006.]
- Arnheim, R. (1977). "Solids and Hollows." *The Dynamics of Architectural Form*. London: University of California Press Ltd. p. 92.
- Aslanoğlu, İ. (2002). "The International Style in Turkey: A Sign of Contemporaneity for A New Republic." *Lecture Notes*. Ankara: Middle East Technical University. pp. 1-8.
- Aygün Grubu [online]. (n.d.). from. <http://www.aygun.com.tr/aluminyum.asp> [Accessed at August 2006.]
- Baker Ira, O. (1909). "Chapter XI: Stone Masonry." *A Treatise on Masonry Construction*. New York: J. Wiley and Son. pp. 278-285.
- Bank Ekspres Tower. (2003). Emporis Buildings [online]. from. <http://www.emporis.com/en/wm/bu/?id=107298> [Accessed at June 2006.]
- Barry, R. (1969). "Concrete Structural Frames." *The Construction of Buildings*. London: Crosby Lockwood & Son Ltd. p. 69.
- Bauer, C. (1965). "The Social Front of Modern Architecture in the 1930s." *Journal of the Society of Architectural Historians* 24, March, no.1. p. 48.
- Baydar Nalbantoğlu, G. (1999). "Modern Ev'in Çeperleri." In *Bilanço 1923-1998*, ed. Z. Rona, vol. 1. pp. 305-313.

- Beatriz C. (1994). *Privacy and Publicity: Modern Architecture as Mass Media*. Cambridge: The M.I.T Press.
- Bilgin, İ. (2002, October 30). "Modernizmin Şehirdeki İzleri 1." *Arkitera*, [online]. from: <http://www.arkitera.com/v1/diyalog/ihsanbilgin/modernizm1> [Accessed at August 2006.]
- Bloch, E. (1995). *The Principle of Hope*, vol.2. Cambridge: The M.I.T Press.
- Bozdoğan, S. (1994). *From Kubik to Arabesque: Architectural Culture and the Predicament of Modernism in Turkey*. Paper for MIT.
- Cengizkan, A. (2001). "Interview: Ersin Özince." *XXI*, 8. pp. 32-39.
- Center of Window and Cladding Technology [online]. (n.d.). from. <http://www.cwct.co.uk/facets/pack03/0101.htm> [Accessed at August 2006.]
- Chermaveff, S. (1963). "Faith and Reason." *Community and Privacy*. New York: Doubleday & Company, Inc. p. 114.
- Completed Projects. (n.d.). Yüksel Construction Co., Inc. [online]. from. <http://www.yuksel.net/www.yuksel.net/ebiten/be5akmer.htm> [Accessed at August 2006.]
- Cook, J. W. and Klotz, H. (1973). *Conversations with Architects*. New York: Praeger.
- Çuhadaroğlu Aluminum [online]. (n.d.). from. <http://cuhadaroglu.com.tr/html/company.html.asp> [Accessed at June 2006.]
- Delta Yapı Sistemleri [online]. (n.d.). from. <http://www.deltayapi.com> [Accessed at August 2006.]
- Demir, H. (2001). "İş Kuleleri." *XXI*, 8. pp. 108-110.
- "Dosya – Giydirmeye Cephe Sistemleri, Kaplamaları." (2005). *XXI*, 32. p. 72-78.
- Dülgeroğlu Yüksel, Y. (1994). "İstanbul'da Son Dönem Büro Binaları." *Yapı*, 157. p. 72.
- Emporis Buildings [online]. (2004). from: <http://www.emporis.com/en/bu/sk/st/ma/cil/> [Accessed at August 2006.]

- Endem Cephe Sistemleri [online]. (n.d.). from. <http://www.endem.com.tr/>
[Accessed at August 2006.]
- Frampton, K. (1992). *Modern Architecture*. London, New York: Thames and Hudson.
- Frampton, K. (1998). "Introduction." *Technology, Place and Architecture The Jerusalem seminar in Architecture*, ed. K. Frampton. New York: Rizoilli International Pub.Inc. pp. 13-14.
- Garner, Philippe, Bayley, Stephen and Sudjic, D. (1986). *Twentieth-Century Style & Design*. New York: Van Nostrand Reinhold Company Inc.
- Georgiadis, S. (1993). *Sigfried Giedion: an intellectual biography*, trans. C. Hall. Edinburgh: Edinburgh University Press.
- Görgülü, T. and Tan, D. (2005). "İstanbul'da Üç Farklı Merkezi İş Alanındaki Ofis Yapıları Üzerine İrdelemeler." *Tasarım*, 149. p. 125.
- Has Pancur [online]. (n.d.). from. <http://www.haspancur.com> [Accessed at August 2006.]
- Hitchcock, H. R. and Johnson, P. (1966). *The International Style*. New York: Norton.
- Innes, J. (1990). *Exterior Detail: finishing touches for complete outside style*. London: Collins & Brown Limited.
- Joedicke, J. (1959). "Le Corbusier." *A History of Modern Architecture*. New York: Frederick A. Praeger Publishers. pp. 24-90.
- Karabey, H. (2003, October). "Metrocity: Konut-Alışveriş Merkezi. Interview with Doğan Tekeli." [Electronic version]. *Yapı*, 263. <http://test.yapi.com.tr/turkce/Roportajlar.asp?ArticleID=73&yazar=Do%C4%9Fan%20TEKEL%C4%B0> [Accessed at August 2006.]

- Karabey, H. (2005). "Maslak Plazalar Dünyasına İki Bakış: Levent ve Çeliktepe Perspektifleri." *Arkitera*, [online]. from:
<http://www.arkitera.com/article.php?action=displayArticle&ID=89>.
[Accessed at August 2006.]
- Kelly, S. J. and Johnson, D. K. (1998). "Introduction." *DO.CO.MO.MO. Modern Movement Heritage*, ed. A. Cunningham. London: E&FN SPON. pp. 2-78.
- Kern, H. and Sabel, C. (1991). "Trade Unions and Decentralized Production: A Sketch of Strategic Problems in the West German Labor Movement." *Politics and Society*. Los Altos, CAL. USA : Butterworth Publication. p.378.
- Kiesler, F. (2003). "Frederick Kiesler: Pseudo-Functionalism in Modern Architecture." *Endless House*. Ostfildern-Ruit, Deutschland : Hatje Cantz. p. 31.
- Klotz, H. (1988). *The History of Postmodern Architecture*, trans. R. Donnell. London, Cambridge, Massachusetts MA: The M.I.T Press.
- Konsept. (2003). Sun Plaza [online]. from.
<http://www.sunplaza.com.tr/test/alt/Concept/alt.htm> [Accessed at August 2006.]
- Krier, R. (1992). *Elements of Architecture*. London: Academy Group Ltd.
- Kuban, D. (1981). "Turkey." *International Handbook of Contemporary Developments in Architecture*, ed. W. Sanderson. London: Greenwood Press. pp. 473-481.
- Larson, M. S. (1993). "Chapter Two: Architectural Change in the Twentieth Century." *Behind the Postmodern Façade*. London, England: University of California Press. p. 21.
- Le Corbusier. (1987). *Towards a New Architecture*, trans. F. Etchells, 13th ed. London: Architectural Press.

- Leatherbarrow, D. and Mostafavi, M. (2002). *Surface Architecture*. Cambridge: The M.I.T Press.
- Merriam-Webster Online Dictionary [online]. (2006.) from: <http://www.m-w.com/dictionary/façade> [Accessed at August 2006].
- Metanorm Group [online]. (n.d.). from. <http://www.metanorm.com/> [Accessed at August 2006.]
- Meyerson, M. (1963). "Constraints and Possibilities." *Face of the Metropolis*. New York: Random House. p. 233.
- Nif Aluminyum Cephe Sistemleri [online]. (2005). from: <http://www.nifcephe.com/> [Accessed at August 2006.]
- Oesterle, Lieb, Lutz, Heusler. (2001). *Double-Skin Facades: Integrated Planning*. Munich, London: Prestel Publication.
- Omart [online]. (2005). from. <http://www.omart.com.tr> [Accessed at August 2006.]
- References. (n.d.). Çuhadaroğlu Aluminum [online]. from: <http://www.cuhadaroglu.com.tr/html/references>. [Accessed at August 2006.]
- Reynaers [online]. (2004). from. <http://www.reynaers.com.tr/> [Accessed at August 2006.]
- Rowe, C. (1977). "Chicago Frame." *The Mathematics of the Ideal Villa and Other Essays*. Cambridge, Massachusetts, and London: The MIT Press. pp. 103-125.
- Sanderson, W. (1981). *International Handbook of Contemporary Developments in Architecture*. London: Greenwood Press.
- Sandybabcock Architects [online]. (n.d.). from. http://www.sandybabcock.com/work/wrk_ekspres01.html#. [Accessed at August 2006.]

- Sarıca Alüminyum Sanayi [online]. (n.d.). from. <http://www.sarica.com.tr>
[Accessed at August 2006.]
- Schüco [online]. (n.d.) from. <http://www.schueco.com.tr> [Accessed at August
2006.]
- Sentez Metal [online]. (n.d.). from. <http://www.sentezmetal.com.tr/> [Accessed at
August 2006.]
- Sorkin, M. (1981). "American Architecture since 1960: Quo Vadis." *A&U*,
extra ed. p. 24
- Sullivan, L. (1956). *The Autobiography of an Idea*. New York: Dover Public.
- Swanke Hayden Connell Architects. (2003). "Tefken Tower Levent İstanbul." *Yapı*, 264. pp. 88-95.
- T.C. Devlet Arşivleri Genel Müdürlüğü [online]. (n.d.). from:
www.devletarsivleri.gov.tr/yayin/genelmd/basbakanlik/146_19tchukumeti
[Accessed at August 2006.]
- Tafari, M. (1969). "Toward a Critic of Architectural Ideology." *Architecture
Theory since 1968*, ed. K. M. Hays. Cambridge, Massachusetts, London:
the MIT Press. p 29.
- Tapan, M. (2005). "International Style: Liberalism in Architecture." *Modern
Turkish Architecture*, ed. R. Holod, A. Evin, S. Özkan. Ankara :
Chamber of Architects of Turkey. pp. 108-110.
- Tiedemann, R. (1988). "Dialectics at a Standstill: Approaches to the
Passagenwerk." *On Walter Benjamin*, ed. G. Smith. Cambridge: The
M.I.T Press. pp. 260-291.
- Tümay, F. H. (1994). "Sabancı Center Planlama Hedefleri." *Tasarım*, 49. pp.
76-80.
- Tuna Yapı [online]. (n.d.). from. <http://www.tunayapi.com.tr/> [Accessed at
August 2006.]
- Uluğ, M. (2003). "Bir Metropol Yapısı Olarak, Metrocity." *XXI*, 18. p. 56.

- Uran, F. (1995). "Akmerkez." *Yapı*, 158. p. 71.
- Van Der Rohe, L. M. (1970). "Working Theses." *Programs and Manifestoes on 20th - century Architecture*, ed. U. Conrads. Cambridge: The M.I.T Press. pp. 74-75.
- Venturi, R. (1977). *Complexity and Contradiction in Architecture*. New York: The Museum of Modern Art.
- Vidler, A. (1990). *Claude-Nicolas Ledoux: Architecture and Social Reform at the End of the Ancien Regime*. Cambridge, Massachusetts: the MIT Press.
- Yedi Renk [online]. (n.d.). from. <http://www.7renkcephe.com/> [Accessed at August 2006.]
- Yerasimos, S. (1974). *Az gelişmişlik Sürecinde Türkiye*, trans. B. Kuzucu, 3rd ed. İstanbul: Gözlem Yayınları.
- Yücel, A. (2005). "Chapter VII: Pluralism Takes Command: The Turkish Architectural Scene Today." *Modern Turkish Architecture*, ed. R. Holod, A. Evin, S. Özkan. Ankara : Chamber of Architects of Turkey. pp. 120-121.

Appendix A

- Products. (n.d.). Çuhadaroğlu Aluminum [online]. from. www.cuhadaroglu.com/html/product.html [Accessed at August 2006.]
- Yiv Mühendislik [online]. (n.d.). from. www.yivmuhendislik.com [Accessed at August 2006.]

Appendix B

- Extech [online]. (n.d.). from. [http:// www.extech-voegele.com/3000spec.htm7.jpg](http://www.extech-voegele.com/3000spec.htm7.jpg) [Accessed at December 2006.]

APPENDIX A

CURTAIN WALL SYSTEMS

Stick system

The basic principle of the system is that the skeleton system of the curtain wall with its vertical and horizontal axes is hung to the structural system of construction. The aluminum profiles which have horizontal stick elements between them are hung to the vertical structural system of the construction. The glass elements can be fixed to the aluminum profiles either inside or outside.

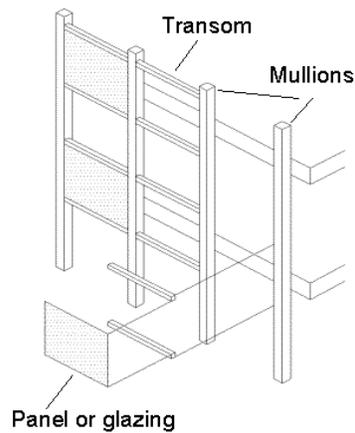


Figure A1. Example of stick system (Center of Window and Cladding Technology [online]. (n.d.). from. <http://www.cwct.co.uk/facets/pack03/0101.htm> [Accessed at November 2006.]

Semi panel system

Semi panel system is more advanced one than the stick system that the panels are prepared at the production plant and installed at site. The

panel dimensions are described through the dimensions of floor height. Each frame height is same as the height of floors in vertical and continuous in horizontal dimension. Therefore, each panel can move separate from each other in any vertical and horizontal movements of the building.

Panel system with prefabricated modules

This system is the most advanced curtain wall system with its prefabricated modules. Panels are produced in special production halls, delivered to the construction site and installed to its place with special equipment. The only difference from the semi-panel system is the covering element of the frame system is also installed at the production plant. When the panels are delivered to the site, only process is to montage the panels and attached them on the structural system of the construction. Mechanically controlled or manual window wings can be added into system. The system is prone to difficulties and delay of the construction process due to any external limitations. Moreover, system is shorten the assembly time, installation mistakes and unwanted delays.¹

Silicon System

The principle is the same with the stick system that the vertical and horizontal supports are installed to the internal structural system. Only difference is the structural skeleton system of the curtain wall is not visible from the exterior. Glass units are not installed between the aluminum skeleton; on the contrary, they are located in front of the skeleton. Therefore, the structural system is hided totally by the glass surface.²

¹ Products. (n.d.). Çuhadaroğlu Aluminum [online]. from. www.cuhadaroglu.com/html/product.html [Accessed at August 2006.]

² Yiv Mühendislik [online]. (n.d.). from. www.yivmuhendislik.com [Accessed at August 2006.]



Figure A2. Example of silicon system (Yiv Mühendislik [online]. (n.d.). from. www.yivmuhendislik.com [Accessed at August 2006.]

Planar System

The system is composed of the vertical supports and the glass units. The glass units are hung from four corners with the spider which is directly connected to the main vertical supports. The glass thickness is usually 10-15 mm.



Figure A3. Example of planar system (Yiv Mühendislik [online]. (n.d.). from. www.yivmuhendislik.com [Accessed at August 2006.]

APPENDIX B

TYPICAL CURTAIN WALL DETAILS

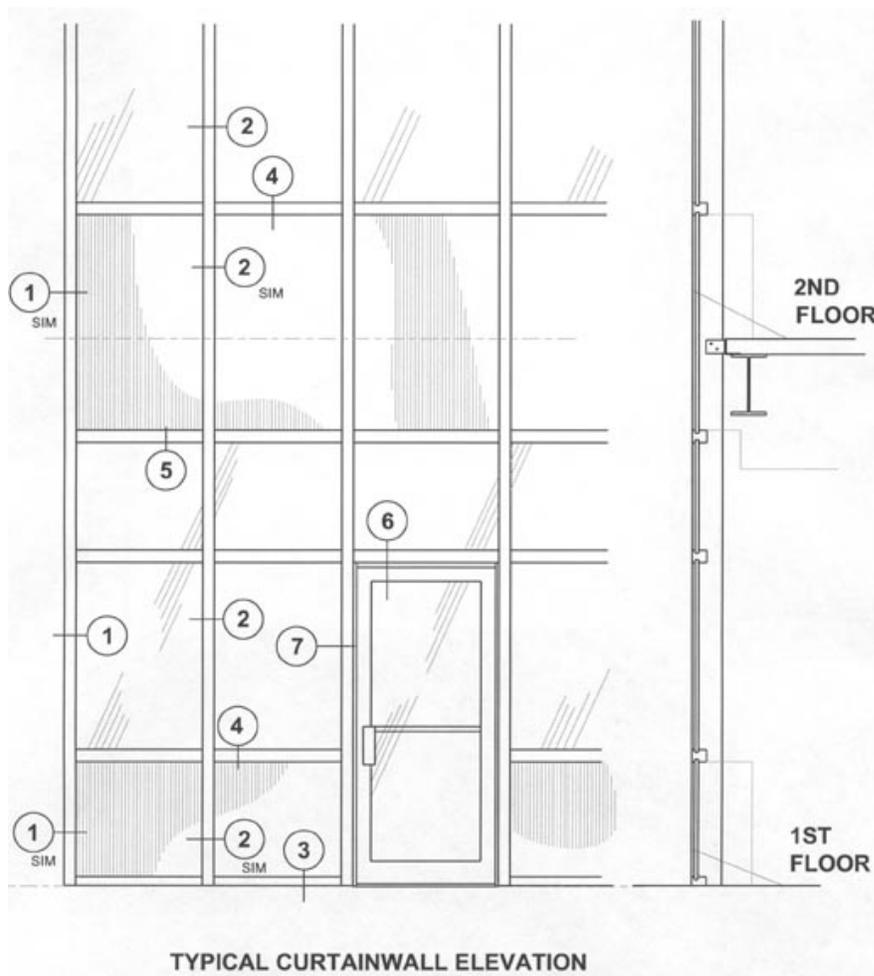


Figure B1. Typical curtain wall elevation (Extech [online]. (n.d.). from. [http:// www.extech-voegele.com/3000spec.htm2.jpg](http://www.extech-voegele.com/3000spec.htm2.jpg) [Accessed at December 2006.]

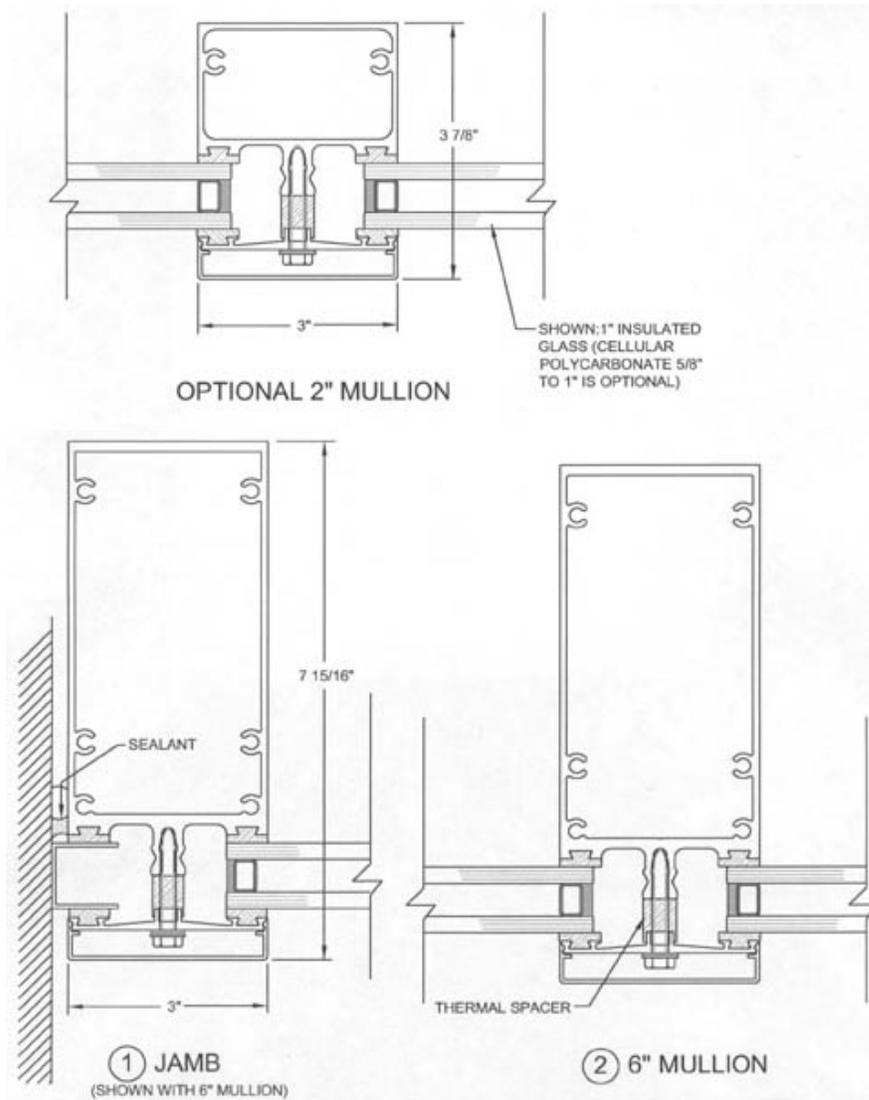


Figure B2. Vertical detail (Extech [online]. (n.d.). from. [http:// www.extech-voegele.com/3000spec.htm3.jpg](http://www.extech-voegele.com/3000spec.htm3.jpg) [Accessed at December 2006.]

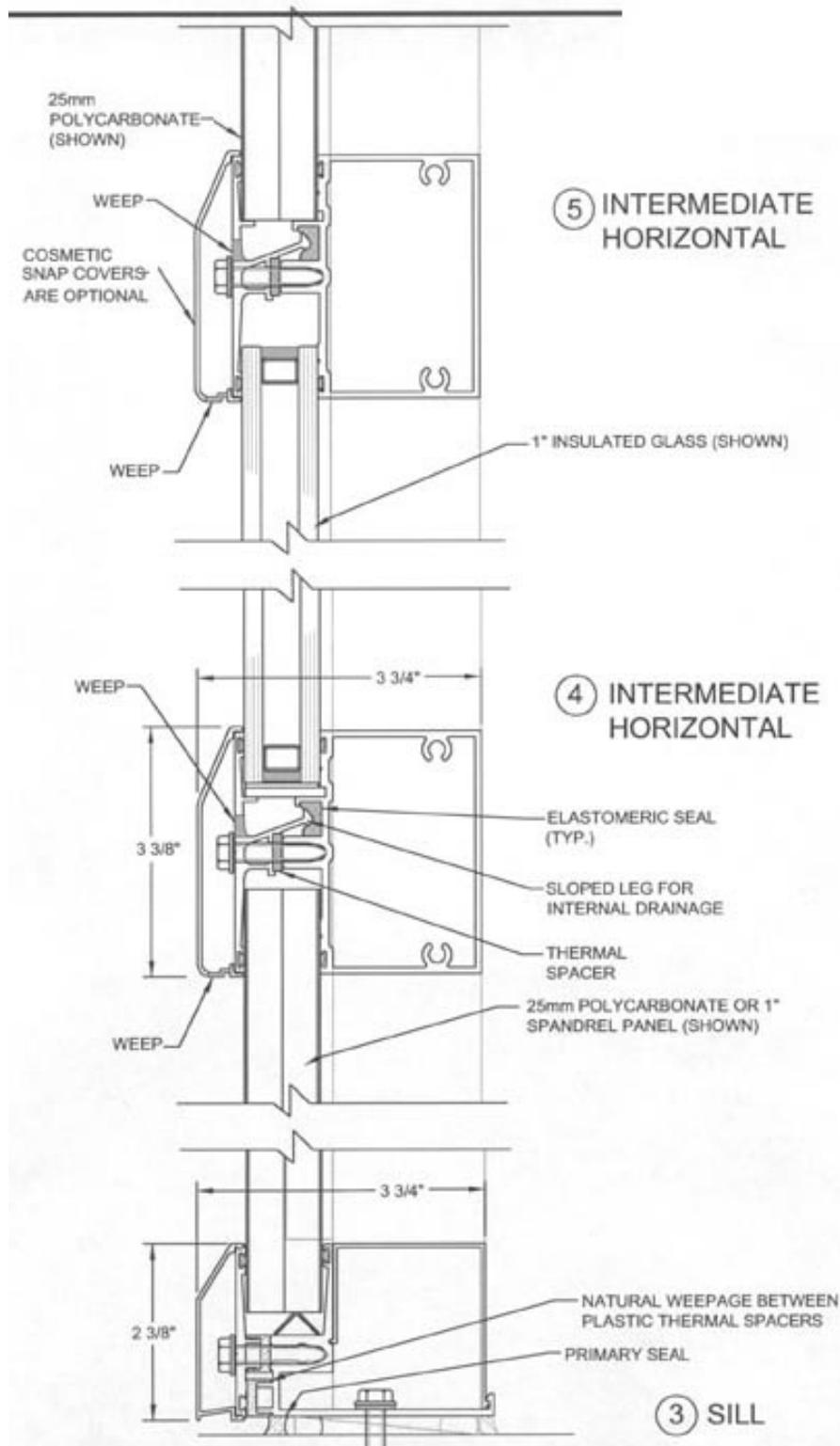


Figure B3. Horizontal detail (Extech [online]. (n.d.). from. [http:// www.extech-voegele.com/3000spec.htm4.jpg](http://www.extech-voegele.com/3000spec.htm4.jpg) [Accessed at December 2006.]

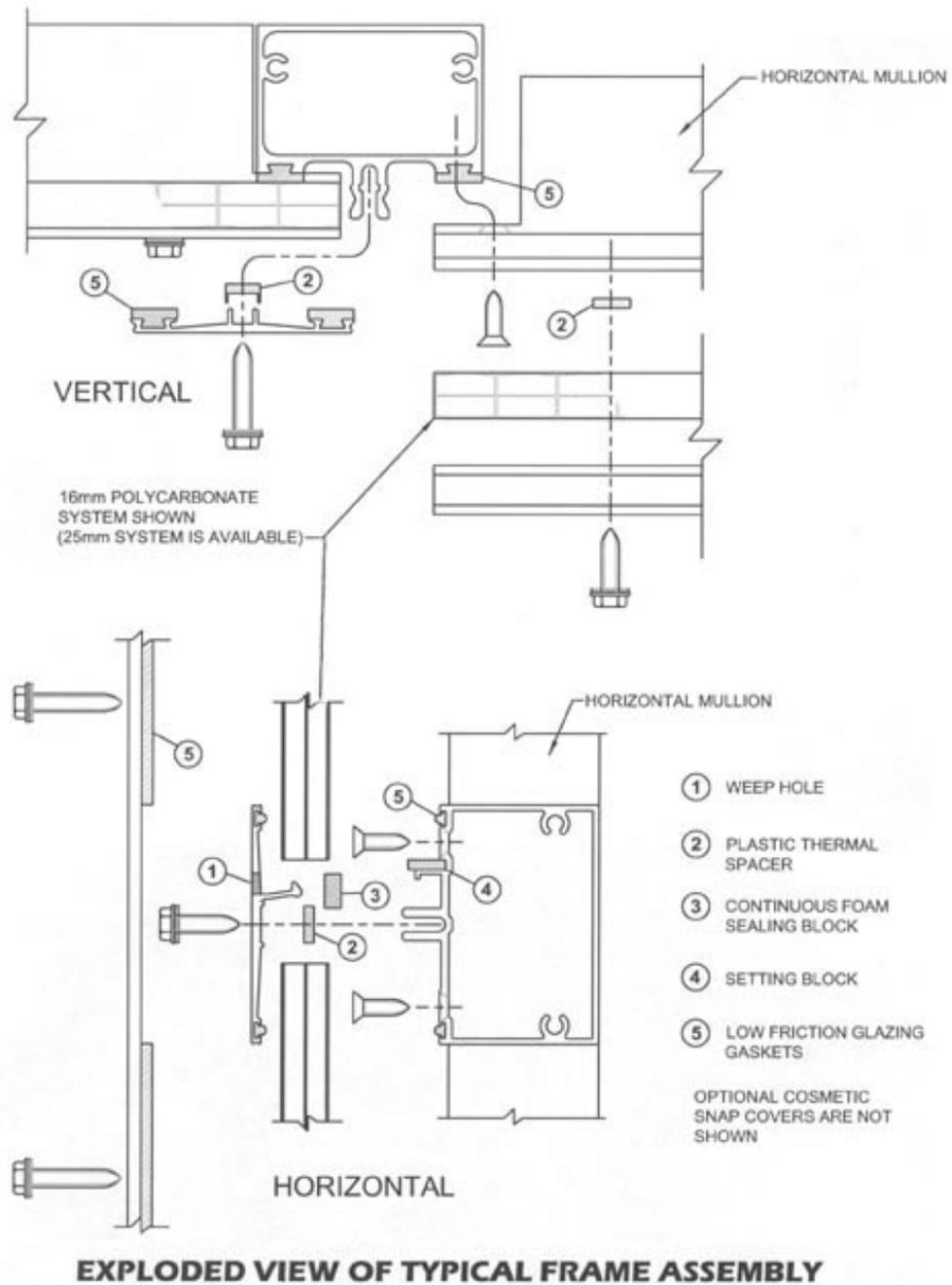


Figure B4. Exploded view of typical frame assembly (Extech [online]. (n.d.). from. <http://www.extech-voegele.com/3000spec.htm7.jpg> [Accessed at December 2006.]