FROM "ADVERTISING ARCHITECTURE" TO "MEDIA FAÇADE": COMMUNICATION THROUGH DIGITAL DISPLAY SKIN

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ABSTRACT

FROM "ADVERTISING ARCHITECTURE" TO "MEDIA FAÇADE":
COMMUNICATION THROUGH DIGITAL DISPLAY SKIN

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There is a growing trend to design buildings with colourful and dynamic outer skins through the integration of digital media tools, particularly Led Emitting Diode (LED) systems, and the use of innovative technology. This integration has been discussed in recent conferences under the term "media façade" as a new research field. Discussing the intersection of media, technology, art, and architecture, this field introduces a new form of communication platform, urban space and public perception, which can be viewed through the perspective of Guy Debord's "The Society of the Spectacle" and Jean Baudrillard's "sign value" concept.

Proceeding from the idea that a façade is a communication tool, the thesis compares what Adolf Behne in the early 20th century termed as *Reklamearchitektur* (advertising architecture) with the current "media façade". Venturi's comparison of Gothic cathedrals to billboards of the Las Vegas Strip in the 1970s applies today to the "Media Building" in Paul Virilio's discussion of the digital age, where the information is active and interactive. This study considers the façades with attached signs, signboards and billboards as a continuation of advertising architecture, in contrast to the media façade examples with integrated digital media tools that are inbuilt to the design. Among the cases presented, three are selected (BIX, GreenPix and Digital Water Pavilion) for discussing the advantages and disadvantages of media façades, under the following titles: communication, ornamentation, flexibility, ephemerality, sustainability, and location. It is observed that the new relation between digital

media and architecture not only initiates a new kind of communication platform, but also indicates the emergence and proliferation of a potential propaganda tool. To this end, the guidance of a social control mechanism for the applications of media façades is suggested.

Keywords: media façade, urban screen, interactive architecture, LED technology

ÖZ

"REKLAM MİMARLIĞI"NDAN "MEDYA CEPHESİ"NE:
DİJİTAL GÖSTERİ KABUĞUYLA İLETİŞİM

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Dijital medya araçlarının, özellikle LED sistemlerinin entegrasyonu ve yenilikçi teknolojilerin kullanımıyla, binaların dinamik ve renkli dış kabuklarla tasarlanmasına yönelik giderek büyüyen bir eğilim vardır. Bu entegrasyon son yıllardaki konferanslarda yeni bir araştırma alanı olarak "medya cephesi" terimi altında tartışılmaktadır. Bu alan, medya, teknoloji, sanat ve mimarlık arasındaki ilişikiyi tartışarak, Guy Debord'un "Gösteri Toplumu" ve Jean Baudrillard'ın "işaret değeri" kavramı üzerinden bakılabilen yeni bir iletişim ortamı, kentsel alan ve kamusal algı tarif etmektedir.

Tez, cephenin bir iletişim aracı olduğu fikrinden yola çıkarak, Adolf Behne'nin erken 20. yüzyılda "reklam mimarlığı" anlayışını bugünkü "medya cephesi" ile karşılaştırmaktadır. Venturi'nin 1970'lerde Gotik kathedrallerle Las Vegas şeridindeki reklam panolarını karşılaştırması günümüzde, Paul Virilio'nun tartıştığı şekliyle, bilginin aktif ve interaktif olduğu dijital çağın "Medya Yapısı"yla uygun düşmektedir. Bu çalışma, üzerlerine işaret, tabela ve reklam panoları takılı cepheleri reklam mimarlığının bir devamı olarak, dijital medya araçlarının entegre olduğu medya cephesi örneklerini ise tasarıma yerleşik oluşlarıyla dikkate almaktadır. Sunulan projeler arasından üç tanesi (BIX, GreenPix and Digital Water Pavilion) medya cephelerinin avantaj ve dezavantajlarını tartışmak amacıyla, şu başlıklar altında incelenmiştir: iletişim, süsleme, esneklik, geçicilik, sürdürülebilirlik ve yer. Dijital medya ve mimarlık arasındaki yeni ilişkinin sadece yeni bir mimari iletişim ortamı

göstermediği, aynı zamanda potensiyel bir propaganda aracının doğuşuna ve çoğalmasına da işaret ettiği görülmektedir. Bu amaçla, medya cepheleri uygulamalarına rehberlik edecek bir sosyal kontrol mekanizması önerilmektedir.

Anahtar kelimeler: medya cephesi, kent ekranı, interaktif mimarlık, LED teknolojisi

To my parents,
Sezai and Sebahir Aydoğan

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INTRODUCTION

1.1 Problem

"Media" [1] as an influential information and communication tool including the Internet, portable computers, mobile phones and so on, has rapidly invaded every part of our lives. The mobilization of digital technology and a growing culture based on media tools have defined a new form of urban communication environment, where various digital display technologies have been introduced: "daylight compatible LED billboards, LCD plasma screens exposed in shop windows, information displays in public transport systems, or dynamic and intelligent surfaces integrated into architectural façade structures" (Struppek, 2006). In recent years, there is a growing trend to design buildings with more dynamic and colorful outer skins. Unlike traditional paint billboards of Times Square or Las Vegas, façade as the building's face to the street has become a huge screen through the installation of digital media. This installation is defining a new relationship between media and architecture, where digital media technology becomes a contemporary input in architectural design.

> Digital techniques open new ways to architects. If Le Corbusier was sure that Modern architecture was finding the language in the mechanical framework, in our age it appears as contemporary architecture is still looking for its language in the digital one (Ratti, 2008). [2]

> "The architecture is no longer the play of masses in light. It now embraces the play of digital information in space" (Mitchell, 1999).

[1] As a word "media" is the means of communication, as radio and television, newspapers, and magazines that reach or influence people widely. Lexico Publishing Group, LLC.
[2] Carlo Ratti from *Carlorattiassociati*, (interview by Esra Aydoğan, Turin, Italy, 20 May 2008).

This thesis is an inquiry into how new media becomes an architectural element and how architecture can embrace the growing digital display infrastructure appearing in the modern urban landscape as a new form of communication system. In this sense, questioning the change in the usage of media tools on buildings' outer skins, the thesis discusses the differences between dynamic digital appearances of contemporary media façades and permanent messages of traditional billboards in relation to their technical and content issues. Whereas buildings had stable façades with or without graphics in the past, the advent of "media façades" has expanded the possibilities through digital technology. Technology can create very large display surfaces with small pixellation and high resolution, which are integrated with architecture and "are no longer flat and rectangular" [3]. This formal development gives ability to be integrated easily on building's structure. In the meantime, a façade can re-present itself to the outside environment with effective lighting and graphic displays. These dynamic displays have been integrated on façades through digital media technologies in different contents, including information, entertainment, art, and of course advertisement.

According to the recent conferences, the new media and architecture relationship has been discussed under the terms "media architecture" as in *Media Architecture London 2007* or "media façade" as in *Media Façades Festival Berlin 2008*.[4] The relationship of these terms is not substantially different from the relationship of "architecture" and "façade". As Gernot Tscherteu (2008) pointed out in *Media Façades Festival*, while façade refers to exterior surface of a building and its functions that belong to the surface, architecture is related to the spatial structures and functions.[5] On the other hand, both share the same concern; "[…] We make new observations. We see new forms of displays on buildings and with our knowledge

[3] Quoted from "The Impact of Large Scale Integrated Displays on Architecture and Urbanism". "These displays are gradually becoming larger and thinner; they are no longer confined to flat surfaces; they no longer require darkness to be visible. In the short term, we may expect large thin displays to become more pervasive in both private and public spaces (perhaps using technology such as e-ink)" (Manovich, 2006).

[4] *Media Architecture Conference 2007* was organised "to create a new discourse among the latest theoretical and practical approaches and, while also addressing current developments in display lighting systems, its central themes were the cultural and theoretical implications of intelligent building surfaces in the urban environment". *Media Façades Festival 2008* "is an innovative project, engaging a wide range of stakeholders with distinctive interests in the public space. Through round tables, a workshop, panel sessions, lectures, urban screenings on media façades and an architecture exhibition the event will promote a multi-disciplinary action research approach to technology, architecture and media art in modern cities".

[5] Dr. Gernot Tscherteu studied political science at the University of Vienna. He has a research group called "mediafaçade.net" which comprises design consultancies and major architectural and manufacturing companies as well as research institutions. "Media façades create utterly new connections between digital space on the one hand and architecture and urban space on the other hand."

about recent technical developments in mind; we start to have visions and theories about the chances and risks of this development" (Tscherteu, 2007). As a result of focusing on media installations on façade designs, in this thesis, "media façade" will be used as a significant term.

The term "media architecture" was first used for Oscar Nitzchke's Maison de la Publicité design (1934-36) in Paris (Figure 1.1). Ilka & Andreas Ruby (2007: 4-5)[6] mentions that this unrealized project was one of the first architectural expressions of new forces in 20th century culture: advertising and the media. A steel lattice was attached to the eighteen-meter width façade which could carry images, icons and neon writing produced in the building's tenth floor workshop. In the modern metropolitan Paris, ever-changing façade surface would be rented out by advertising agencies (Ruby, 2007: 4-5). Kenneth Frampton has written about this architectural expression with the power of the media as:

> Had it been built, it would have introduced a subtle rupture into the continuity of the Haussmannian Avenue, replacing the *ordonnance* of the Second Empire with a pyrotechnic, kaleidoscopic field dynamically resplendent day and night (ed. McQuaid, 2002). [7]

Nitzchke's project was designed in such a period when the application of images on buildings was banned in Modernism and his manifesto appears again in Jean Nouvel's Mediapark proposal (1995) in Cologne (Figure 1.2). In Ruby's article (2007: 5), Nouvel creates a transparent "architectural screen" which includes the brand names and logos of the media companies represented in large neon signs. These signs also face the interior as objects in space, and people's movements are visible from the outside, which creates a silhouette display. Hence, the façade of the project is not only designed from the interpretation of hanged billboards and neon lights of advertising architecture, but also from the modernist's dogma that "function must breed the form" (Ruby, 2007: 5).

While this relationship has been discussed in various conferences under different topics worldwide, its applications can be observed in Turkey, as well. Examples are varied: First, information boards and plasma screens have been added to public transportations and underground stations (Ankaray Station in Kızılay, Ankara). Second, large digital outdoor

[6] The article was sent by Jan Edler to Esra Aydoğan, (17 June 2008).

[7] Oscar Nitzchke (American, born Germany, 1900-1991) worked in the offices of Le Corbusier and the Perret brothers and was a central participant in the modern movement in Paris in the early 1920s. The radical Maison de la Publicité on the Champs-Elysées, featured a six-storey open sky-sign framework suspended in front of the street façade which Kenneth Frampton called *"a dematerialized, pyrotechnic, semiotic field . . . constantly active during the day and dynamically resplendent at night"* (Dodley, 1985).

screens have been placed in various cities, set up in key locations for a wider audience, such as squares, parks, junctions, and underground stations (Taksim Square in Istanbul, Kızılay Square in Ankara). Third, buildings have been lit up by colorful lights change and vary in colors (Adam&Eve Hotel); special places have been designed to carry a stand-alone outdoor screen (Ankara Chamber of Industry) or architects attempt to use façade as the building's information screen (CEPA). As in other countries, these approaches are commercially attractive for the market, and thus can be viewed as an inevitably growing trend.

In this thesis, both traditional billboards and recent screens which are acting as architectural elements are defined as "advertising architecture", so long as a commercial component is present. Discussing the differences between "advertising architecture" and "media façade", the thesis classifies the recent projects accordingly. Such a comparative survey of the media installation in two terms follows the presentation of David Cunningham (2007) in *Media Architecture Conference.*[8] Starting from the discussion of advertising and architecture, Cunningham argues that "classical advertising or news content in which often images are originally produced for TV or the Internet shown on a display, have no relation to the building" (Cunningham, 2007).

The main difference between these two terms is that "media façade" is taking media and architecture relation into consideration from the conceptual stage of the building planning. Unlike the "attachment" of a screen onto a façade, this is about the "integration" of digital tools into the buildings concept "spatially, structurally, and environmentally" (Edler, 2007).[9] While attaching on a building, screens are acting as individual elements and taking all attention. Jan Edler (2007) mentions that billboards and screens which are transformations of the idea of TV mapped onto architecture are totally or partially covering the façades. However, integrated media is becoming a part of façade, which has a spatial effect on architecture and urban space (describing a new kind of communication, ornamentation, local

[8] Dr. David Cunningham (University of Westminister) seeks to explore the contemporary resonances of "advertising architecture" concept in the *MediaArchitecture Conference 2007*. He is a Principal Lecturer at the University of Westminster in London, and an editor of the journal Radical Philosophy. He is co-editor of the books Adorno and Literature (2006) and Photography and Literature in the Twentieth Century (2005), and a former guest editor of a special issue of The Journal of Architecture on the post-war avant-garde (Cunningham, 2007).

[9] Cited in the video documentation of the presentation. http://www.mediaarchitecture.org/conf/about/media-architecture-conference-2007-video documentation/ (accessed September 30, 2007). Jan Edler studied architecture at the Technische Universität Aachen and at London's Bartlett School of Architecture. In 2000 he founded his office "realities: united" in Berlin with his brother Tim Edler. Tim Edler studied computer science and architecture at Technische Universität Berlin. The brothers work as architects, designers and artists. All their projects deal with issues of space, information, message and communication (Quoted from the document of conference).

culture, and environmental concern). "The building can communicate or become a medium of communication itself" (Schieck, 2006).[10] An individual who experiences media façade application perceives the building as a whole with its integrated media display into building's content, function and form. This media integration has ability to change the entire character and meaning of the building. Integration is a technical development from opaque, constant, and huge display screens to small, individually controlled tools which can provide flexible solutions for façade designs including transparency, resolution, color and light density (The newest category of smaller light sources are Light Emitting Diodes – LED - which are composed of red, green, and blue – RGB - colors. They can create brighter imagery by consuming less energy). To this end, the thesis takes the term "media integration" as architects' or designers' response to the usage of digital display technologies in façade designs. According to Gernot Tscherteu:

> Integration is a vital point for the assessment of media façades – a decisive characteristic (differentia specifica) for the acknowledgement of something as media façade or not. Without integration, the display seems fitted and constitutes its own level of meaning, which seems detached from the building. If a display has been integrated well into the building or its façade, then these two merge into something new – what we refer to as media architecture (Tscherteu, 2008: 7).

The thesis deals with the terms media façade, advertising architecture, integration, and attachment, which have already been discussed. In addition, "interactive architecture" which has emerged from two-way communication of interaction is another phase of technology, media, and architecture intersection. So far, informing about time and temperature has been achieved by digital boards. From now on, media façades are increasingly becoming a means to convey information from the company or the building to the public space generally in one-way, which is called broadcasting. On the other hand, responsible technology, such as Bluetooth functionality and sensors, has grown upon an interactive role, providing both artists and pedestrians with an enormous public platform for self-expression, which contributes to public participation. In this sense, this kind of a media façade defines new subjects who act as "interactors" instead of "spectators" and new cultural spaces in the form of "the interactive spectacle".[11] Thus, the large scale interactive displays on media façades

[10] Ava Fatah gen. Schieck is a registered architect in Germany and a senior research fellow at the UCL, London. She is primarily interested in exploring the relationship between new technology and architecture and looking at the intersection between the digital and the physical space (Schieck, 2006).
[11] Ranaulo (2001: 21) explains the function of citizen, from passive spectator to active, interactive actor as "interactor", capable of entering the urban context and interacting with it. The term

are creating a new perception of architecture and opening a new approach to architects to understand where technology is going and what it has to do with architecture.

Through the discussion of differences between "media façade" and "advertising architecture", the main concern of this study is the similarity between these two applications in terms of being an inevitable advertising screen. Both of them are creating communication platforms to convey media content to public space. Today, similar to the traditional print billboards with constant messages, this kind of communication can also be realized by recent developments in digital media technology like LED billboards and plasma screens with dynamic messages. In addition, a media façade with its huge scale and dynamic media displays is an attractive information screen for mass communication in an urban space.

> As technology matures, the question about "where and how" to apply this technology to buildings remains open. Today, as soon as a façade transforms itself to a media-façade, an architect looses control of it. The reason is money: it costs a lot to create a media-façade and businessmen demand a return-on-investment, they need advertising and not abstract artistic images created by urban landscape specialists. As a result, commercial and creative aspects are at conflict and a building's façade is in the middle of it (ed. Krylov, 2008).

To this end, while beginning with a purpose of digital art and entertainment installations in a public space, a media façade becomes a huge propaganda tool and opens new ways to commercial purposes for individual, corporate, institutional, and political. In other words, a media façade while changing the building's both appearance and meaning, becomes a digital sign of contemporary architecture, which creates the question of control and limits in the proliferation of media façades.

"spectator" is taken from Guy Debord (1967). The term "interactive spectacle" is taken from Steven Best and Douglas Kellner, "Debord and the Postmodern Turn: New Stages of the Spectacle."

Figure 1.1. Maison de la Publicité (unbuilt) by Oscar Nitzchke, 1934-36
(First: Ruby, 2007: 5, Second: http://archizoom.epfl.ch/webdav/site/archizoom/shared/Archives_expos/Perret.jpg [accessed January 20, 2009.])

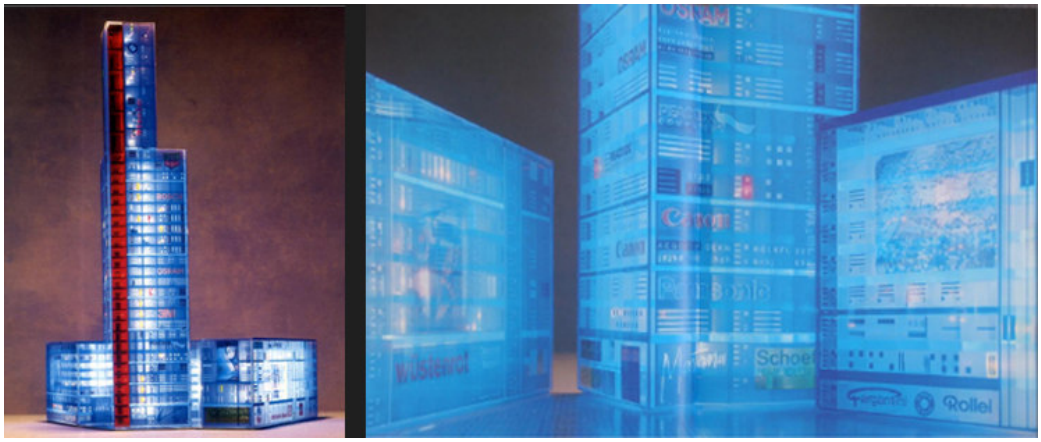


Figure 1.2. Competition Design Proposal for Block 1 in Mediapark by Jean Nouvel, 1995
(Ruby, 2007: 5)

1.2 Aim

By examining the applications of this new trend, and limiting itself to that of installations in façade designs, this thesis aims to investigate the change in the usage of digital media tools in façade designs with the help of recent technological developments (controlling direct and indirect light sources with computer systems); and to understand the uses (information, art, entertainment and social platform) and abuses (landmark pollution, branding, advertising and propoganda) of media façade applications with respect to different intentions. To this end, social, cultural, and economic effects of digital media façades on society have not been discussed much. But, their advantages and disadvantages on architecture and urban space are investigated.

1.3 Conceptual Framework

The thesis discusses the "media façade" as a new phase of early 20th century term "advertising architecture". The term *Reklamearchitektur* (advertising architecture) was first used by Adolf Behne (1996: 5) to refer Eric Mendhelsohn's Schocken Department Store (Figure 3.1) designed in 1928 in Stuttgart. For him, this commercial building explores the increasingly developing system of advertising and its influence on architecture. In order to make advertising more effective, light is the dominant element to represent the building and the products both in day and at night (Behne, 1996: 5).

As commodity expressionism became pervasive in industrial capitalism, the significance of branding increased to represent companies and their products. In the past, media tools (huge billboards, neon lights, colourful images) were hung on a building to convey information and advertising messages. They became more visible than the building itself, giving way to a new form of language based on signs and symbols. These elements have extended into the culture of consumer society who "lives in a world organized by images, commodity consumer and stage events" (Debord, 1967). This kind of society was defined as "the Society of the Spectacle" by Guy Debord in the 1960s. In the 1970s, Robert Venturi, Denise Scott Brown, and Steven Izenour (1972) studied Las Vegas Strip as a medium of communication, where billboards and neon lights were the architectural elements. In the beginning of the 1980s, this sign dominated communication system was emphasized by Jean Baudrillard (1988) as the emergence of "sign value" in the capitalist world, where the change in the

understanding of time and space was discussed by David Harvey (1989: 284-289) under the term “time-space compression”.

Towards the end of the 1990s, Paul Virilio discussed the recent digital relationship of architecture and new media under the term “media building”. He set the “media building” as “a building that preferably houses information rather than habitation, no matter what the type” (Ranaulo, 2001: 23). In the beginning of 2000s, with reference to Virilio’s “media building” in the “Electronic Gothic”, Gianni Ranaulo (2001) investigated the digital design intentions in the formation of façades as the “light architecture”.

1.4 Research Objectives

In order to set a theoretical background and understand the changes (from the industrial age to the information age, from the society of the spectacle to the information society and from advertising architecture to media façade) that have been effective on architectural communication, the social and technological context of media is discussed in the study. This thesis is limited to façade as the communicative aspect of building between the interior and the exterior and also as an interface between media, architecture, and society. Although the primary aim of a façade can be taken as the provision of skin for inhabitants, in this study, its communicative and symbolic values both in architecture and urban space are the main objects. The thesis will explore how the design of a media façade affects the way in which digital technology is practiced in the urban space. This digital infrastructure offers new alternatives to architecture with advanced materials, which creates a new way of public art and interaction design.

Through this research, the thesis will focus on following issues: First is the communicative and symbolic role of buildings in urban space, second is the social shift from the Society of the Spectacle to the Information (media) Society and people’s role from the “spectator” to the “interactor” and third is the new intentions in façade designs with respect to changes in their approaches to use digital technologies from attaching screens to integrating media tools. Questioning the recent media and architecture relationship, this thesis investigates media façade projects in major cities, including only a few examples from Turkey. These projects are classified according to their technical properties and media façade attributes to understand their communicative and symbolic aspects (Table 4.1, 4.2). Among these projects, the thesis concentrates on three of them. These cases are respectively; BIX:

Installation (2003) onto Kunsthauz from Graz, Austria, designed by Jan & Tim Edler (Figure 4.20-4.23), GreenPix - Zero Energy Wall (2008) from Beijing, China by Simone Giostra (Figure 4.24-4.30) and Digital Water Pavilion (2008) from Zaragoza, Spain by Carlo Ratti (Figure 4.31-4.39). These cases are designed with different technical properties such as: BIX with low-tech systems, GreenPix with sustainable technology and DWP with high-tech interactive systems. Digital media technology being used as a façade component in the first two projects is the main architectural element in the third one. These public projects are selected due to their innovative technologies, conveying different messages, and being designed for important events worldwide in different cities.

In the light of these issues, the thesis is organized as the following:

In chapter 2, the thesis gives an overview of the communicative role of façades from Gothic cathedrals to the late 20th century criticisms. This overview attempts to remind the early approaches of communicative and symbolic aspects of buildings.

Chapter 3 first depicts the "media attachment" as a consumer good in architecture and urban space of Las Vegas with respect to the term "advertising architecture" through the references: Venturi, Scott Brown, and Izenour's *Learning from Las Vegas* (1972), Guy Debord's *the Society of the Spectacle* (1967), Jean Baudrillard's "sign value" concept (1972) and David Harvey's "space-time compression" (1989). Second, the chapter relates the digital screens which change the installation of media to the architectural projects and discusses the recent projects related to these developments.

Chapter 4 first describes the "media integration" as a contemporary input in façade designs in the Information Age among the Information and Interactive Society with respect to the term "media façade" through the references: Paul Virilio's "Media Building" and "Electronic Gothic" (1994) and Gianni Ranaulo's "light architecture" (2001). Second, the chapter examines the media façade projects according to their technical properties and façade attributes and then, investigates both advantages and disadvantages of these projects.

CHAPTER 2

A SHORT HISTORICAL OVERVIEW ON COMMUNICATIVE FAÇADES

In this section, the thesis gives an overview of the communicative role of façades from Gothic cathedrals to the late 20th century criticisms. According to Websters, to communicate, originally a Latin word, is "to convey knowledge of or information about; to make known" (Merriam-Webster, 2006). "Façade" comes from a Latin word "facia" which simply means "face", as "the front of a building; also any face of a building given special architectural treatment" (Merriam-Webster, 2006). Obviously, an architectural façade is a face of a building in the built environment that can provide a visual communication and convey information about the building to the public space.

2.1 Communication Through Façades

"The urban environment has long been used as a versatile instrument of communication" (Tscherteu, 2008). A façade first expresses what the building is. In his book *Words and Buildings*, Adrian Forty (c2000) describes the various features of architecture such as design, form, function, history, space, and users, which have been discussed over the years.[12] Façade is not only providing a skin for inhabitants, but also conveying information. A façade faces the street and becomes a visual interface between private and public, inside and outside which can create a communication platform. Rob Krier (1992: 62) defines façade as "an architectural element capable of communicating the function and significance of a building."[13] In this approach, the question to address is what kinds of messages are communicated through façades.

[12] Cited in Zach Tomaszewski's final paper titled "Communication Through Architecture".
[13] Cited in Duygu Şener (2006).

The initial information communicated by a façade is generally the building's function. One can differentiate between commercial and residential buildings, industrial, institutional, and so on, just from the visual perception of a façade.

Façade can also convey information about the building's technical aspect. The other information communicated by façade is the cultural identities of the related society. Ornamentations on a cathedral can tell stories. For Adrian Forty (c2000), "their construction can give clues to the history of the people who built them or about the people they were built to commemorate".

Consequently, besides providing a skin for the inhabitant, a façade becomes a face of the urban fabric structurally and spatially and acts as a message-delivering vehicle between the inside and the outside, between the building and the public space. Rudolf Arnheim states that:

> Architecture as we know it combines two (inside and outside) not easliy reconciled tasks. On the one hand, it has to provide a shelter that protects its inhabitants against unwelcome outside forces and offers them a congenial internal environment. On the other hand, it must create an exterior physically adapted to its functions and visually impressive, inviting or deterring, informative etc. (Arnheim, 1977: 92).

2.2 Examples for Communicative Façades

The façade of a Gothic cathedral was generally designed with a powerful impression of the religion. Biblical stories and saints' lives were illustrated on frescos and stained glass windows that are the sources of "the trajectory of light inside churches and its spiritual meaning" (Picon, 2006). In the *Learning from Las Vegas* (1977: 105), the façades of the great cathedrals, such as Amiens Cathedral (c. 1218-1266), were discussed as two-dimensional objects; however, in detail they had spatial quality with three-dimensional sculptures (Figure 2.1). "The shape of the façade, in fact, disguises the silhouette of nave and aisles behind, and the doors and the rose windows are the barest reflections of the architectural complex inside" (Venturi et al., 1977: 106).

> [...] In detail these façades are buildings in themselves, simulating an architecture of space in the strongly three-dimensional relief of their sculpture. The niches for statues – as Sir John Summerson has pointed out – are yet another level of architecture within architecture. But the

> impact of the façade comes from the immensely complex meaning derived from the symbolism and explicit associations of the aedicules and their statues and from their relative positions and sizes in the hierarchic order of the kingdom of heaven on the façades (Venturi et al., 1977: 105).

The representational character of the exterior surface was prominent also in Renaissance civic architecture (palaces). In physical terms, built by masonry construction, façade has a structural ornament and hereby, a dominant feature in the built environment. Thus, treated as a sculptural part of the building, the façade's main aim was representing the institutional or the individual power (Şener, 2006: 17). Clients wanted to leave a reputation behind them including both their wisdom and power. Magali Sarfatti Larson (1993: 15) mentioned in the *Behind The Postmodern Façade*: "It provides many of the important reasons that make clients want to buy architecture, rather than merely shelter, and that lead them to go for this to experts in the design of beautiful and significant artifacts." The well known example for the stone masonry and the tripartite façade is the Palazzo Medici Riccardi (Florence, 1445-1460). For Larson, the Medici wanted the public symbols of glory and architecture used the culture, visual skills and symbolic vocabulary of both the client and its time (Figure 2.2).

> Important buildings, whether for private or collective use, are usually erected because powerful individuals want them. Alberti suggests that architecture may be delightful to enjoy in private but is much more important to the patron's glory for all to see in public, now and in the distant future. The axiom of cultural significance is founded on the public existence and visibility of architecture (Larson, 1993: 15).

In the late 19th century, the industrial revolution in both production and transformation created new materials such as cast iron, steel, reinforced concrete, and glass demanded by the expansion of capitalism. Those innovative materials and construction technologies changed the traditional conceptions in architecture. Unlike the previous monumental effect of mansonry structure, iron and glass gave an ability of transparency and structural lightness to the building. For example, Larson (1993) defines the temporary building Crystal Palace (Joseph Paxton, London, 1851) with a technical message, which conveyed the information about lightweight materials and construction speed of huge covered space with glass and prefabricated units.

In the early 20th century, the relationship between façade and the building was changed by the potential of mass production and standardized components within the rapid construction

of capitalist industry and machine like buildings were representing how architects were inspired from the machine and its engineer (Larson, 1993: 25). In Le Corbusier's series for *L'Esprit nouveau* (The New Spirit), a question of new building form was transformed into a social variation. According to his "machine for living in" content, simple geometric forms and standard façades were designed for housing units to represent architecture's inspiration from the industrialization.

Architecture, inspired from the machinery of the Industrial Revolution, generally housed little signs designed by architects or graphic artists (Venturi et al., 1977). For instance, Peter Behrens, an architect and graphic designer, was occupied as the artistic director of the German AEG Factory between 1907 and 1914 to redesign corporate's identity with new buildings, products, and images (Figure 2.3).[14] As mentioned in the article *Commodity Signs: Peter Behrens, the AEG, and the Trademark* (1996), the factory building had positive effects on workers' productivity. This building is one of the examples which used its exterior surface for a commercial sign. Both the factory architecture and the new trademark represented a true symbol for AEG.

> Behrens applied the hexagon trademark not only to table fans and catalogues but also to just such factories (the AEG, the Turbine Factory): placed here like a rose window above the glazed wall of his cathedral of labour, the crystal facets mimic the window panes, and the six sides echo the sexpartite vaulting of the monumental gable. Along with the word Turbinenfabrik, the trade-mark is the only applied ornament on the building. […] The workers want nothing to do with the old, conventional trademark, for they regard the new one as the true symbol of their labor (Schwartz, 1996: 175).

In the mid 20th century, besides industrialization, standardization of architectural elements emerged as another approach. To this end, Le Corbusier created a "proportioning grid" called *The Modulor*, a measuring device by human body proportions, which can be used in buildings' and mass-produced designs (ed. Conrads, 1970: 28-31). The design of Unite d'Habitation in Marseilles (1947-51) was based on the housing units proportioned by The Modulor diagram. All exterior and interior planes (floors, ceilings, windows…) were based on this diagram. The Modulor was also used on the concrete wall of the building as a 2D graphic (Figure 2.4).

[14] Cited in Frederic J. Schwartz (1996: 175).

Unlike the productional mode of the Modern Movement, architecture in the late 20th century tended to create meanings through the representational quality of production that was demanded by the expansion of capitalism. Branding and commodity display acted as a cultural issue among the capital organized societies and the media dominated cities. Because billboards conveyed changing temporary messages, the information became more ephemeral and visual with playfulness and freedom, compared to the previous times. "Modern architects abondened a tradition of iconology in which painting, sculpture, and graphics were combined with architecture. […] The message was mainly architectural" (Venturi et al., 1977: 7). The modernist ban on graphics in the pure architecture was changed to a sign dominated position where images, billboards and lights of postmodern culture covered the entire building to give their own messages. As Larson (1993: 52) put it: "In postmodernism, as in all architectural movements, words and drawings came before buildings."

Robert Venturi (1966) criticised the rigid approaches of Modern architecture and specified his argument on the formation of exterior surfaces in his book *Complexity and Contradiction in Architecture.* He criticised the façades which were determined as the functional reflections of the interior space. Hence, he emphasized the significance of façade as a reflection of "its own particular functions" (façade as an autonomous element). A façade had its own meaning and symbolic value which acted as a stand-alone (attached) architectural element. According to this approach, façades were characterized on representational grounds, which embellished with historical elements to create an imaginary appearance and media displays. In the following study *Learning from Las Vegas,* Venturi (1977: 7) mentioned with Scott Brown and Izenour: "the mixing of styles meant the mixing of media."

In this study, the authors criticised Modern architects as heroes who tried to create a pure architecture without symbolic meanings. However, when Modern architects abandoned ornaments on buildings, "they unconsciously designed buildings that were ornament (ducks)." They studied Las Vegas as a laboratory to emphasize the sign value of architecture and pointed out that architects instead of brand developers might have used the communicative role of buildings. In this sense, they mainly emphasized the symbolic and representational elements with a contradiction to the architectural systems of form, structure, and program. They searched this contradiction in two ways: First, they separate the symbolic façade from the building, where ornament is applied independently of architectural systems: "the building is not a symbol itself, but, the symbols are applied on the exterior surface of it" (Şener, 2006: 40). This is what Venturi terms "decorated shed", as the Renaissance civic

architecture and the attached façades which have already been discussed above. Second, they create a form which directly reflects the interior of the building that transforms building to a sculpture, called "duck" as "the Long Island Duckling" and also to Gothic cathedrals (Figure 2.5). These two discussions over the sign value of architecture point out that the cathedral is both an information and a propaganda tool to the surrounding environment.

> Amiens Cathedral is a billboard with a building behind it. Gothic cathedrals have been considered weak in that they did not achieve an "organic unity" between front and side. But this disjunction is a natural reflection of an inherent contradiction in a complex building that, toward the cathedral square, is a relatively two-dimensional screen for propaganda and, in back, is a masonry system building. This is the reflection of a contradiction between image and function that the decorated shed often accommodates. (The shed behind is also a duck because its shape is that of a cross).
>
> […] By limiting itself to strident articulations of the pure architectural elements of space, structure, and program, Modern architecture's expression has become a dry expressionism, empty and boring – and in the end irresponsible. Ironically, the Modern architecture of today, while rejecting explicit symbolism and frivolous appliqué ornament, has distorted the whole building into one big ornament. In substituting "articulation" for decoration, it has become a duck (Venturi et al., 1977: 105, 101-103).

Reading Las Vegas Strip on billboards and media signs of postmodern culture in 1970s, Paul Virilio discusses the recent digital relationship of architecture and new media under the term "media building". He sets the "media building" in a lineage with earlier structures such as a Medieval cathedral to discuss the continuity and ephemerality of media screens. For him, frescoes and stained glass windows of Gothic churches were part of building's memory and affected people's moral behaviour. Paul Virilio describes the flow of information in architecture as the following:

> From the beginning architects have shaped mass, just as they have utilized energy; information on the other hand has still not been really used. If we consider a cathedral, this constitutes a means of mass communication. During the middle ages, information was transmitted through its stained glass windows, sculptures, tapestries, mosaics […]. But this information was fixed, static, constant, only renewed through the action of language and songs. Today, on the other hand, we are entering an age when information is active and interactive; in other words, we are no longer just dealing with frescos on walls, sculptures in

> niches or stained glass windows, but with a place of action and interaction. Because of this, the architect must apply himself to this third dimension (Ranaulo, 2001: 23).

To sum up, from Gothic cathedrals to the criticisms of the late 20th century, a façade, besides its skin function, has a communicative role which conveys the messages of its function, technology, and culture. Although its conveying messages and techniques have been changing through time, a façade presents the characteristics of its time. Additionally, it can also act as a propaganda tool which serves for religion or patron's glory. Among these aspects, using graphics on a façade is changing through time according to different purposes such as religious, technological, and commercial. By the inspiration of postmodern culture, commercial purposes were increasingly pervasive in built environment, where identity of a façade disappeared with the proliferation of huge and impressive signs. Unlike the permanent messages of traditional signs (frescos and sculptures on walls and paint billboards), contemporary digital information is changeable through time, which defines dynamic outer skins for buildings.

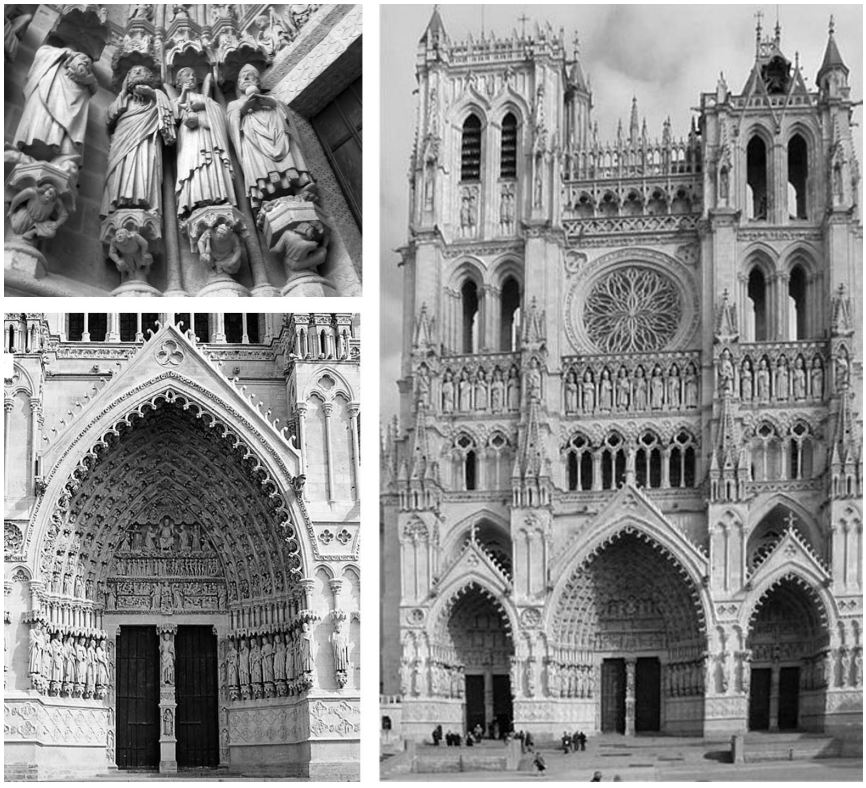


Figure 2.1. Entrance, Detail and View of Amiens Cathedral
(http://en.wikipedia.org/wiki/Amiens_Cathedral [accessed February 20, 2009.])

Figure 2.2. Detail and View of Palazzo Medici Riccardi
(Photos by Esra Aydoğan, 20 March 2008.)

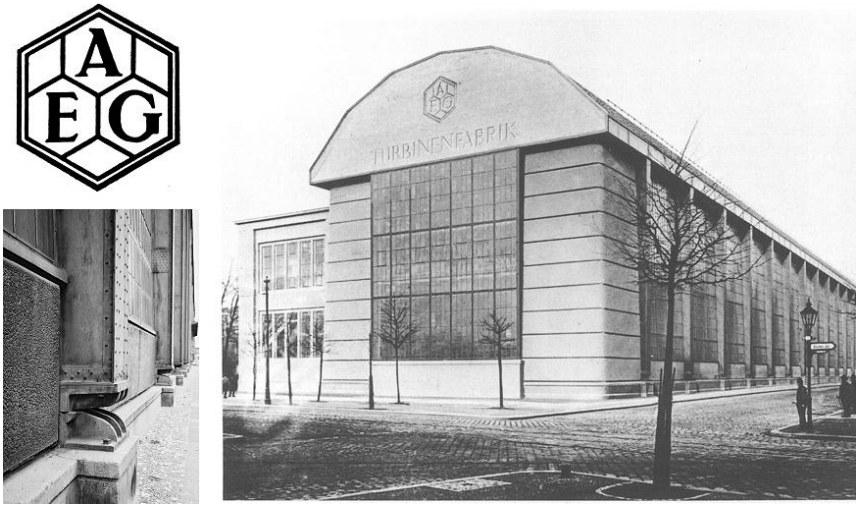


Figure 2.3. Logo, Structural Detail and View of AEG Turbine Factory
(Schwartz, 1996: 168, 176)

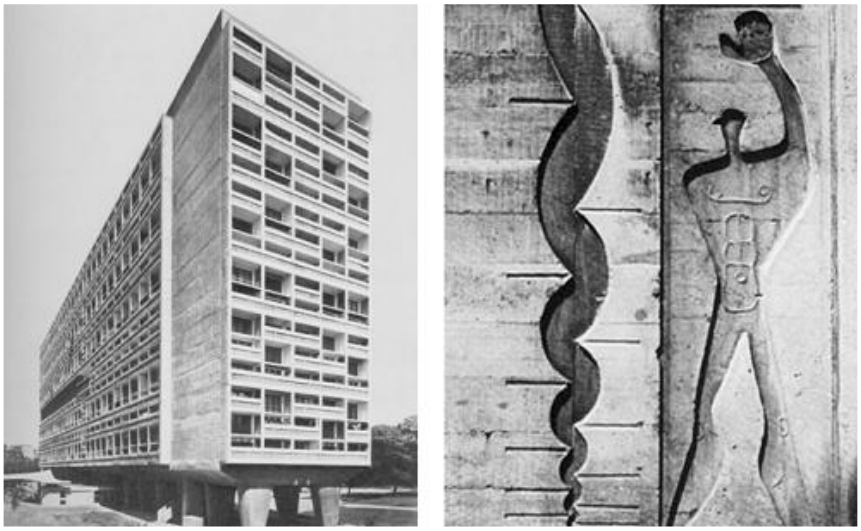


Figure 2.4. View of Unité d'Habitation and Le Modulor Detail from the Façade
(http://www.universalis.fr/images/corpus/medias/v11/photo.jpg/ph997481.jpg
[accessed December 20, 2006.])

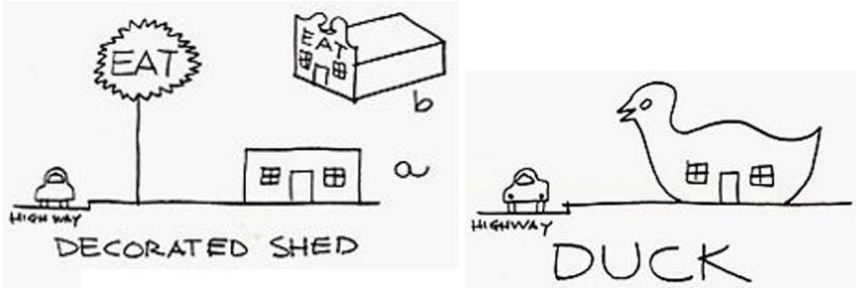


Figure 2.5. Duck (Building is Sign) and Decorated Shed (Big Sign – Little Building)
(Venturi et al., 1977: 88-89.)

CHAPTER 3

"ADVERTISING ARCHITECTURE": COMMUNICATION THROUGH ATTACHED MEDIA SIGNS

> "[…] Urban sites are lit up by ads on buildings, on high tech billboards, and in the sky, taking the spectacle to new heights (or depths, depending on how you view it)" (Best & Kellner).

The term "advertising architecture" was first used by Adolf Behne for Eric Mendelsohn's department store buildings. Rosemarie Haag Bletter mentioned in the introduction part of *The Modern Functional Building* (1996: 5): "Behne was also interested in advertising and its wide-ranging effects on culture: he once referred to Mendelsohn's urban buildings as *Reklamearchitektur* (advertising architecture)." According to Behne (1996: 5), "advertising was as central to a modern economy as money". Cultural, social and economic forms of advertising express themselves within architecture as "advertising architecture" (Cunningham: 2007).

Eric Mendelsohn's modernist expressionism, occupying a special position in Germany, reached a great commercial success (Larson, 1993: 36). One of his commercial buildings is Schocken Department Store which was constructed in 1928 in Stuttgart (Figure 3.1). Every aspect of the lit appearance of Schoken after dark is a conscious revelation of the interior, including the window displays at street level, the floating staircase and internally illuminated sign. In this building, using light expression through contrast to show shopping stores at night is a kind of advertising architecture. Contrast was employed to dramatic effect by Mendelsohn at the Store which was an example of integrating electric light into buildings as part of the composition by German Expressionists. According to Larson (1993: 24), "from

the 1890s on, electricity and mechanical ventilation freed construction from natural light and air circulation, making it possible for architecture to seem immaterial". Another branding aspect of the shopping store is creating a definite corporate identity for the company within a few years only, as Mark Major (2005) pointed out. He states: "even if the warehouse has disappeared from the public mind, its style still affects through its corporate identity."

Subsequently, inspired from the postmodern discussions, increasing demands on advertising and influential effects of sign systems created a new kind of relationship between media and architecture where media tools are getting bigger and more visible than the building. This relationship was developed by displaying products for consumption to address consumer audiences that can be described as a utility partnership between media and architecture. To open this statement; on the one hand, media use architecture's physical potentiality to inform people at different scales: eye-level, car-level and to be seen from the highway. On the other hand, architecture uses media as a sign of its exterior surface to acquire a different character in the urban space. But, this mutual relation is changed by the domination of media signs in social life. Hence, urban environment is returned into a competition area for corporations and media developers, where media tools become bigger, brighter, and more oppressive to be distinguished from others.

Media tools, especially the telecommunication devices and television have become a central part of everyday life since the emergence of postmodern condition in the mid 20th century. Jean Baudrillard in the *For a Critique of the Political Economy of the Sign* (1972), pointed how the "TV Object" was becoming the centre of the household. For him, the rise of the broadcast media, especially television, is an important constituent of postmodern culture along with the rapid dissemination of signs in every realm of social and everyday life. He describes the transformation into image as the following:

> Through the channels of media, world is aestheticised, employed in the cosmopolitan display and transformed into image. What we behold is a transformation of the world to sign industry by commercials, media and images (Baudrillard, 1993: 35).

As a result of pervasive advertising systems and sign domination in social life, architecture has become an evident element of media spectacle. In this chapter, the discussion of "media attachment" in "advertising architecture" will be in three parts. First of all "the Society of the Spectacle" will be explained in Guy Debord's terms. Secondly, the domination of media signs in architecture will be investigated. And lastly, recent projects of advertising

architecture will be discussed with reference to developments of digital screen media technology (electronic screens).

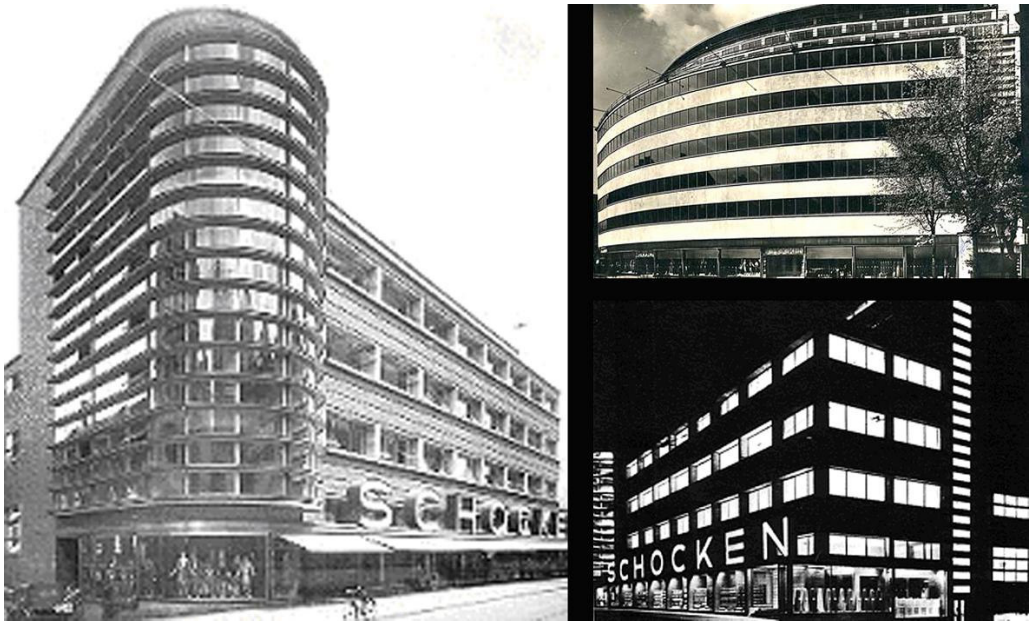


Figure 3.1. Day and Night Views of Schocken Department Store and Warehouse
(http://greaterbuffalo.blogs.com/photos/jn_adamamas/schocken_stuttgart.html
[accessed December 12, 2007.])

3.1 "The Society of the Spectacle"

Emergence of electronic media such as radio and television, developments on advertising, branding and commodity displays have been explored within the capitalist system in various fields to reshape a new consumer society. In 1960s, Guy Debord defined this new society as "the society of the spectacle". This concept describes a media and consumer society, organized around the production and consumption of images, commodities and stage events. For Debord (1967), spectacle is the new face of this kind of society, including the display of commodities and the production and effects of all media.

Acting as a spectator and consumer, the individual adopts existing commodities without thinking and criticizing. The concept of the spectacle therefore involves a distinction between passivity and activity, consumption and production. This can be explained as an alienation from human potentiality for creativity and imagination.

> The spectacular society spreads its wares mainly through the cultural mechanisms of leisure and consumption, services and entertainment, ruled by the dictates of advertising and a commercialized media culture (Best&Kellner).

Spectacle is in Debord's (1967: 12) words "not just a collection of images, but a specific social form in which social relations are increasingly mediated by images". In other words, the public culture reduces to spectacle that is consumed and entertained rather than contributed by individual. Debord describes as such:

> […] The more he contemplates the less he lives; the more readily he recognizes his own needs in the images of need proposed by the dominant system, the less he understands his own existence and his own desires. ... the individual's own gestures are no longer his own, but rather those of someone else who represents them to him. The spectator feels at home nowhere, for the spectacle is everywhere (Debord, 1967: 23).

The shift from the public culture to the spectacle is improved by the commercial media tools to be pervasive into large audiences. The rise of this commercial media defines a new kind of communication over advertising, branding and sign system, to create technologically advanced spectacles to seize audiences. Companies began using images and advertising to market their wares, creating a society where image affected on desires, fantasies, and luxury. These systems include corporate symbols like McDonald's Golden Arches and huge letters to be more attractive on public perception. Mattelarts explain the "media" in the *Theories of Communication* as the following:

> Media, as a different mode of communication between capitalist and consumer individual, is used as a set of all-powerful tools for circulating effective symbols on society. Media has impacts on atomized individuals or advertising society via brand image or product image (Mattelart, 1995: 26).

3.2 Media Signs: A New Communication System

In the same years with Guy Debord's *The Society of the Spectacle* criticism, Jean Baudrillard as well focused on the construction of consumer society and how it contributes to a new world of values, meaning, and activity. From the mid 1970s, he was also discussing how "media and information, science and new technologies, and implosion and hyperreality become the constituents of a new postmodern world" (Kellner, "Baudrillard: A New

McLuhan?"). Douglas Kellner states: "Baudrillard's works were increasingly consisted in rethinking radical social theory and politics in the light of developments of the consumer, media, information, and technological society."

According to the book entitled *For a Critique of the Political Economy of the Sign,* Baudrillard argued that, people used system of signs when they bought and consumed goods. These sign systems consisted of four logics of objects as functional value, exchange value, symbolic value, and sign value. Functional value of an object depends on its instrumental purpose similar to Marx's use-value of an object as a commodity. Exchange value is synonymous with the economic value of an object. Although symbolic value is assigned by the subject, sign value is considered within a system of objects. Especially in the new postmodern approach, capitalism concerned with the production of signs, images, and sign systems, where "sign value" was the prominent concept (Baudrillard, 1972: 196).

> Through the channels of media, world is aestheticised, employed in the cosmopolitan display and transformation into image. What behold is a transformation of the world to sign industry by commercials, media and images (Baudrillard, 1993).[15]

While Debord saw contemporary society in terms of spectacle, stage events and alienation; Jean Baudrillard understood that the postmodern society was in an era of simulation dominated by signs and the development of commodity in the structural logic of the sign in terms of "sign value". Unlike Modernity's productional and mechanical manner in the industrial society, Baudrillard developed a social theory in which media had a critical role in organizing a new postmodernity. For him, images and signs are new principles of social organization and characterize the structure of communication in a world dominated by media. As Douglas Kellner ("Baudrillard: A New McLuhan?") compares:

> Modernity for Baudrillard is thus the era of production characterized by the rise of industrial capitalism and the hegemony of the bourgeoisie, while postmodern society is an era of simulation dominated by signs, codes, and models. Modernity thus centred on the production of things - commodities and products - while postmodernity is characterized by radical semiurgy, by a proliferation of signs. Furthermore, Baudrillard interprets modernity as a process of explosion of commodification, mechanization, technology, and market relations, while postmodern society is the site of an implosion of all boundaries, regions, and distinctions between high and low culture, appearance and reality, and just about every other

[15] Cited in Altınışık (1998: 29).

> binary opposition maintained by traditional philosophy and social theory (Kellner, "Baudrillard: A New McLuhan?").

Previously, the media was believed to represent the reality. According to Baudrillard, it constitutes a new media reality called hyperreality. In a society saturated by media messages, signs no longer communicated meaningful messages and became distant from the content. For him (Kellner, "Baudrillard: A New McLuhan?"), "the loss of meaning is directly linked to the dissolving and dissuasive action of information, the media, and the mass media." Media intensified massification by producing mass audiences (Kellner, "Baudrillard: A New McLuhan?"). The proliferation of signs and information of media created more spectacle and entertainment to reach a larger public. Kellner points out Baudrillard's discussion on mass media as the following:

> The media pander to the masses, reproducing their taste, their interest in spectacle and entertainment, their fantasies and way of life, producing an implosion between mass consciousness and media phantasmagoria. In this way, Baudrillard shortcircuits the manipulation theory which sees media manipulation imposed from above producing mass consciousness, yet he seems to share the contempt for the masses in standard manipulation theory claiming that they want nothing more than spectacle, diversion, entertainment and escape, and are incapable of, or uninterested in, producing meaning (Kellner, "Baudrillard: A New McLuhan?").

The concept of "brand" as the principal concept of advertising summarizes well the possibilities of a "language" of consumption. Each product has a brand name and the information is the real added value of any product. Advertising and media images gained a big role to integrate cultural practices and become influenced on the growth of capitalism. They were used for informing people as well as shaping and controlling desires and tastes through images. In other words, images themselves become commodities. Baudrillard explains in *The Political Economy of Sign*:

> Today consumption –if this term has a meaning other than that given it by vulgar economics- defines precisely the stage where the commodity is immediately produced as a sign, as sign value, and where signs (culture) are produced as commodities (Baudrillard, 1988: 80).

3.3 "Space-Time Compression"

With reference to Baudrillard's *For a Critique of the Political Economy of the Sign,* Harvey points out the shift from Marx's analysis of commodity production to the production of signs, images, and sign systems, which gives new way to capitalists for mass-marketing. Harvey states as the following:

> Competition in the image-building trade becomes a vital aspect of inter-firm competition. Success is so plainly profitable that investment in image-building (sponsoring the arts, exhibitions, television productions, new buildings, as well as direct marketing) becomes as important as investment in new plant and machinery. The image serves to establish an identity in the market place (Harvey, 1989: 288).

In addition to Baudrilliard, David Harvey (1989: 284-289) discusses the change in the understanding of time and space in the capitalist world under the term "time-space compression". He points out in *The Condition of Postmodernity* that the development of electronic communication technologies has been essential for rapid information, both within and between corporations and society. For him, this new form of language is affected in every field through the renunciation of tradition which was firstly accepted by Modern architecture due to the inspiration of technological determinism and the idea of aesthetic self-expression. With the postmodern culture, the rise of distinction between space and time causes curiosity and will to use the historical precedent. The rapid production requires rapid consumption, which creates ephemeral desires for consumers (Harvey, 1989: 284-289). According to Harvey, in this arena of consumption, fashion and consumption of services have particular importance rather than the other developments.

> The moblization of fashion in mass (as opposed to elite) markets provided a means to accelerate the pace of consumption not only in clothing, ornament, and decoration but also across a wide swathe of life-styles and recreational activites (leisure and sporting habits, pop music styles, video and children's games, and the like). A second trend was a shift away from the consumption of goods and into the consumption of services, but also into entertainments, spectacles, happenings, and distractions. […] If there are limits to the accumulation and turnover of physical goods, then it makes sense for capitalists to turn to the provision of very ephemeral services in consumption (Harvey, 1989: 285).

3.4 Media Signs in Postmodern Architecture

Television like systems including huge letters, colourful images, and neon lights, moved from the house to the street to provide a new visual culture. Everything in social life became a "cultural sign" and an "image". The influence of media also opened a new approach to architecture that is including global eclecticism and mutual influence owing to image-based communication and exchange. Signage became bigger and brighter to be more attractive than the building itself. Generally these systems were implemented on billboards as freestanding elements and were covering building's façade on a different and stand-alone level. Therefore, buildings are first and foremost carriers of these systems to represent corporate identities. In this context, a façade due to its impressive communicational character in the urban space, becomes an architectural commodity which is discovered as a huge information screen by media developers for "advertising architecture". In fact, using façade as a communication tool is not a new approach when compared to Gothic cathedrals or Renaissance civic architecture. However, from the influence of postmodern culture media signs are the spectating objects instead of façade or building itself.

In postmodern culture, desires and fantasies controlled the corporate identity and consumer expectations. In this context, contrary to Behrens's design of AEG logo, brand developers have defined the characteristics of huge signs which have been extended in the built environment, particularly in Times Square and Las Vegas Strip, in two ways. First, billboards have been attached on building's façades to represent advertising contents while hiding all characteristics of architecture. Second, the name or the symbol of a corporate or a building is represented with huge illuminated signs. These approaches emerged as an answer to encourage new types of spectacle (Figure 3.2). In the book *Learning from Las Vegas*, Venturi, Scott Brown, and Izenour defined a "space" as the field of communication. Postmodernity's association with mass and popular culture in art and architecture came in the form of a reference to signs and symbols as a mean to communicate (Harvey, 1989: 284-289). Therefore, they argue for the clear communication and orientation of signs in a new age of vast space and greater pace of movement. They described as the following:

> [...] This is not the time and ours is not the environment for heroic communication through pure architecture. Each medium has its day, and the rhetorical environmental statements of our time – civic, commercial, or residential – will come from media more purely symbolic, perhaps less static and more adaptable to the scale or our environment. The iconography and

mixed media of roadside commercial architecture will point the way, if we will look (Venturi et al., 1977: 130-131).

To sum up, the sculptures of a Gothic façade and pure architecture of high Modernism are replaced with buildings and spaces adorned by two-iomensional media signs of the consumer society. Hence, more visible signs produce more invisible buildings whereby a new spectacle medium is created over architecture. The section pointed out three aspects: First, architecture is no more defined with its own values and conceptions, but with images and mediatic values of consumption and popular culture. Second, this kind of building evolves into a new commodity sign. Third, although in Modern architecture logos or signs of companies were designed by architects or graphic artists in the case of AEG Factory, later they were controlled by brand developers and specialist designers to be more impressive on society. As in architectural practice, this domination of media signs increasingly pervade in urban space to attract public perception in different levels.

Figure 3.2. Day and Night Views of Golden Nugget Sign
(http://www.earlyvegas.com/early_vegas/ [accessed December 18, 2008.])

3.5 Media Signs in Postmodern Urban Space

Urban space is a place for culture, representation, and public communication that provides a stage for social interactions. In this role as space for discussion and exchange, urban space turned into a mass medium revealing the desires and fantasies of mass culture. In other words, urban environments are “ever more permeated with advertising and spectacle” (Best and Kellner). Busses which are covered with huge images and graphics have become mobile

billboards. Buildings have been lit up by means of illuminated logos, advertising or projections to attract public attention.

As mentioned in the previous section, the domination of signs in urban environment has given way to a significant study area for Venturi on the Las Vegas Strip. According to this study, all cities communicate messages, be it functional or symbolic, to people. While architecture as the object of the urban space loses its communicative role on people, media signs and billboards increasingly pervade into the space to inform people. "Urban environments as medium of communication. […] Signs should enhance and clarify this communication" (Venturi et al., 1977: 82). Venturi (1977: 117) pointed out: "often the brightest, cleanest, and best-maintained elements in industrial sprawl, the billboards both cover and beautify that landscape." Also, in the case of Times Square, billboards, LCD and plasma screens transform urban space to a living room dominated by TV or as in Kızılay, commercial signs and advertising billboards are covering the buildings.

In Las Vegas, the bigger and more visible media signs are perceptible on all three message systems which are closely interrelated on the strip: pedestrian, car and highway. In other words, the signs are designed to attract at both eye-level and car-level to be seen from the highway. These perceptions are important to define the location, size, and orientation of the sign. The size and the symbolic importance of façades are key elements of the new car and highway-based communication system which dominates space as an element. Functional, symbolic, and persuasive messages are closely interrelated and "signs inflect toward the highway even more than the buildings" (Venturi et al., 1977: 117). The Motel Monticello is given in Venturi et al. to discuss the visibility of the sign more than the building itself. The authors stated as follows:

> The sign of the Motel Monticello, a silhouette of an enormous Chippandle highboy, is visible on the highway before the motel itself. This architecture of styles and signs is antispatial; it is architecture of communication over space; communication dominates space as an element in the architecture and in the landscape ... Styles and signs make connections among many elements, far apart and seen fast. The message is basely commercial; the context is basically new.
>
> ... It is the highway signs, through their sculptural forms or pictorial silhouettes, their particular positions in space, their inflected shapes, and their graphic meanings, that identify and unify the megastructure. They make verbal and symbolic connections through space,

> communicating a complexity of meanings through hundreds of associations in few seconds from far away. Symbol dominates space. Architecture is not enough. Because the spatial relationships are made by symbols more than by forms, architecture in this landscape becomes *symbol in space rather than form in space* (Venturi et al., 1977: 8-9, 13).

In addition to the symbolic effect of façades, the light source is a tool of commercial communication that is perceived day and night. Light creates visual information and contributes to visibility of advertising during the whole day. For instance, in Mendelsohn's Shocken Department Store lighting effects provide the appearance of interior for pedestrians after dark, so as to present products. The impact of luminous advertising supports screen displays to form a separated layer apart from the building which has been lit up by means of illuminated logos, advertising or spotlights (Figure 3.3). As given in Venturi et al.:

> Any sense of enclosure or direction comes from lighted signs rather than forms reflected in light. The source of light in the Strip is direct; the signs themselves are the source. They do not reflect light from external, sometimes hidden, sources as is the case with most billboards and Modern architecture. […] Also, the tempo of our economy encourages that changeable and disposable environmental decoration known as advertising art. The messages are different now, but despite the differences the methods are the same, and architecture is no longer simply the "skilful, accurate, and magnificent play of masses seen in light" (Venturi et al., 1977: 116).

To sum up, similar to Gothic cathedrals' religious domination in a medieval city, media signs have a vital role to provide the desires and fantasies of people in Las Vegas (Venturi et al.).[16] Besides architecture, media signs become dominant in urban space in two ways: First, a brand image of a company can be perceived also by cars on highway according to its size. Second, a sign is for day and night, which works as "polychrome sculpture in the sun and as black silhouette against the sun" (Venturi et al.) at night it is a source of light. All these signs are defining a symbolic orientation in urban scale. For Venturi (1977: 13, 52) "the graphic sign in space has become the architecture of this landscape" (Figure 3.4).

Similar to Times Square and Las Vegas Strip, cities in Turkey are increasingly lightened through a marketing language by applications of media technologies such as illuminated signs, advertising billboards, electronic screens and projectors to lit up buildings. For example, large digital outdoor screens generated by developments in LED technology have

[16] See also Aydan Keskin, 13.

been used with the collaboration of *Ströer Kentvizyon* and local City Councils in various cities, set up in key locations such as squares, parks, junctions and underground stations: Taksim Square in Istanbul, Kızılay Square in Ankara (Figure 3.5). These high-tech electronic screens are new forms of television for public spectating through broadcasting commercial data as it is written on the screen at Kızılay junction "Outdoor TV". Mainly focusing on advertising, these screens also carry news and weather forecasts for information and play videos for entertainment. According to Mirjam Struppek, these large outdoor screens (both information and interaction ones) are acting as TV to the new circumstances of public viewing by boradcasting generally news and games.

> Preferably set up in key locations, in a setting for a wider audience, these screenings in memorable places could support identification with local culture through joint experiences. A local memory could indeed develop, if the screens were used as a means for maintaining and supporting a rich and complex local culture (Struppek, 2006).

On the other hand, in the growing international competition among cities, tourism or the individual as a spectator gain importance. City marketing and urban management strategies create international architecture and branded shops to encourage this competition, which cause "feeling of placelessness". Additionally, with their changeable contents and standard forms, digital screens are other indicators of placelessness, which also cause a "sense of ephemerality". The Society of the Spectacle perceives the urban environment with the "ephemerality of images" instead of "materiality of architecture".[17]

> Cities are engaged in a struggle with a "feeling of placelessness" caused by the spread of international architecture and branded shops. In fact, screens also tend to look the same everywhere, so there is a need to consider the locality as well as sitespecifity of the content in order to prevent further disconnection of the perception of our urban space from the actual locality (Ruby, 1998: 179).

[17] Terms are quoted from Andreas Ruby (1993: 179).

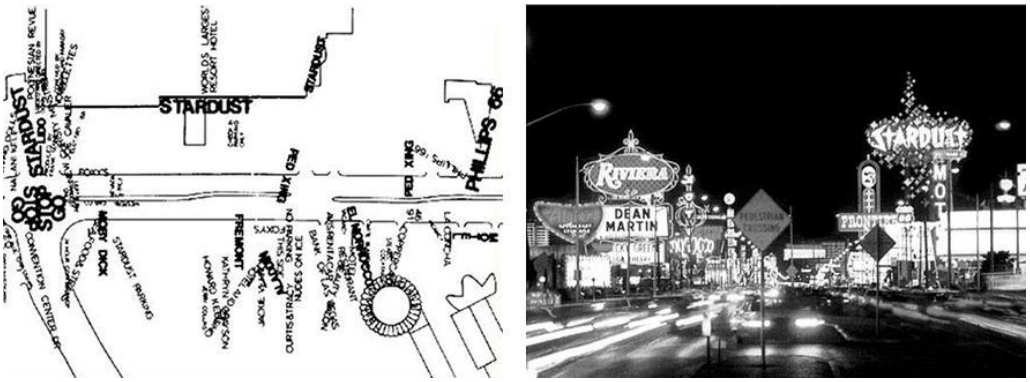


Figure 3.3. Words and Signs of Las Vegas Strip
(First: Venturi et al., Second: http://www.earlyvegas.com/early_vegas/ [accessed December 18, 2008.])

Figure 3.4. Views of Times Square and Las Vegas
(First: http://rathausartprojects.com/blog/2008/10/15/communicating-through-architecture/, Second: http://blog.miragestudio7.com/wp-content/uploads2/2007/07/las_vegas_michael_jackson_robot.jpg [accessed December 4, 2008.])

Figure 3.5. Brigtness of the LED Screen on the Kızılay Junction, Ankara
(Photos by Esra Aydoğan and Onur Moza, 17 January 2009.)

3.6 Digital Screen Media Technology

In recent years, traditional paint billboards have been replaced with new digital screens which employe more reflective display components and where advanced materials carry dynamic messages. A billboard has contributed to an outdoor adsvertising since 1830s with people's interest especially in America: "The circus is coming to town. […] Electronic billboards are just getting started" (Brill, 2006). Contrary to the previous techniques, the most innovative ability is to carry image and video displays. This advanced technology creates digital billboards for the outdoor advertising industry. These billboards are driven by a computer system, updated electronically through a variety of methods. Although some of them are controlled by an independent system, some are networked together. But displayed informations can be changed rapidly. "They are easy to view day and night, easy to create content for and messages can be quickly reprogrammed" (Brill, 2006).

Projects given in this section serve adsvertising for commercial purposes which "allow corporations exclusive branding rights to promote their business activities" (Brill, 2007). Digital billboards which are comprised RGB colour choices, LED technologies, and computer control systems, are an effective means to advertise with dynamic displays. They have flexible character that convey changeable marketing and branding informations. This ability supports advertisers to sell more products and services to customers. Besides the marketing approaches, digital billboards convey personalized messages or important community informations such as carrying "images of people wanted for arrest for public safety"[18] (Figure 3.6-3.7).

3.6.1 LED Billboards

"LED billboard is the 21st century outdoor-advertising technology" (Wright, 2005). Among advanced materials, the most prominent one is LED (Light Emitting Diode) luminaries which are driven by intelligent software systems. LEDs have smaller size to provide more pixellation and more colour and lighting choices to create light, image, graphic, and video displays. Using flexible LED curtains to dress buildings – take the form of the building - and define façades as new electronic screens. In the most recent examples of Times Square and

[18] "About OAAA," *OAAA (Outdoor Advertising Association of America)*. The OAAA is the lead trade association representing the outdoor advertising industry. Founded in 1891, the OAAA is dedicated to promoting, protecting and advancing outdoor advertising interests in the US. With nearly 1,100 member companies, the OAAA represents more than 90 percent of industry revenues.

Las Vegas, these digital displays are again designed as independent elements similar to previous applications. A façade design with the digital screen media technology has not been considered as a part of the main construction design, it is added afterwards (Appendix A). Besides LED billboards, large scale LCD displays are starting to be used as well.

3.6.2 Interactive Billboards

Interactive billboards are high-tech billboards that also contibute to an information exchange besides broadcasting, which is a change from mass media to more mobile and interactive formats of advertising. A main computer system is generally the controller of these billboards; displays are driven from the information of environment (people) instead of computer itself. The messages can be sent by a computer or cell-phones through SMS or Bluetooth technology. For the first time ever, an interactive billboard in Times Square is serving as a public forum for New Yorkers to debate for the *Dove* company, "What is beautiful?"[19]. It is mentioned that "as they cast their vote via cell-phone, a running tally appears in real-time on the billboard and the website simultaneously. This is the first time cell phones have been used not only to vote directly to a Times Square billboard but also the first time the vote actually appears on the billboard itself."[20] This living and innovative advertising system provides a media information which is driven by people instead of company branding. Besides carrying a poll including people's views via voting, these billboards can give an ability to create digital graffiti again through cell-phones or to support personalized messages[21] (Figure 3.7).

Figure 3.6. Different Ways of Conveying Messages in Technological Innovation
(First: http://www.a-company.ws/images/projects/visual_solution.jpg
Second: http://www.mediaarchitecture.org/ [accessed December 30, 2007.])

[19] "Times Square Billboard Asks New Yorkers to Vote."
[20] Ibid.
[21] See for the examples Curtis J. Morley, "Minority Report Advertising (Mini Cooper style)" and "Marc Ecko Clothing: Bluetooth Citylight."

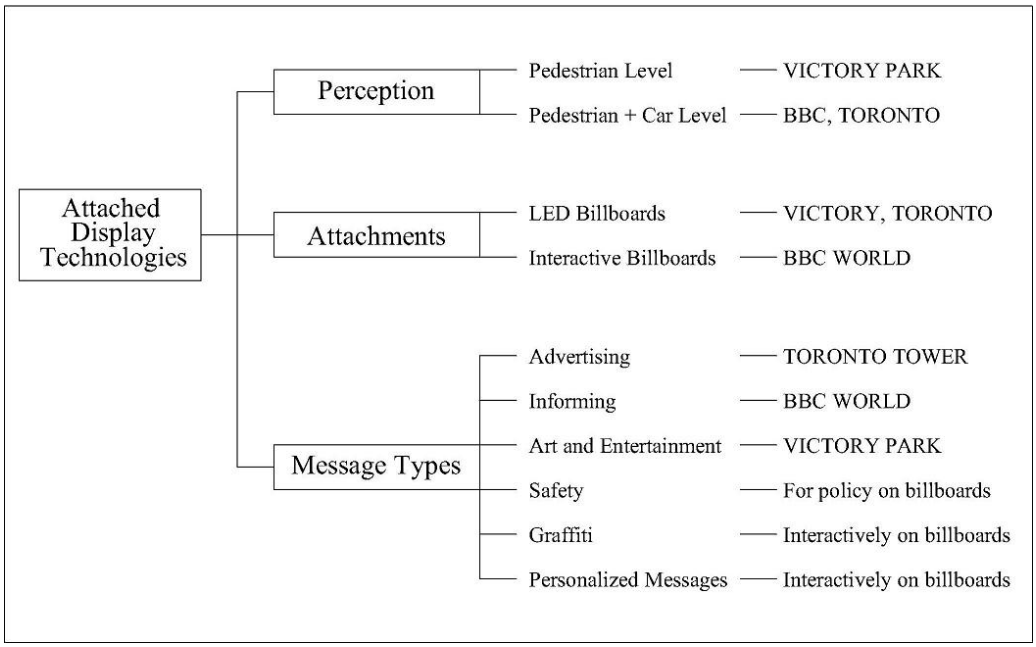
Figure 3.7. Various messages are sent from digital and interactive billboards
(First: http://www.textually.org/textually/archives/2007/10/?p=5,
Second: http://www.pronetadvertising.com/articles/bbcs-north-american-billboards-engage-their-viewers34357.html, Third: http://cache.gizmodo.com/assets/resources/2007/08/marc_eckocitylight.jpg [accessed December 18, 2008.])

3.7 Related Projects

Current electronic screens demonstrate the embodiment of digital screen technology into architecture and urban space. The displays are defining a new interaction field, giving alternative ways to visual communication and advertising. The study will present some examples and highlight their characteristics in relation to media technologies as attached elements onto façades (Table 3.1). These projects are classified in a frame under three main titles with their susbtitles. Projects are described first, according to their perception level which is including pedestrian and pedestrian+car levels; second, according to their attached screens under three subtitles: LED displays, digital, and interactive billboards; third, according to their message types: branding, advertising, informing, art and entertainment, safety, graffiti, and personalized messages. Related projects are in chronological order. The explanations are compiled from various sources, which the following texts are based on, with minor changes.

- Toronto Tower, Toronto, 2001
- Victory Park, Dallas, 2007
- BBC World Interactive Billboard, New York, 2007

Table 3.1. Classification of Recent "Advertising Architecture" Projects with Digital Screen Media Technologies



3.7.1 Toronto Tower, Toronto, 2001

Media Design : Outdoor Broadcast Network with IBI Group, Rite Sign
Display Source: LED Screen

Anyo Rao mentions that Toronto's latest signage spectacular makes an impact on Dundas Square. In addition to the park and concert area, large billboards and sign spectaculars noticeably characterize the area's development. The 18-story "media tower" integrates video, moving displays and choreographed lighting effects that offers a new take on advertising availability. Full-colour and high-definition LED screens display changing video content and improve the vertical viewing distance, which allows a better view for people at the tower's foot. The tower has an ability to show different advertisements at its three levels and can also serve as an accessory to events in the square. The tower also features audio displays (Rao, 2005).

Figure 3.8. Night View of Tower Power
(Rao, "Tower Power.")

3.7.2 Victory Park, Dallas, 2007

Media Design : Vantage Technology Consulting Group
Display Source: LED Media Walls

It is described in its original website (2006) that huge high-tech boards with LED video screens are attached onto the buildings' façades to provide mobile displays. Three display sites comprise advertising and branding systems: the portal screen, the tower display, and media walls. The media walls comprise advertising as well as the United States' largest outdoor digital-art gallery. The Victory Arts program collects graphic animations and video art for continous display with the audio and the lighting systems on the media walls. The area supports an outdoor art gallery, a unique branding opportunity and live news on a daily basis through various contents of screens such as art, entertainment, information, and advertisement. Although the park is defined as culture and art platform by developers, the systems of digital media are also tools of commercial contents. At the pedestrian level, Victory Park is an example of art and entertainment categories of "advertising architecture".[22]

> The challenge was how digital media could create an exciting urban destination and a dynamic, mixed-use environment, and also be economically sustainable. This led us to the

[22] See also Brill (2007).

unified structure that we called VMN (Victory Media Network), which presents a mix of commercial and non-commercial content in a large, public space (Gales, 2007).

Figure 3.9. Art, Entertainment and Advertising Displays of Media Walls
(First: http://www.signweb.com/index.php/channel/99/id/2173,
Second: http://blog.amctv.com/shootout/338-LittleDorothy.jpg,
Third: http://www.daylife.com/photo/09EN1DHeYH97s [accessed December 21, 2008.])

3.7.3 BBC World Interactive Billboard, New York, 2007

Media Design : BBDO Worldwide New York
Display Source: Interactive Billboard

Umyot Boonmarlart (2007) states that BBC World uses a digital interactive billboard in the hearth of New York. The billboard crates a pool for viewers' opinions by showing a current news photographs and let them to vote which of two sharply different opinions they agree with. They can vote through SMS and results will be displayed on the billboard. Although most moving advertising cannot communicate with moving audience very well, BBC vote billboard is still to support moving audience and dynamic enough to be very interesting.

> This is a successful example of subtly using interactive component for advertising. The ad fixes the issue moving media and moving people because normally moving ad cannot communicate with moving audience very well. However, BBC vote billboard is still to support moving audience but dynamic enough to be very interesting (Boonmarlat, 2007).

Figure 3.10. Digital Interactive Billboard
(Boonmarlart, 2007.)

3.8 Chapter Brief

In this chapter, the applications from traditional print billboards of Las Vegas Strip to recent digital screens, which are attached onto buildings as seperate layers, are discussed under the term "advertising architecture". Media infiltrates in architectural practice to build up new mediums for spectacles. Recent digital billboards are added onto façades and become information tools in front of buildings. In this context, the followings are pointed out: First, a building is no longer defined with its own identity, but with huge and impressive signs of corporate's identity. Second, these signs, which are generally designed by brand developers rather than architects, can be visible both in day and at night, at pedestrian and car perception.

On the other hand, urban space is transformed into an art, entertainment, and advertisement stage. The domination of media signs in the built environment not only creates different forms of spectacles for audiences, but also transforms cities into visually dense environments, to the extend of visual pollution. Although the symbolic importance of buildings is used as a part of visual communication system, most screens become more dominant in the public space, bombarding the inhabitants with luminous advertising. Besides commercial purposes, some screens serve as attachments for various events such as concerts, shows and exhibitions in the surrounding environment.

CHAPTER 4

"MEDIA FAÇADE": COMMUNICATION THROUGH INTEGRATED MEDIA DISPLAYS*

> "The modernist ban on images, according to which architecture was prohibited from putting anything (but itself) in the picture, is mostly history by now" (Ilka & Andreas Ruby, 2007: 6).

As digital technologies, such as the Internet, cell phones and portable computers, infiltrated in our social life, computer-aided designs gained immense role in the creation of an information society and virtual spaces. The screens are beginning to form a vital part of architecture and urban space, "affecting our perception and understanding of the space around us and public realm that embraces them:"[23] "daylight compatible LED billboards, plasma screens exposed in shop windows, beam boards, information displays in public transport systems, electronic city information terminals, or holographic screen projections" (Figure 4.1) (Struppek, 2006).

Unlike attaching screens, which were covered in the previous chapter, this chapter discusses the recent applications as media integration into façade designs. The main concern is discussing this development as a growing trend under the term "media façade". The chapter attempts to trace "media façade" as a digital face of contemporary architecture in order to scrutinize the recent interpretations. The chapter aims to delineate the contemporary intentions of using media tools in façade designs. An important design problem of these

* Communication and New Media are both changing their form and function in response to digital convergence. There is a distinction between mass communication and mass media: communication is the process of sending and receiving messages; the media are the means of communication and transmission (Hirst, c2007: xiv).

[23] Schieck, "Introduction," *Animate Space: Urban Environments as Medium of Communication.*

media façades is how to combine the new digital media tools and their electronic displays with building's body and content. The chapter also questions whether this kind of media integration adds a new value to architecture.

In the first part of this chapter, the study will investigate the theoretical approaches to media façades and cultural shifts in the Information and Interactive Society. In the second part, this study will discuss the interest in media façade creation in related projects and consantrate on three of them: BIX, GreenPix, and Digital Water Pavilion. Thereafter, in the third part, the chapter will discuss the advantages and disadvantages of media façades on architecture and urban space.

Figure 4.1. Different Usage of Screens in Urban Space
(Struppek, "Urban Screens – The Urbane Potential of Public Screens for Interaction.")

4.1 Theoretical Background of "Media Façade"

Information technologies are changing urban landscape and acting as means of digital commercial communication through architecture. As discussed in the previous chapter, Lev Manovich (2002) points out that according to Venturi, "an electronic display is not an optional addition but the very centre of architecture in the information age."[24] Manovich continues that since the 1960s, contrary to modernism's simple geometric forms, bare and industrial-looking surfaces, architecture is expected to learn from vernacular and commercial culture as in the case of billboards, Las Vegas Strip malls and architecture of the past. In the 1990s, Venturi expressed the new approach as "architecture as communication for the Information Age rather than as space for the Industrial Age" (Manovich, 2002). While pointing out Times Square as a contemporary environment with electronic displays, he saw the new vision of "architecture as an iconographic representation emitting electronic imagery

[24] "While the technologies imagined by these research paradigms accomplish their intentions in a number of different ways, the end result is the same: *overlaying dynamic data over the physical space*. I will use the term "augmented space" to refer to this new kind of physical space." Lev Manovich is a Professor at the Visual Arts Department, University of California -San Diego (UCSD) where he teaches new media art and theory. He also directs The Lab for Cultural Analysis which is a part of California Institure for Information and Telecommunication (CALIT2).

from its surfaces day and night." Manovich discusses Venturi's "iconographic information surface" content as the following:

> Pointing to some of the already mentioned examples of the aggressive incorporation of electronic displays in contemporary environments, such as Times Square in NYC, and arguing that traditional architecture *always* included ornament, iconography, and visual narratives (for instance, a Medieval cathedral with its narrative window mosaics, narrative sculpture covering the façade, and narrative paintings), Venturi proposed that architecture should return to its traditional definition as iconography, i.e. as *information surface* (Manovich, 2002).

Beginning in the mid 1990s, architects and designers have been created projects within the corporation of moving imagery and lighting systems. In the last decade, information technology has disseminated everywhere and dynamic intelligent devices have been integrated into façade structures, which are the main subjects of this study.

In his article *The Politics of Public Space in the Media City*, Scott McQuire[25] (2006) discusses "the migration of electronic screens into the external cityscape has become one of the most visible tendencies of contemporary urbanism." Considering this already existing digital infrastructure, it is a great challenge to broaden the use of these "moving billboards," as Lev Manovich (2006) calls them in his vision of an "Augmented Space", instead of flooding urban space with new techno-objects. According to him, thinking the surface as electronic screen paradigm gives an opportunity to architects thinking of the both material and immaterial architecture (of information flows) within the physical structure as a whole.

> In short, I suggest that the design of electronically augmented space can be approached as an architectural problem. In other words, architects along with artists can take the next logical step to consider the 'invisible' space of electronic data flows as *substance* rather than just as void – something that needs a structure, a politics, and a poetics (Manovich, 2006).

Toyo Ito discusses the architectural response to these technological developments with reference to Malcolm McLuhan as the following:

[25] Scott McQuire is a senior lecturer at the Media & Communications department of the University of Melbourne. His current research explores the social effects of media technologies, with particular attention to their impact on the social relations of space and time, and the formation of identity.

> In 1960s, M. McLuhan said that our clothing and shelter are the extended form of our skin. From old times, architecture has served as a means to adjust ourselves to the natural environment. The contemporary architecture needs to function, in addition, as a means to adjust ourselves to the information environment. It must function as the extended form of skin in relation both to nature and information at once. Architecture today must be a media suite. [26]

Paul Virilio (Virilio, 1994) sees the newly developing architectural style of screens covering high-rise-façades and illuminating macro-objects as "Electronic Gothic".[27] Antonino Saggio gives a quote from François Burkhardt in the "Leggere" part of Gianni Ranaulo's book that:

> Architecture is becoming a support for information, not to mention an advertising support and, in a broader sense, a mass media support […] The Electronic Gothic of media buildings illuminates the crossroads – Times Square for example – in the same way that, in the Gothic cathedral, stained glass windows illuminated the nave or the presbytery to tell the story of the Church […] time is no longer the time of a sequence alternating between day and night, but a time of immediacy, of instantaneousness and ubiquity; in other words, it possesses what in the past were the attributes of divinity (Ranaulo, 2001: 7). [28]

In this "Electronic Gothic" World, Paul Virilio discusses the contemporary relation of architecture and new media under the term "Media Building". He sets the "media building" as "a building that preferably houses information rather than habitation, no matter what the type" (Ranaulo, 2001: 23) Accordingly, Ranaulo describes the Media Building as the following:

---

[26] Toyo Ito, "Image of Architecture in Electronic Age."

[27] See also Struppek (2006). Paul Virilio (born 1932 in Paris, France) is a cultural theorist and urbanist. He is best known for his writings about technology as it has developed in relation to speed and power, with diverse references to architecture, the arts, the city and the military. Info from http://en.wikipedia.org/wiki/Paul_Virilio (accessed February 23, 2009).
Mirjam Struppek works as urbanist, researcher and consultant in Berlin. She is President of the newly formed International Urban Screens Association (IUSA) and a member of Public Art Lab, Berlin. With a background in Urban- and Environmental Planning she has internationally lectured and published essays with a special focus on the livability of urban space, public sphere and its transformation and acquisition through new media.

[28] Gianni Ranaulo (Napoli 1957) lives and works in Paris. Since 1994 he is concerned in Light Architecture, in particular with reference to the Media Building, In 1994 he set an office in Italy to realize concretely Light Architecture. "LightArchitecture is a synthesis between the virtual and the real in their game of ambiguity. The wall, already reduced to pure glass, is now a vector of information and an interface with the world, a "trans-apparent surface", which can dialogue with the public space and create those "stereoscopic perspectives" described by Gianni Ranaulo. LightArchitecture creates a fluctuating and fluid world, closer to fractals rather than to rigid cube-based geometrical models" (Focus).

> The Media Building – still considered a utopia during the 1960s, subsequently designed by avant-garde architects and now actually constructed in metropolises like New York, Shanghai and Las Vegas – is thus the concrete realization on an urban scale of the fusion of the real world and virtual world, the transfer from the information network universe of the private and individual sphere, from the single computer network station to the collective scale of public space. […] The Media Building is, in effect, a tool of communication and interaction; it is the place where, through interactive multimedia façades, information is communicated and exchanged on an urban level: institutional and cultural information, progressive advertising, Internet, trailers, SMSs, etc. (Ranaulo, 2001: 22-24).

With reference to Virilio's Media Building, Ranaulo investigates the information technology in architecture with "Light Architecture". He discusses the integration of the virtual world, which emerges with the media façades, into the real world. "Light Architecture is an attempt at a synthesis between these two worlds still considered incompatible." He continues as the following:

> Light Architecture proposes unifying virtual space with concrete reality in order to maintain a unity of perception of the real and thus create a single dimension: "stereoreality", where everything is the result of those two spaces. In particular, to fight the risk of isolation by the computer and dependency on the Internet created by the relationship with virtual reality, we are working on integration on an urban scale, i.e. a new dimension of architecture inside the city (Ranaulo, 2001: 20-21).

In connection with display technologies, especially façade due to its fundamental communication character becomes an important device of digital information network. Joachim Sauter (2004) describes the façade as the "fourth format", as an interactive membrane between architecture and public space.[29] Integrating media into the built form transforms façade into a digital display skin of a building that defines a new urban language. While making its own materiality more visible, a media façade conveys the building's programmatic content to the surrounding environment.

[29] Joachim Sauter is a German media artist and designer. In 1988 he founded the new media design studio ART+COM, together with other artists, designers, scientists and developers. Their goal was to practically research this new upcoming medium in the realm of art and design. Since 1991 he is a full professor for "New Media Art and Design" at the Universität der Künste Berlin, since 2001 adjunct professor at the "Media Art and Design Center" at the University of California, Los Angeles. Info from http://en.wikipedia.org/wiki/Joachim_Sauter (accessed February 23, 2009).

Furthermore, this new development can be explained in two ways, as discussed in *Media Architecture Conference 2007*. Firstly, according to David Cunningham, "all architecture is media architecture that involves media and media issues. Architectural presentations belong to media and the contemporary developments in architecture are all about the new media technology."[30] For him, "advertising architecture", is not only a question of a kind of media façade but also includes social, economic and cultural forms of a building in which advertising articulates. Secondly, according to Jan & Tim Edler (from realities: united), screens are the transformation of the idea of TV mapped onto architecture. Hanging billboards on façades is not architectural because it is denying architecture. Jan Edler states in the conference:

> Those kinds of media displays (showing a hanged billboard onto a façade) which are attached to architecture are covering it and programmed away. So that space behind it actually disappears similar to cinema because it programmed all attention to them not to the architectural structure itself (Edler, 2007).

4.2 The Information (Media) Society

The developments within the field of information "allow instantaneous connection and relay of information with other people almost anywhere in the world" (Johnson, 2008). This development in communication technology and personal sensory gadgets create a social change from the old Industrial Age to the new Information Age.

Emergent of multimedia culture creates technological spectacles and electronic displays for information and entertainment "to seize audiences"[31]. People who are more receptive to public electronic displays, can adapt themselves easily to these technological developments by those computing devices. William Mitchell defines this new kind of society as "being digital" which primarily includes all aspects of everyday life more than simply using computer design.

> Being digital is a belief that the digital is first and foremost a mode of being, a human condition that will eventually permeate all aspects of life. Being digital is not primarily about using computer in the design process, nor about making this use visually conspicuous. It is an

[30] Quoted from the video documentation of Cunningham (2007).
[31] Quoted from Kellner, *Media Culture and the Triumph of the Spectacle*.

everyday state that goes in hand with gestures as simple as being called on a cell phone or listening to an mp3 player (Mitchell, 1999). [32]

In this thesis, the term "information (media) society" is used to describe the new form of urban society in today's digitally developed environment. Manuel Castells (1996: 5) mentions: "technology is society and society cannot be understood or represented without its technological tools.

As mentioned in the previous chapter, the development of branding and centrality of signs through advertising provides the proliferation of both traditional and recent electronic screens. As a response to these technological developments, architecture uses the so called "intelligent design techniques". Screen media technology becomes an element of architecture and urban space with the emergence of the intelligent construction materials and developments of digital light, transmission, and video technology. As a result, the applications of such technologies into façades create "media façades" as "urban screens"[33] (Struppek, 2006) which carry spectators to the new form of spectacle.

According to recent examples, architectural design with media technology is a new form of public spectating where society has both passive and active relationship with the spectacle. The passive and one-way relationship depends on media displays and commodity status of "media façade". According to Debord (1967), the intention of consumption generates spectators who are under control of capitalist developers. In this context, the spectating object is the façade or the building as a whole which becomes company's new brand image itself, unlike attached advertising billboards. In contrast, some media façade designs, with intelligent digital techniques, allow people's two-way active interaction with buildings.

[32] Cited in the text by Antoine Picon (2006)ç The digital-minimal exhibition, opened February 10 at Wolk Gallery, MIT, brings together several projects from *the SENSEable Cities Lab* and *carlorattiassociati*. What will be the legacy of the digital revolution in architecture and planning? The exhibition explores a number of alternative directions for our digital future, from the use of mobile devices that describe urban space in real-time to new tangible user interfaces that redefine the design process. What many designers have had in common is the belief that architectural form must express the intrinsic complexity of the invisible electronic networks and fields that surrounds it, architectural theorist *Antoine Picon* writes in the article below. *Carlo Ratti* and his colleagues and partners have taken a different course. Their mapping comes prior to any architectural endeavour. It reveals a level of complexity with which design should not even try to compete."

[33] Urban Screens defined as various kinds of dynamic digital displays and interfaces in urban space such as LED signs, plasma screens, projection boards, information terminals but also intelligent architectural surfaces being used in consideration of a well balanced, sustainable urban society. […] Urban Screens investigates how the currently commercial use of outdoor screens can be broadened with cultural content. For more explanation see the original website: http://www.urbanscreens.org/ (accessed December 30, 2008).

These systems are driven by information from society who is able to change light and image displays via intelligent devices such as sensors, cell-phones, digital screens and so on.

4.3 The Interactive Society

In this early stage theorized by Debord and later Baudrillard, the subject acts passively in front of a movie or television screen, or commodity spectacles in stores or malls. The media and technology are effective on controlling individuals as passive spectators for "watching and consuming, rather than acting and doing" (Best). The concept of the spectacle therefore involves a distinction between passivity and activity that can be explained as an alienation from creativity and imagination (Best). For Baudrillard, there is a monologue in the media and "media covers its message and one cannot talk back" (Best). On the other hand, a dialogue between the media and the individual is generated by interactive displays.[34] "In contrast, the subject of this new stage of the spectacle is more active and new technologies like computer, multimedia and virtual reality devices are more interactive" (Best).

The participant can interact with the display through connection with interactive information tools. In other words, the passive role of society transforms into an active participation. Mirjam Struppek describes that interactive screens integrated into urban furniture to support new information, entertainment, and art platforms for comments, stories and conversations. For instance, mobile phones with SMS can be used as information transmitter to create an urban dialogue for public expression. Otherwise, interactive video screens are integrated into café tables and bus stops to develop the idea of interactive community boards and support the information exchange in a local community.

In architecture, while some contemporary façade designs with media technology are working on the architectural characteristics of the building and its urban contexts, some are based on people's interaction with them. New interactive technologies and networked media offer more possibilities for the visual programming of interactive media façades where society acts as an "interactor" instead of a "spectator". Contrary to the architecture-determined façade designs, this moving imagery is driven by information from environment as well as from "the interplay of new display technologies, broadcasting tools, database, content management systems, and sensor technology" (Struppek, 2006). Thus, the role of architect is

[34] In this study, interactivity is defined as a dialogue between "media façade" and society.

altered from designing to building adaptive systems that extend the potential of media façade for interactive users.

The interactive technology is integrated to façades, both physically and digitally, in various ways. In figure 4.2, the interaction project on the left is called "light brix" which was produced by HeHe (Helen Evans and Heiko Hansen). "A modular light system that responds to touch: through the electromagnetic fields of the human body" (HeHe) which is an example of interactive touch art. The figure on the right is a concept study for Expo 2000 in Hannover by Christian Möller and Joachim Sauter. The proposal to the façade is an interactive media façade which can be controlled by people's messages from cell phones.

Figure 4.2. Lighting Graffiti, Lightbrix and concept study Expofassade 1998, Christian Möller, Joachim Sauter (First: Light Brix, Second: Sauter.)

Figure 4.3. Colour and Light Displays of Adam&Eve
("Simple and Enticing: Adam&Eve," *Tasarım 173*.)

Another example of using light and colour displays in an interactive way is *Adam&Eve Hotel* (Eren Talu, 2006) in Antalya (Figure 4.3). In the project, rooms were designed in white colour; however, their lighting systems are consisted of LEDs in RGB colours which can be driven in accordance with personal and private use (Tasarım 173 and Yapı 308). In

other words, visitors have ability to change the colour of the room for their preferences. From the outside, each room as a component of the façade acts like a huge pixel which creates a colourful and changeable surface.

While providing a communication platform through public participation with electronic displays, interactive form of media façades also creates a platform for entertainment as a new form of spectacle in urban space. Best and Kellner point out: "Entertainment is a dominant mode of the society of the spectacle with its codes permeating news and information, politics, education, and everyday life." The authors define this new form of spectacle as "the interactive spectacle", that involves an implosion of subject and object, and the creation of new cultural spaces and forms and new subjects. According to them:

> […] This form of interactive spectacle is highly ambiguous. On one hand, it can be a more creative and active involvement with media and culture than television or film watching. While the form of technological-mediated interaction is always structured, limited, coded, and predetermined, especially in interaction with big media corporations, new computer technology allows for creation of alternative cultural spaces that can attack and subvert the established culture. In this new cultural space, one can express views previously excluded from mainstream media and so the new cultural forums have many more voices and individuals participating than during the era of Big Mainstream Media in which giant corporations controlled both the form and content of what could be spoken and shown.

4.4 Integrated Display Technologies

In this section, digital display technologies will be investigated as integral parts of a building through the role of society as both spectator and interactor. Therefore, a media content is not only displayed by huge numbers of LEDs, but traditional simple systems are also installed to provide a temporary digital projection.

Later, cases on media façades are classified according to their light, image and water displays, will be explained through their technical characteristics (Table 4.1).[35] Media façades with light displays are created by two light sources: direct and indirect. Direct light sources include general lighting devices from simple halogen and fluorescent lamps to high-tech LEDs. Indirect sources are about the natural factors like using sunlight reflection to

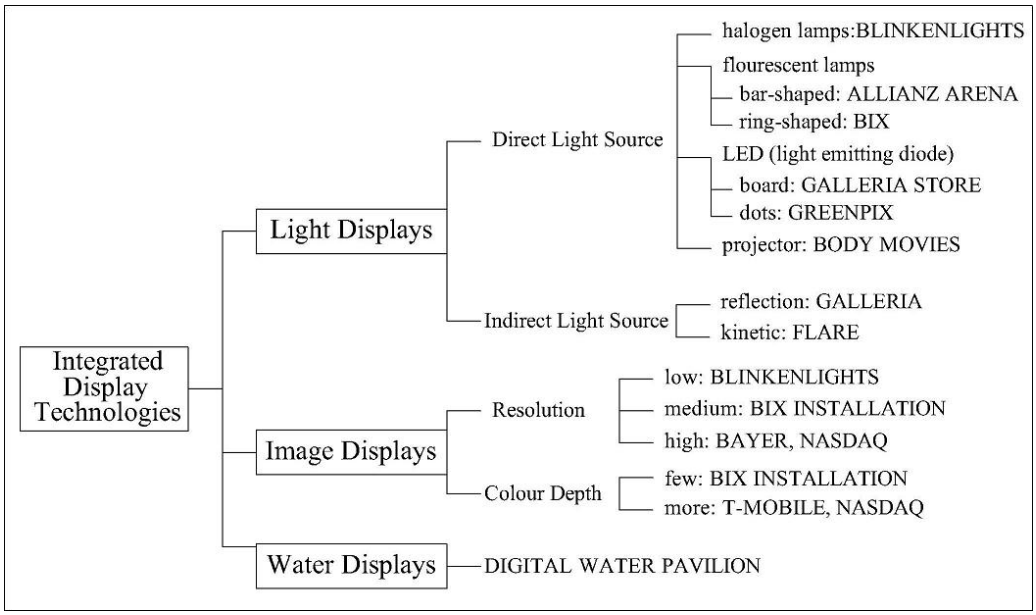
[35] Characteristics of media façades are classified partly by the inspiration from Gernot Tscherteu's presentation in the *Media Façades Festival 2008*.

create a light display through different materials. Image displays are also created by those light sources which are fundamentally different in size, resolution, pixellation, and colour depth from the traditional media images.

In these projects, digital media tools are integral parts of the architectural design that are mostly implemented on façades beginning from the conceptual stage of the building. Their aim is to transform the exterior surface into an impressive, visually flexible element of architectural communication. Combined with aspects of light and image displays, media façades become different fundamentally in light sources, resolution, and colour depth from the rectilinear media images of digital screens.

High-tech and interactive billboards have intelligent, digital, and computer aided screens. These screens have huge opaque masses that are added onto the walls and abonden windows. In contrast, contemporary lighting systems, which become smaller and provide flexibility in shapes that are no longer "flat and rectangular". These systems are also embodied with glass façades without blocking daylight from the building.

Table 4.1. Classification of Recent "Media Façade" Projects with Integrated Media Technologies



4.4.1 Direct Light Sources

4.4.1.1 Halogen Lamps

Halogen lamps are the simplest lights, generally using to illuminate interior spaces. It is defined in *Lighting Fixtures* as: "Halogen lights use a different chemistry and process, which results in the bulb not burning out when run at full voltage." The filament in halogen bulbs burns at a higher temperature, so the bulbs are smaller and made of quartz in order to stand up to the heat. Because of their smaller size, halogen lamps can advantageously be used with optical systems that are more efficient. *Blinkenlights* is the first and most important example of creating light and graphic displays using halogen lamps behind the windows of the front façade (Figure 4.10).

4.4.1.2 Fluorescent Lamps

Fluorescent lamps contribute RGB and white colours with lower energy costs. It is defined in *Lighting Fixtures* as: "Fluorescent light is economical and energy-efficient, but is not always flattering to interiors or complexions. While the design and colour of the fluorescent tube has improved over the past few years, it works best in workrooms and showrooms where cool, bright, and diffuse light is required." On the other hand, these lamps are installed onto the façade structure to create a media display. However, the resolution and clarity of the display are getting reduced because of using big pixels. Compared with halogen lamps, fluorescent lamps use less power for the same amount of light, generally last longer, but are more complex, and more expensive than a comparable halogen lamp. Ring-shaped lamps, inspired by the building's transparency, were installed onto the Kuntzhaus Graz's huge glass façade under the name *BIX Installation* (Figure 4.20-4.23). While bar-shaped were used to illuminate *Allianz Arena's* whole façade, both ring-shaped and bar-shaped were installed on *SPOTS*[36] installation (Figure 4.4). This system is used both for lighting and image displays at night time and an integral ornament on the façade at day time.

[36] SPOTS is another project of realities:united, http://realities-united.de/ (accessed January 25, 2009).

Figure 4.4. Bar-Shaped Lamp, Ring-Shaped Lamp and *SPOTS* Installation
(http://www.mediaarchitecture.org/ [accessed December 30, 2007.])

4.4.1.3 LED Systems

In more recent years, a new category of smaller light sources emerges in the form of Light Emitting Diodes. LEDs open a new way for the displaying of large-scale media content on building façades. RGB lights are installed into the LED technology to illuminate the building's external surface. The new LED-based installation is used to improve visual impact and reduce energy according to its multiple advantages such as dynamic colour-changing effects, flexibility in lighting, image, and video displays. It is defined in *PHILIPS* home page that unlike conventional light bulbs and halogen lamps, LEDs are more efficient and offer a unique light density with their advantages of long lasting life cycle (almost 30 years) and the capability of offering the intended colours. "It is the only technology that allows displays bright enough to compete with sunlight." Unlike fluorescent lamps, LEDs have a smaller component size which provides more pixellation or image dots and high resolution displays with better image quality. LEDs have the possibility of controlling individually via Internet from any computer. In *PHILIPS*, LEDs are described as a revolution in lighting: "They allow us to do things with light that were previously impossible. With LEDs you're free to create any lighting effect or installation you can imagine ... It is an integral part of design itself."[37]

Figure 4.5. LED-Board, LED-Dots and T-Mobile Headquarters by ag4
(http://www.mediaarchitecture.org/ [accessed: December 30, 2007.])

[37] See also "Leds Boast More Then Energy Efficiency and Durability," *Tasarım 174* (2008): 140-141. See *Benefits of LEDs* in Appendix A.

4.4.2 Image Displays

4.4.2.1 Resolution

Resolution is the issue of the number of pixels which compose the image. Mostly using larger number of pixels improves sharper and more detailed pictures; it is not always necessary to reach the purpose of the display (Tscherteu, 2008). For example, while *Blinkenlights* uses 144 pixels to create an interactive display on the façade, *Uniqa Tower's* media façade includes 180.000 and *Nasdaq Building* 19 million. Besides the number, the size of pixels and distance from the observer are important for the one who can recognize a meaningful picture far away though not to perceive the single dots. Brightness of the image also supports to be seen from long distances.

4.4.2.2 Colour Depth

Especially LED light sources allow more colourful displays with different colour choices. LED has an ability to produce homogenous lighting and high quality colourful images owing to its small size. Some projects which were designed with fewer colours like in the case of *BIX* and *Blinkenlights* can be used as stylistic devices according to designer's creativity.

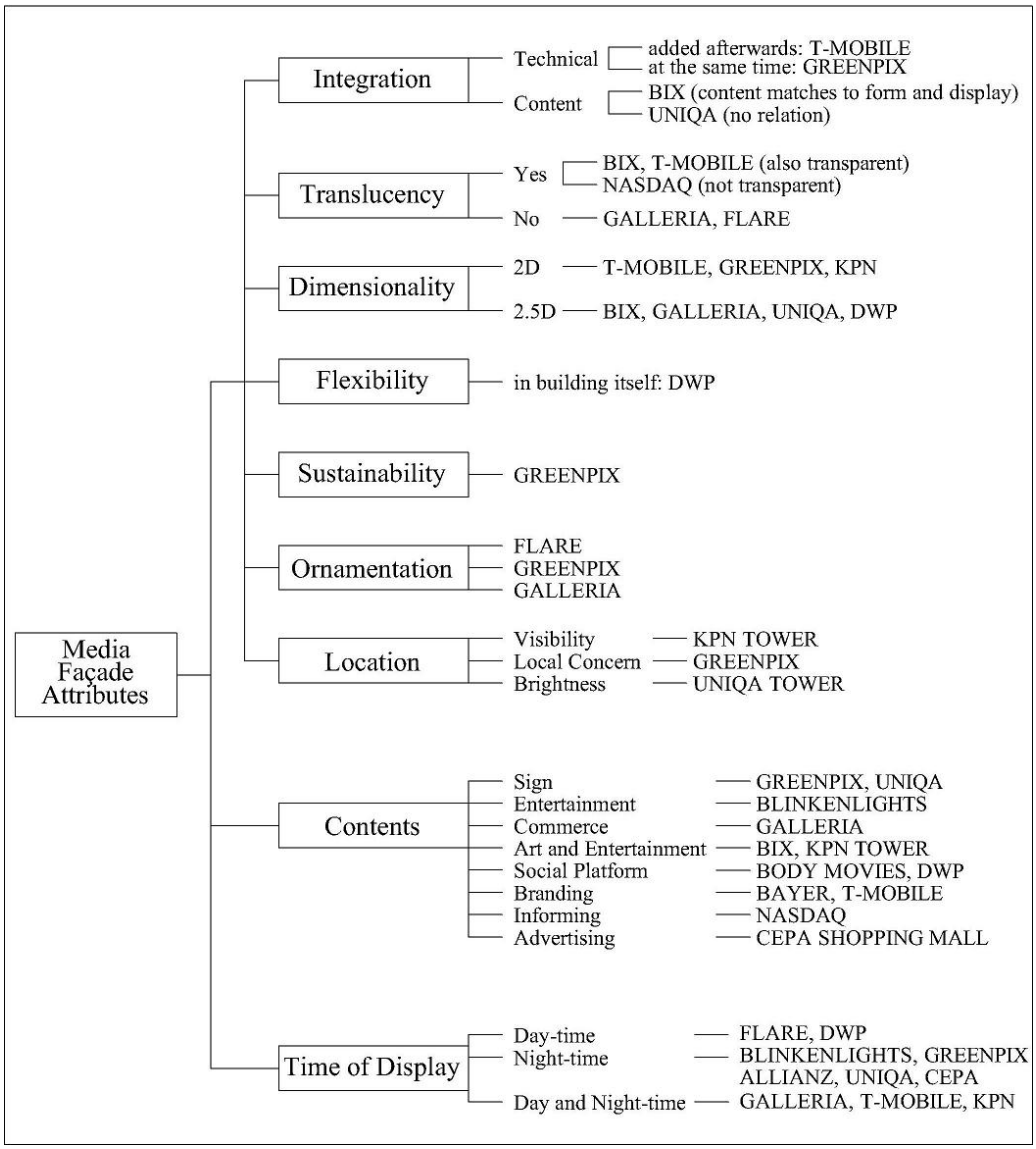
4.5 "Media Façade Attributes" [38]

4.5.1 Integration

Display integration is the main point of media façades that gives "the acknowledgement of something as media façade or not" (Tscherteu, 2008). Because attached screens without dimensionality can act as free-standing individual elements which have potentiality to be detached from the building as discussed in "advertising architecture". Screens can be attached by company management or brand developer. However, integral tools are becoming a part of the façade which has a spatial effect on architecture, society, and urban space. Displays are integrated technically in one way afterwards the building construction for renovation of existing façade as T-Mobile Headquarters or in other way it can be added at the same time from the conceptual stage as GreenPix. In addition to constructive integration, "content of the display has to be adapted to the building and designed for the unity of display and the building" (Tscherteu, 2008). For example, BIX Installation displays graphics according to the content of current exhibition in the museum.

[38] Characteristics of media façades are classified partly by the inspiration from Gernot Tscherteu's presentation in the *Media Façades Festival 2008*.

Table 4.2. Media Façade Attributes



4.5.2 Translucency / Transparency / Opaque

Thinking a façade as a skin between the inside and outside of the building, the media displays cannot only include exterior surface of a building, but also have ability to affect inside as room lighting and inhabitants as a transparent, translucent or opaque surface. This feature of the display should be considered according to building type whether needs to be transfered daylight to inside or allow inhabitants to see outside. For example, a shopping store façade doesn't need to be transparent for inhabitants can carry opaque media tools as in the case of *Galleria* (Figure 4.11); but, on the other hand in an office building transferring

daylight for the workers can increase their working capacity as in the *T-Mobile* (Figure 4.16). Furthermore, light sources can be organized according to this concept. For example, as in *BIX* (Figure 4.21), halogen lamps which are bigger than LED lights are organized to create a meaningful image seen from the outside and to compose of a big pixellation to defend the transparency of glass façade.

4.5.3 Dimensionality

Dimensionality is another point of integration. Display technologies that "are no longer flat and rectangular" supply possibilities for different spatial creations of media façades. Unlike 3D façade sculptures of churches, most examples of media façade displays are created in "2D" formats as interpretations of 2D billboards of postmodern culture. Some of them are presented as "2.5D"[39] projections. As mentioned in the Festival (Tscherteu, 2008) "2,5 D means that media façades are not restricted to only one surface, but flow around edges of buildings (Galleria Store or BIX), or extend to spherical surfaces (UNIQA). In this way, all – around - projections and striking spatial effects are possible."

4.5.4 Dynamism / Flexibility

Dynamic lighting effects and image displays transform façade from static mass to a dynamic surface. Firstly, LEDs with different colour choices create "chameleon" (UNStudio) like façades at night as in the case of *Galleria Store* (Figure 4.12). Secondly, again in this case, glass discs on the façade create a light display with sunlight reflection during the day. Media façades almost in all cases have temporary and dynamic character. However, in the case of *Digital Water Pavilion* (Figure 4.35) all of its façades can be changed by human interaction through intelligent devices; that means the whole building has flexibility instead of a constant attitude.

4.5.5 Sustainability

It is visible that sustainability or energy consumption is the foremost potential problem of media displays. Even though recent LED components consume lower energy than the traditional lamps, they are used in huge numbers to increase the pixellation and quality of image. Designers and company managements are supporting dense displays to be more attractive than the others. In some cases this issue is considered as an environmental concern like *GreenPix* (Figure 4.25) media façade which was composed of PV cells.

[39] 2,5D is given by Gernot Tscherteu in the conference and "3D" display is also mentioned according to the case of an "interior" media display called *NOVA* installation which is not discussed in this thesis.

4.5.6 Ornamentation

Another research point is to address whether there is an aesthetic answer of media integration to façade designs. Media façades are mostly composed of lightsources to show displays at night-time, that generating an ephemeral light ornament. On the other hand, some light sources can be perceived during day and some façade components such as *Galleria*'s glass discs act as individual pixels. These two inputs to media façade designs can generate new forms for façade's texture. For instance, *FLARE* (Figure 4.18) installation onto a façade creates a 3D dynamic ornamentation.

4.5.7 Location

The location and distance from the observer of a media façade plays a critical role in the perception of animated image and the reception of communicated message. Some façades work at different levels of perception that give an experience at every distance –from very far to close. There is a direct relation between visibility and the situation of the building. Designing for the highway is different than for the pedestrian that defines the display size, pixel numbers, light brightness etc. The bigger the pixels, the further the man can perceive the picture and brighter light effects make display more visible at night-time. On the other hand, question of local issue opens new intentions for designers to take existing space, its culture, and architectural style into consideration.

4.5.8 Contents

The relation of media content and the building is another issue which is closely related to integration. This issue considers the building as a spatial object with its shape, structure, function and type or local space (identity, culture and style of the space where it is located). Unlike the discussion of concerning advertising architecture projects, all these cases differ much from temporary screens and require sensitivity for architecture and urban space issues. Displays designed with the relation of identity, architecture, and projection become not only a successful media façade, but also a strong advertising element. Although projects display different contents such as sign in *GreenPix*, entertainment in *Blinkenlights* or creating a social platform in *DWP*, they all represent a brand image of building, company, or architect.

4.5.9 Time of Display

Another issue concerns time of operation for media façade. Light source is the main display component to create a night-time perception. However most recent displays with LED components are bright enough for daylight use. In some cases materials which are used to

compose media façade create displays for day-time. For example, *Galleria Store*'s glass discs supply a natural light display with sunlight reflection or *FLARE*'s inconstant 3D reflective components produce waving display with wind's kinetic energy.

4.6 Related Projects

Designs with new media technologies are conceived in a way by collecting relevant projects, investigating the façades' attributes, their materiality, and technical structure. The purpose of classifying the projects by technical characteristics (integrated display technology, translucency, location and so on) is to demonstrate a substantial influence on the visual experience, on the interactivity and the urban value of media façade. Different approaches develop as to the above characteristics of buildings and their conditions in the urban context. In the tables above, a media façade can be classified more than one element. In these architecture-determined media façade designs, media displays are driven by information from intelligent computer systems and society has passive rather than active relation. In this section, the thesis will outline related cases in chronological order and highlight their characteristics in relation to media technologies as an integral part of façade designs (Table 4.1-4.2). The explanations are compiled from various sources, which the following texts are based on, with minor changes.

- Nasdaq Building, New York, 2000
- KPN Tower, Rotterdam, 2000
- Body Movies, Rotterdam, 2001
- Blinkenlights, Berlin, 2003
- Galleria Department Store, Seoul, 2004
- Allianz Arena, Munich, 2005
- Uniqa Tower, Wien, 2006
- CEPA Shopping Mall, Ankara, 2006
- T-Mobile Headquarters, Bonn, 2007
- FLARE – Kinetic Membrane Façade, 2008
- Bayer Tower, Leverkusen, 2009

4.6.1 NASDAQ Building, New York, 2000

Architect : Fox and Fowle
Media Design : Gallagher & Associates
Display Source: LED Screen

From this approach, as Panagis Papadimatos (2005) mentioned, the technology stock market NASDAQ in Manhattan designed an eight-story cylindrical display screen which broadcasts financial news driven by events, market highlights and advertisements from companies. This advertising façade was built up nearly 19 million LEDs. These LEDs were attached to the pixels within each pixel eight small LED included. According to the density of these pixels, brighter and more vivid colours can be supported to be viewed during the day. For Schieck, there is a relation between the round form of the building and the display. The advertising façade is situated on the corner of the street that can be easily perceived at eye and car level (Schieck, 2006).

Figure 4.6. Day and Night Views of Nasdaq Building
(First: http://www.sajaforum.org/images/nasdaq_1.jpg
Second: http://express.howstuffworks.com/gif/exp-nasdaq-night.jpg
Third: http://itknowledgeexchange.techtarget.com/overheard/files/2008/01/nasdaq.jpg
[accessed December 20, 2008.])

4.6.2 KPN Tower, Rotterdam, 2000

Architect : Renzo Piano
Display Design: Studio Dumbar, Pixelsex, Graffiti Research Lab
Display Source: 900 Flat-panel lamps

Tscherteu (2008) described in the Infosheet of *Media Façades Festival* that illuminated single layered media façade gives an expressive spectacular attention to the KPN Tower which is headquarters of the largest Dutch telecommunication company. The huge façade (3000 m2) was transformed into a low-resolution display screen on which art installations can be seen from very long distances. Image and video displays are done by Graffiti Research Lab. These displays are generated by added flat-panel lamps which are bright enough to be used during daytime.

> I think it is enormously important to work with the intangible elements of space. Light, transparency, vibration, structure and colour are those elements that interact with the shape of the space, rather than emphasise its function. The language of Architecture is changing. New technologies can bring together peoples and cultures in a way that is unique in the History of mankind. I firmly believe in the value of these options (Tscherteu, 2008: 39).

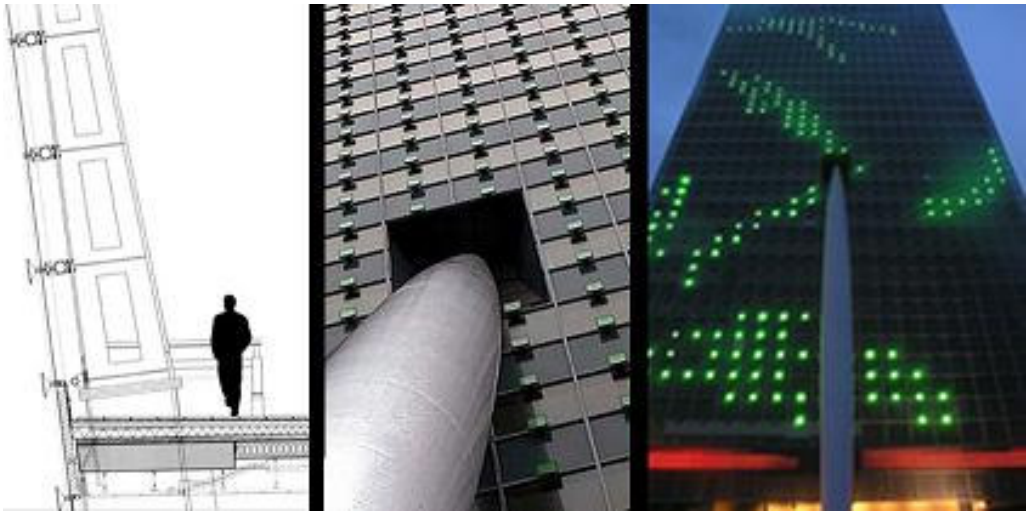


Figure 4.7. Detail of KPN Media Façade, Flat-Panel Lamps and View of the Façade
(http://www.mediaarchitecture.org/graffiti-research-lab-on-kpn-tower-rotterdam/ [accessed January 12, 2009.])

Figure 4.8. Distant Views of KPN Media Façade at Day- and Night-Time (Ibid.)

4.6.3 Body Movies, Rotterdam, 2001

Interaction Design **:** Rafael Lozano-Hemmer
Display Source **:** Xenon projectors

Scott Mcquire (2006) describes that the temporary interactive installation Body Movies in central Rotterdam was designed by Rafael Lozano-Hemmer with interactive projectors in an area between 400 and 1800 m2. Inspiring from Hoogstraten's "the Shadow Dance," the project has explored the intersection between new technologies, urban space and active participation (McQuire and Lozano-Hemmer). The façade of the cinema building becomes the interaction scenery of the square. The activity gives a temporary intervention designed to establish architectural and social relationships. The shadows of people could not be seen when the square was empty. As soon as people walked into the square their shadows were projected onto the building and parts of the portraits were revealed within them.

Figure 4.9. Inspiration for the Project (Rotterdam, 1675) and Body Movies (Rotterdam, 2001)
(Photo by Arie Kievit from Lozano-Hemmer, home page.)

4.6.4 Blinkenlights, Berlin, 2003

Architect **:** Hermann Henselmann (1961)
Display Design: Blinkenlights (temporary installation)
Display Source: Halogen lamps (150W)

It is described in the home page of the project that the temporary display was installed onto a traditional empty building's façade: the simple halogen lamps were put behind each window. There are 18 windows in the each 8 stores means the display occurred in 144 pixels which

created a low-resolution screen. The windows were painted in white to achieve the appropriate self-illuminated effect. Because of the low luminance, it was needed big viewing distances. It was an interactive installation and the content has been created by the users through simple interfaces that had been programmed by the Blinkenlights crew (Play pong, Blinkenpaint, Loveletters). These displays were driven by three computers to separate the modules (control, playback, telephone interactivity) in order to allow distributed development and operation. The modules communicate via network protocols.

Figure 4.10. Views of Blinkenlights at Day- and Night-Time
(http://www.interactivearchitecture.org/blinkenlights-arcade.html [accessed November 15, 2007.])

4.6.5 Galleria Department Store, Seoul, 2004

Architect **:** UN Studio
Display Design: UN Studio and Arup Lighting
Display Source: Xilver Dynamic LED Lighting

It is defined in *UN Studio Projects* unpublished document that the installation is a renovation for a shopping mall with a colourful media façade (3280 m2) which acts both at day and night-time to take people's attention. Originally the old building was a concrete box and asked by the owner to turn into a landmark that reflects the innovation and style of the area, manifesting its own identity for quality. As an answer a chameleon-like exterior surface was developed by UNStudio and Arup Lighting. The media façade reflects the subtleties of natural light on 4330 opalescent glass discs which creates a lighting ornament during the day. The degree of reflection and absorption of light and colour were influenced the

atmospheric and weather changes: "The effect of the façade during the day is that of a shimmering mother of pearl effect."[40] At night the discs are individually backlit and controlled by a computer program to create brilliant and unique colour schemes all over the building by placing each of the glass discs a LED-light source - each disc acts like a big pixel on a giant screen.[41]

> This is a building for living design, not dead art. What you find in the Galleria is stuff that lives for today. Beautiful, gorgeous clothes – carefully selected from the best designers in the world. It is a living collection that changes with every season, changes in composition every day. And our design reflects that; the façade causes a continually shifting, shimmering, alluring perception (Tasarım 179: 102).

Figure 4.11. Details of the Sub-Structure, Lattice Work and Glass Discs
("Galleria Department Store" (2006) in *UNStudio Projects.*)

Figure 4.12. Day and Night Time Views of Galleria Media Façade (Ibid.)

[40] "Galleria Department Store" (2006) in *UNStudio Projects*, unpublished document, (e-mail by UNStudio to Esra Aydoğan, 19 May 2008).
[41] Ibid. See also, "Biggest pixels in the world clad the Galleria West shopping centre, Seoul."

4.6.6 Allianz Arena, Munich, 2005

Architect : Herzog & de Meuron
Display Design: Michael Schmidt Lichtplanung
Display Source: Specially designed fluorescent lamps

In the infosheet of *Media Façades Festival* (Tscherteu, 2008), it was described that the façade (ca. 65.000 m2) of the stadium was made of 2874 diamond-shape translucent materials called ethylene tetra fluoro ethylene – ETFE (each 0.2 mm thick) in short which gives the stadium cushiony texture during day. The most spectacular views of the Allianz Arena are at night which is illuminated by fluorescent lamps in three colours (blue, red and white). On most evenings, the building emits a soft white light, but on nights when one of the two Munich soccer clubs has a home game, each component acts as a huge pixel and can change its colour with light displays.

Figure 4.13. View of Allianz Arena, Light displays and Details
(First-Second: http://www.biologie.de/w/images/7/77/Allianz-Arena.jpg,
Third: http://news.thomasnet.com/IMT/allianzarenacombo.jpg [accessed December 12, 2009.])

4.6.7 Uniqa Tower, Wien, 2006

Architect : Neumann und Partner
Display Design: Mader Stublic Wiermann / lichtkunstlicht and Barco
Display Source: LED modules

The Uniqa Insurance Company built a new headquarters in Vienna. Both the building's form (the plans of the building expresses the shape of the logo) and the main façade with media

displays become a new brand for the company. In Media Architecture website, it is given that the main façade of the tower is constructed as a double layered glass façade; in between LED modules are integrated as identical with the construction grid of the façade. Light displays are generated by those LEDs and the special artistic content was done by Mader Stublic Wiermann. Although the resolution is not high enough, the location of the building and the brightness of the display can help to receive photographic imagery. The display is not bright enough to run during daytime; it's just being used at night-time. The façade simply serves as a huge screen or a message board as in the case of electronic billboards; however the building becomes an integral part of the urban space as to its abstract, constantly modulating architectural form.

Figure 4.14. Views of Uniqa Tower's Façade with Light displays
(http://www.mediaarchitecture.org/uniqua-tower-media-façade/ [accessed October 31, 2007.])

4.6.8 CEPA Shopping Mall, Ankara, 2006

Architect : Öncüoğlu Architecture Planning
Display Design: Öncüoğlu Architecture Planning
Display Source: LED

In Ankara, the competition between companies can be followed through the increasing appearance of shopping malls in various points. One of them is CEPA Shopping Mall, located at Eskişehir hi-way, which is one of the busiest arteries of the city. About the transparency of entrance façade it is written on the Öncüoğlu offical web-site that "the façade at the main street is designed to have maximum visual relation with the environment

in contrast to the most of the shopping centres." The façade has a big pixellation of three colours (white, light and dark blue) during day. But at night, these pixels with light sources behind each one transformed into a low resolution board, creating a shining CEPA word in different colours. From the interview with the architects, the main aim of creating displays was to use façade itself as an advertising tool instead of attaching billboards. It was temporarily used, because of using unqualified LED lights and selecting unsuitable glass panels. Thus, the installation became unsuccessful. According to the architect, if it had succeeded, CEPA would be the first project of this kind of approach in Turkey.[42]

Figure 4.15. Letter Displays on Entrance Façade of CEPA
(Photos by Esra Aydoğan and Onur Moza, 13 October 2007.)

[42] Quoted from Önder Kaya, partner of Öncüoğlu Architecture&Planning, (interview by Esra Aydoğan, Ankara, 23 January 2009).

4.6.9 T-Mobile Headquarters, Bonn, 2007

Display Design: ag4|mediatecture company
Display Source: LED

ag4|mediatecture company built a new type of media façade for the T-Mobile Headquarters in Bonn that becomes a huge message-board of the company. It is described in the company's website that a basic task of the media façade is the innovative presentation of the T-Mobile logo and the content can be updated online by ag4. The electronic façade was not designed as a part of the main construction, but was added afterwards onto the glass façade. LED modules are integrated in metal extrusions in front of the glass façade, creating a curtain, which allows direct sunlight and keeps the transparency of the façade. The company created the world's first transparent media façade on this 300 m2 surface. LEDs comprise lighting and image displays as well as high resolution video shows. Due to their brightness and fast responding technology, the façade has an ability to display both, static and animated content also during daytime.

Figure 4.16. Details of T-Mobile Façade's Transparency
(Ag4 – media façade GmbH, *Media Façade T-Mobile.*)

Figure 4.17. Day and Night Time Views of the Media Façade (Ibid.)

4.6.10 FLARE – Kinetic Membrane Façade, 2008

Display Design: WHITEvoid interactive art & design Berlin, Germany
Display Source: Reflected natural light by kinetic energy

It is mentioned in the original website that FLARE is a modular system to create a dynamic hull for façades or any building or wall surface. Acting like a living skin, it allows a building to express, communicate and interact with its environment. This system is composed of 3D specially designed metal elements moved by pneumatic pistons. Dynamic metal unit reflects the bright sky or sunlight acts as a pixel formed by natural light that creates a light display on the façade. FLARE turns the building façade into a penetrable kinetic membrane, breaking with all conventions of the building surface as a static skin. The display can be seen from distance, but the system is independent of time of day, working during both day and night.

Figure 4.18. FLARE Kinetic Media Façade, Visual Effects and Units (FLARE, home page.)

4.6.11 Bayer Tower, Leverkusen, 2009

Display Source: LED Lights

The project is given in Media Architecture website that the Bayer AG plans the transformation of the former company centre into a far away visible media sculpture and wants thereby to create an up-to-date visualization of Bayer at the head office of the enterprise. It is mentioned in Media Architecture Group website that the 122 meters high

office tower will be used by Bayer as an impressive communication instrument. Approximately 3.5 million LED lights are woven into lattice and can display moving pictures and light shows. After using the logo Bayer Cross as a huge and illuminated free-standing element, at last the company decides to use the tower's façade as the logo's canvas. The logo on the huge advertising screen becomes a big sign that will be visible at the level of car and highway. Bayer Tower with its LED integrated logo is an example of branding application for media façades.

Figure 4.19. The First Bayer Cross /1933 – The Second Bayer Cross / 1958 – The Bayer Cross as a Trademark / 2009 (http://www.bayer.com/en/the-bayer-cross.aspx [accessed December 31, 2007.])

4.7 Selected Projects

In this section, three selected projects are discussed: The first one is BIX Installation (2003) onto the Kunsthaus Art Museum's main façade in Graz, Austria. This project is one of the first examples of media, art and architecture integration. The second is GreenPix – Zero Enegry Media Wall (2008) of Xicui entertainment complex in Beijing, China. The media wall is the first example of digital media art in the city, also provides the world's largest colour LED display and the first integration of photovoltaic system. Thirdly, Digital Water Pavilion (2008) in Zaragoza, Spain is the world's first media building composed of water walls. These projects are selected for two reasons: First, they are different from each other and from other related cases in their technical installations and conveying messages. Second,

all of them are unique implementations in different approaches and designed for the important events in the worldwide. At the end of the section, these projects are re-evaluated to understand how the integration of digital media tools is affected from the conceptual processes of the façades.

The cases are re-viewed according to the below issues:

Integration

Integration is discussed as successful matches of media display to a building in technical and content issues: the relation between media content and building's content, form, structure and also its environs.

Means of Communication

Questions related with the way a media façade communicates to the public, in one way (broadcasting) or in two ways (interacting).

Experimental Laboratory

What has been changed with the integration of digital media into architecture? Is it simply an experimental laboratory for a new kind of communication or artistic expression or technological innovation? Although these more recent projects are defined as experimental laboratories, it needs time to observe the results of these experiments.

Design with Branding

"If media displays refer to content without relation to the building, the whole façade presents poor advertising" (UNStduio). Technology for design or for branding? Is new media creating a new texture for the façade or merely strong advertisement and visual pollution?

Sustainability / Energy Production

While consuming more energy and produced in high costs, do media installations take into consideration increasing environmental concerns?

Media Façade Faces Inside?

While media content is integrating into the outside structure, does it have ability to guide inside of building as well?

The Skin Function

As mentioned in Chapter II the primary purpose of a façade is to provide a skin for the inhabitants against the environmental conditions. In this context, what kinds of skin can emerge from media integrated surfaces unlike traditional ones?

4.7.1 BIX INSTALLATION FOR THE KUNSTHAUS

GRAZ, AUSTRIA, 2003

"Architecture means message."

"[…] We are not interested in commercial media façades. What we do is different: It is not colorful, it is not high-resolution, it is not rectangular. And of course we have to get across why it is actually better like that" (Jan&Tim Edler, realities:united). [43]

4.7.1.1 Credits

Client : Kunsthaus Graz AG

Architects : Designed by the "Archigram Legend" Peter Cook and Colin Fournier in co-operation with Niels Jonkhaus, Mathis Osterhagen and Marco Cruz is characterised by its organic shape.

Façade Design : realities:united - Jan & Tim Edler

Display Design : realities:united

Software : "BIX Director" and "BIX Simulator" allow the application of anything from traditional photo and film material, to digital film and animation formats as well as specialised artistic software.

Technical Realisation : se Lightmanagement AG, Seitec GmbH

Interaction : No interaction

Display Area : The covered area of the organic façade is approximately 900 m2 (20 m high and 45 m broad).

Display Type : With the help of a digital control system schematic animations, graphics and alphabets can be displayed.

Light Source : 930 ring-shaped, black and white fluorescent lamps (40W and a diameter of 40cm)

Luminance : Illumination is used both day and night-time. With the fluorescent lamps, luminosity can be varied between 0 % and 100 %. A speed for 18 frames per second and the pixel pitch create a low resolution display.

[43] Cited in May Britt and Frank Grosse, interview with Jan & Tim Edler.

What is BIX?

Kunsthaus is an art gallery which was built when Graz was European City of Culture 2003. BIX Installation is a communicative display skin, a very large low resolution light & media façade for the Kunsthaus. It was developed through a "conception for the thorough integration of media technology into the Kunsthaus' architecture" [44] in 2001. It was designed as an additional feature of the Kunsthaus Graz at a time when the building's planning had already reached at an advanced level. Although BIX was designed after the design conception, it became the important element for the exterior surface that was reinterpreted with digital technology. Thus, the media façade returned an impressive skin, which represents the whole building. The idea to transform the skin becomes some sort of communicative device. The relationship between the BIX media installation and the architecture of Kunsthaus Graz is defined as a "strong symbiotic relationship"[45] in which the façade as display screen expands the influence of the building's communicative purpose.

On the other hand, the interior functioning defines the installation contents, which are rendered in an abstract form to the outside public forming a symbiosis of art, architecture, and media. The conceptual displays of the BIX are driven within the same context of the Kunsthaus: images and graphics of the installation reflect the current exhibition of the museum. While the artists are exhibiting their projects, the media laboratory of the BIX renders their productional sites and instruments. Leading themes of the first four years are perception, movement, structure and knowledge. Because of its urban situation and large scale surface, the installation can inform the exhibition theme to the public. "BIX becomes an important feature of the Kunsthaus Graz." Peter Pakesch, the director of the Kunsthaus Graz states as:

> […] architecture and media form a symbiosis. […] It is also the quality of the outer skin and of the BIX façade and I think that the architects and especially realities:united, the creators of BIX, have succeeded in presenting a different kind of transparency – it is not the superficial kind of transparency of a glass house which is useless for an art museum anyway, but more a

[44] Realities:united, "BIX light- and media façade for the Kunsthaus Graz," download this document at http://www.bix.at (accessed June 10, 2008).

[45] Ibid. Media installation and architecture share a truly strong symbiotic relationship. The façade as a display extends the communication range of the Kunsthaus, complementing its programmatically formulated communicative purpose. In an abstract and mediated form, the media façade transmits the internal processes of the Kunsthaus out into the public, creating a symbiosis of art, architecture and media. Jan & Tim Edler, "Message vs. Architecture? Dynamic Media as a Continuation of Architecture," (E-mail by Jan Edler to Esra Aydoğan, 17 June 2008).

> transparency of information, the translucency of content, for which a lot is still to be developed and for which the architecture is a challenge (Borchert).

Technical Layout

"The sleek blue shimmering façade" made of opaque plastic tiles is the outstanding characteristic of the building. Behind this skin 930 computer-controlled ring-shaped fluorescent lamps were installed. The light rings are not new but the idea to create a digital display with conventional fluorescent lamps is the innovative approach. Each lamp acts individually as an independent pixel. Because of this big pixellation, the façade displays very low resolution graphics. To this end, the large display area is composed of less expensive technology rather than recent LED systems.

Location

The installation covers the building's entire façade facing the river and city centre. The façade can be seen as an urban screen: a new instrument for architectural communication in public space. While creating low resolution graphics, the large pixels are providing to read and register the images from long distances. Arge Kunsthaus's head designer Neils Jonkhans states: "We wanted to create a building with varying appearances from different perspectives: Depending on distance and viewing angle, Kunsthaus will appear different" (Lubell).

The Office Profile

Realities:united is a Berlin-based design company and planning office directed by two brothers, Jan and Tim Edler. According to them, "architecture means message."[46] Their main task is to use "message" as the essential part of an object and to develop means and tools to transform this message in that new technologies play a dominant role. In this context, they are searching for the quality of the synchronization between architecture, information technology, content and media. As they (Home-page) state:

> The mission has just begun. By means of increasing information and technology convergence we will access new forms of communication in architecture. Since space is 3D the core idea exceeds just façades and surfaces: We will expand media façades to become media bodies or media spaces.

[46] Edler, "Message vs. Architecture?."

4.7.1.2 Remarks

Integration

Realities:united developed an installation "aiming at the creation of an overall technical character suitable for the functional as well as aesthetic needs of the building."[47] BIX is not a standard, add-on product, but is specifically "tailored" to the building's circumstances. Ilka & Andreas Ruby (2007: 5) discusses: "the media façade has incorporated into the building's volumetry – body." Although the design of the installation was developed after building's conceptual stage, the content matches successfully to the museum's function and technically to the irregular form of the façade.

Means of Communication

BIX is a communicative organic skin that provokes a new kind of language in a location of artistic implementations and in a central urban situation. The new language is about the digital and artistic form of communicative building which is fundamentally different from the other conventional communicators. BIX does not give an impression of a digital screen; however, the installation transforms the whole building to a communicative device which renders images and pictures. BIX is acting as "information face" of the building to the street and to the other part of the river. The communicating skin is a potential working platform for art projects that represents the museum's content in a broadcasting way. The communication between the media façade to the public is monologue (one-way) communication from the façade to society which supports a new form of spectacle.

Experimental Laboratory

BIX media façade is an "experimental laboratory" for the development of a new language, innovative materials and their application. This investigation also creates an experimental platform for artistic production driven by current exhibitions in the art museum. Architects faced with different problems by using conventional fluorescent lamps such as strong limitations of the low image resolution because of size and affordability criteria. But it enables both a cheap modular structure and a large size of installation.

[47] Edler, "Message vs. Architecture?."

Design with Branding

Edler pointed out that BIX was designed to make the building more visible with digital tools or in their words “to tune the building’ skin”. The much less expensive technology was used for media content not for branding. A media façade needs to be articulated to the scale of the building according to be perceived as an inherent part of the building both with low and high-resolution displays. The entire eastern façade of the Kunsthaus with BIX is perceived as a huge screen from the other side of the river. Although the content becomes more important than branding, BIX becomes an important representative object of the Kunsthaus that changes the performance and meaning of architecture and becomes the “propaganda tool” of the building. Thus the building itself transforms into a one big media sign in Graz with its biomorphic form, ephemeral displays, and spatial BIX installation. Also, BIX media façade is the information screen of the building, unlike the wall of media image at Times Square.

Sustainability / Energy Consumption

Edler stated in “Message vs. Architecture?” that the fluorescent lamps as the basic module for the display address the issue of “technological sustainability,” which combines energy consumption and technology. Although these conventional lamps are outdated technology, they provide an operational balance between architecture and technology with “less energy consuming at comparatively low costs”.

Media Façade Faces Inside?

The installation was designed to conserve the building’s transparent skin. In the conceptual stage of the building, the façade was described as mostly opaque but from time to time transparent surface on which signs, announcements or images can appear and disappear. From this point of view, BIX was inspired from the content of the building and represents a flow of information from inside to outside (displaying the content of current exhibition).

The Skin Function

BIX supplies a “second skin” to the building. The material of the façade is a 20mm thick layer of panels with a waterproof membrane behind. Fluorescent lamps were installed into a double skin façade. Although the skin gains water protection by these membranes, they hide the building’s transparency as mentioned in the previous part. For this reason, “panels were designed to bring back the transparency of the skin while presenting a transparency of information and translucency of content instead a superficial kind of transparency of a glass house.”

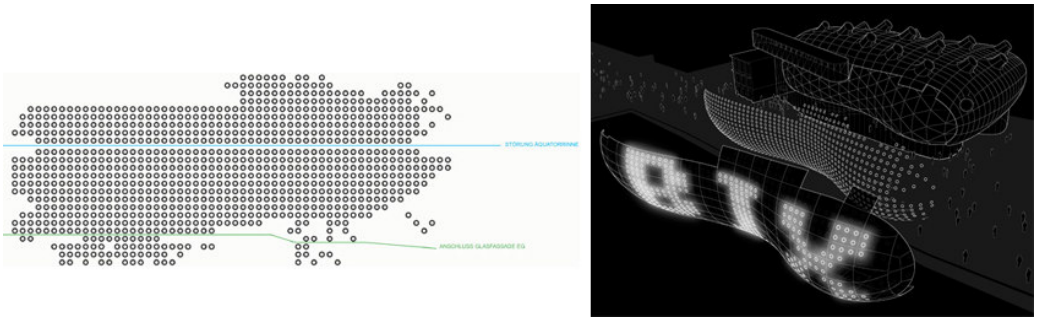


Figure 4.20. BIX Schematic Drawings
(http://realities-united.de/#PROJECT,69,1 [accessed June 10, 2008.])

Figure 4.21. Detail of the BIX and the Prototype (Ibid.)

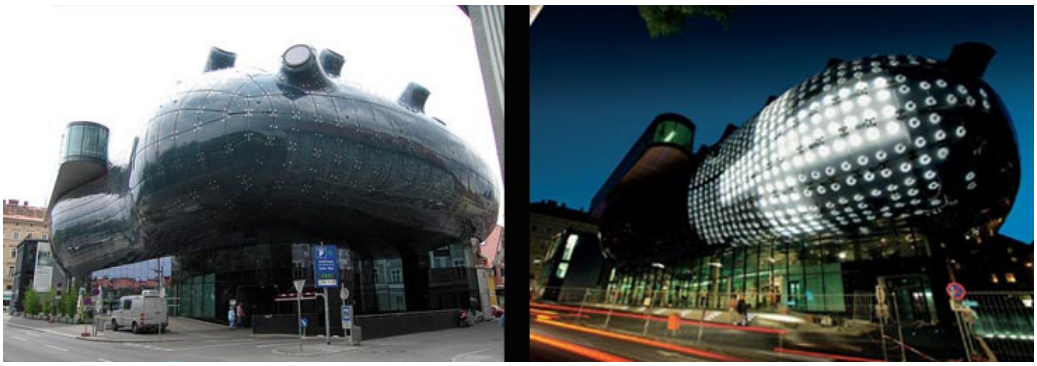


Figure 4.22. Before and After the Installation (Ibid.)

Figure 4.23. View of Kunsthaus' Eastern Façade and BIX Installation (Ibid.)

4.7.2 GREENPIX – ZERO ENERGY MEDIA WALL

BEIJING, CHINA, 2008

"On the one end is very sophisticated technology. On the other end is the poetic factor, which is as important as the science" (Simone Giostra & Partners).[48]

4.7.2.1 Credits

Client : Jingya Cooperation

Architects : Simona Giostra & Partners Architects

Façade Design : Simona Giostra & Partners Architects

Display Design : Arup

Software : GreenPix Simulator by Simona Giostra & Partners Architects

Technical Realisation : Arup

Interaction : Partly interactive media wall

Interaction Tech : User can program the water display via a downloadable application called "GreenPix Simulator".

Display Area : The curtain glass façade is six-storey, its area is approx. 2200 m2

Display Type : Playback Videos, live performances from curators, art institutions, media schools, and user-generated content

Light Source : 2292 colour (RGB) LED light points behind translucent façade

LED Hardware : Thorn, China

Luminance : Illumination is used only night-time due to the fact that the energy saved during day-time from sunlight by PVC

Solar Technology : The polycrystalline photovoltaic (PV) cells are slices of silicon laminated within the glass of the curtain wall by Schüco International KG, Sunways AG.

[48] Cited in Howard (July 2008: 69-70).

What is GreenPix?

GreenPix – Zero Energy Media Wall - is the first implementation of sustainable and digital media technology to the glass curtain wall of Xicui entertainment complex (contains a spa, a mini golf course, a movie theatre and a restaurant) in Beijing, China. The project was evolved in a city dominated with outdoor visuals – screens, images, and boards – and needed of sustainable green designs. So, GreenPix was designed as a sustainable media wall among other new green arhitecural projects of Beijing such as: *Watercube*, *the Linked Hybrid, the Olympic Athletes Center* and *the Olympic Village* (posted by Pasternack, 2008). The building, featuring with the world's largest colour LED display and first photovoltaic system, performs as a self-sufficient organic system that produces its own energy for light display. PV cells are absorbing solar energy by day and using it to illuminate the screen and to create the light display at night.

The project promotes the integration of sustainable technology in new Chinese architecture. Through the use of LED lighting, the façade has the ability to show playback videos, live content, including live performances, and user-generated content. It is mentioned in GreenPix Homa Page: "The project presents a unique opportunity for the growing digital art community of Beijing." The media façade is the first digital public art space in the centre of the Beijing.

> Content Façade: We propose a matrix of low-resolution, low-cost fluorescent light fixtures capable of projecting moving images onto the outer layer of the façade, allowing different kind of content to be associated to the building: from Olympics events to site-specific video-art installation, weather forecast and video gaming (GreenPix Home Page).

Unlike the typical high-resolution screens that are attached onto the building's façade with advertising, GreenPix media wall keeps a low-resolution abstract art displays that are designed by artists. GreenPix is promoted as an "architainment and mediatecture" (The TH Interview, 2008) project of the City.

Technical Layout

A new technology for laminating PV cells in a glass curtain wall is developed by architect Simone Giostra with Arup. They also oversaw the production of the first glass solar panels. The polycrystalline PV cells are laminated within the glass and creating big glass pixels for the façade which are transforming excessive solar radiation to energy for the media display after dark. Because of big pixelation, the façade has a low-resolution character.

Location

The large scale of the media façade is in a highly visible area that provides artists to create site specific and socially relevant displays. The wall is located in the western part of Beijing near the site for baseball and basketball games in the 2008 Olympics. The wall shows low-resolution LED imagery which can be perceived from long distances in different perspectives. Site faces a major artery where one can see as an enormous billboard from his car.

The Office Profile

The project was designed and implemented by Simone Giostra & Partners, a New York-based office with a solid reputation for its innovative curtain walls in Europe and the US, with lighting design and façade engineering by Arup in London and Beijing. Simone Giostra & Partners Office dedicated to the investigation and performance of architecture and new media. They believe that the fundamental role of the architect is the translation of scientific and technological revolutions into approachable environments that change people's lives. Arup is a global firm of designers, engineers, planners and business consultants providing a diverse range of professional services to clients around the world (GreenPix Home Page).

4.7.2.2 Remarks

Integration

GreenPix media façade behaves like a huge screen in the case of LED billboards or LCD panels. However the Zero Energy Media Wall creates a social platform where technology, media, and art were successfully integrated into both architecture and public space. On the one hand, the box-like building gains an ephemeral surface with the changing colourful imagery of the installation. Although a low-resolution imagery is created, the content of the artistic video, image and light displays can easily integrate to the building's entertainment function. On the other hand, square shaped solar panels and LED lights composed a big rectangular surface that was technically matched to the building's form. PV cells were installed into square glass panels. These panels composed of a huge sustainable media wall to the box-like building's entrance façade. Each solar panel behaves like a "brick" of the huge sustainable wall and also as a pixel of media displays.

Means of Communication

The opaque box-like commercial building gains a communicative aspect with its technological "intelligent skin". This skin can interact with the building's interior and the exterior public spaces, transforming the façade into a responsive environment by using custom software system that communicates what is happening inside the opaque building. GreenPix is the "information face" of the building which is conveying the message of the City's concern on sustainable technology. Even though the low-resolution media façade has a one-way communication form like a huge screen, it addresses a limited interaction with the public: sometimes people can create images to install onto the façade via downloadable simulator program. Although it is a limited activity, this interactive relationship can open a local culture where GreenPix can integrate into the urban public space.

Experimental Laboratory

The Zero Energy Media Wall is an "experimental laboratory" for both architecture and the city. On the one hand, GreenPix creates an "experimental communication" which opens a new approach to social interaction between the unprecedented forms of artistic expression and the public space: on the other, defines a "technological laboratory" for digital transparency of opaque building's façade by searching an innovative use of both media and sustainable technology. According to its designers, this experimental approach defines "raising global interest in the integration of digital technology with architecture and reinforcing the reputation of Beijing as a centre for innovation and urban renewal."

Design with Branding

The whole façade of the building transforms into not only a large urban screen, but also a propaganda tool" of the building and a "landmark" of the City. Displays are driven by artistic production, providing an art-based communication form unlike the traditional commercial purpose of high-resolution screens. The intelligent display skin becomes a brand image of the building which represents the technological and sustainable intentions of the building. On the one hand, technology was used as means for designing; on the other, design with the integration of technology, media, art, and architecture applies to a simply branding. "The media wall will become an iconic landmark in this area of the city" (Arup Annual Report, 2007).

Sustainability / Energy Production

The main point of the project is to integrate new media with sustainable design into architecture that creates a new approach: “digital green architecture”. The solar glass panels as the basic module for the display address the issue of “technological sustainability,” although they are costly expensive. But, GreenPix support the solar technology and provide lower production costs in the use of technology. Unlike the most other media façade designs, energy consuming was considered as an up-to-date discussion of environmental concern and as a design input to determine the display performance.

Media Façade Faces Inside?

The combination of three textured PV cells in low-, medium-, and high-transparency creates a changing density onto the building’s façade during day. This pattern increases the building’s performance according to the absorbed energy and allows natural light by the interior functioning. Using solar glass panels to produce energy creates a low-resolution display for the outside; however, allows natural light to the interior. Themes of displays are installed from different artists to create a harmony with the entertainment function of the building.

The Skin Function

GreenPix which is a project to change the box-like building’s face supplies a “second skin” to the building. The changing density of PV cells creates a “solar ornament” during day. Also, with the movement of cells according to the speed and direction of the wind creates a fluid, dynamic and reactive display. “The particular design of the wall reflects the different light conditions of its environment, reproducing the flickering light on an ocean’s constantly undulating surface” (The TH Interview). After dark, the solar ornamentation turns into a light display - an ornament of light.

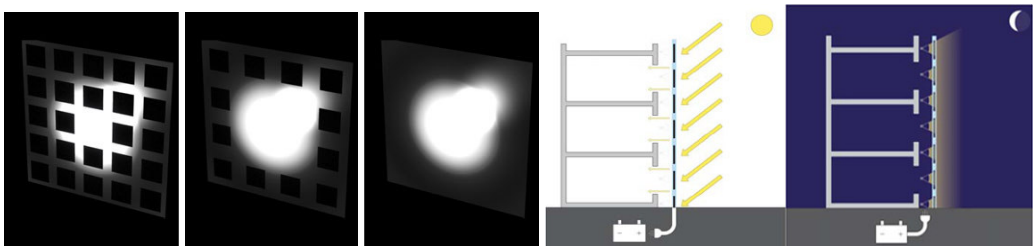


Figure 4.24. Low-, Medium- and High-Transparency Lighting Simulation and Changing Density of PV Cells and Day Cycle: Energy Production, Night Cycle: Energy Consumption
(http://www.greenpix.org/ [accessed December 5, 2008.])

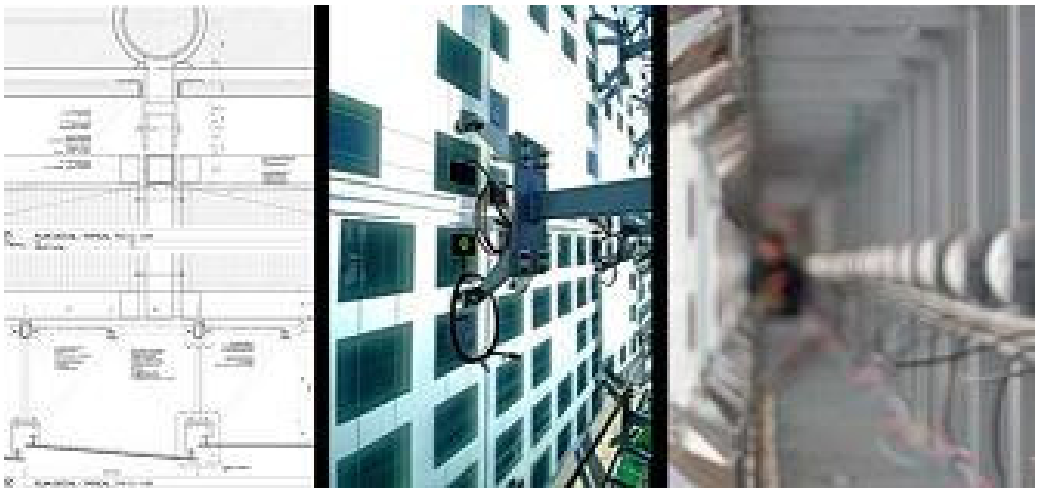


Figure 4.25. Details of the Media Façade (Drawing, PV Cells and LED Lights)
(Ibid.)

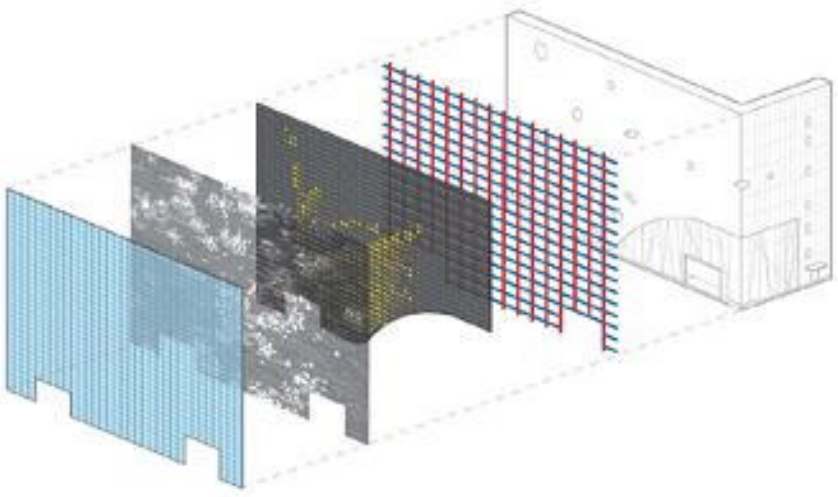


Figure 4.26. Layers of the Façade –
Glass Panels, PV Cells, LED Display, Steel Lattice, Concrete Wall (Ibid.)

Figure 4.27. GreenPix Simulator (Custom-Software) (Ibid.)

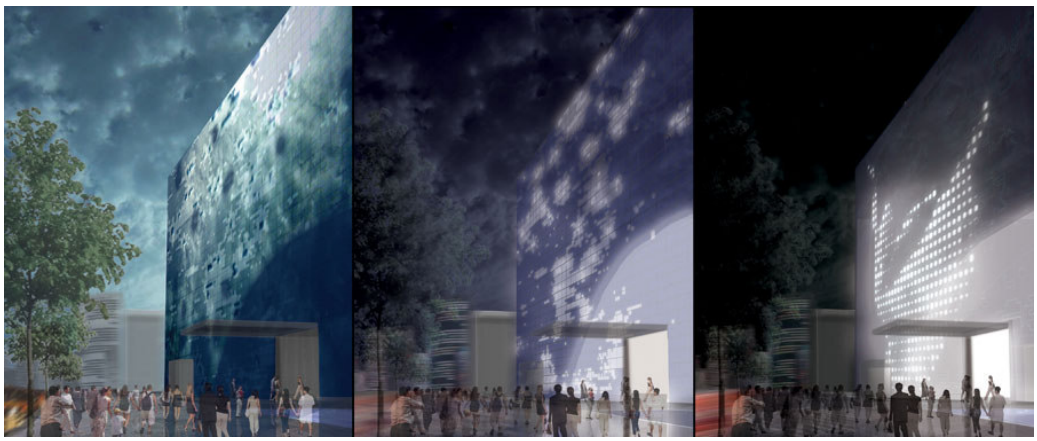


Figure 4.28. Displays During Day- and Night-time (Ibid.)

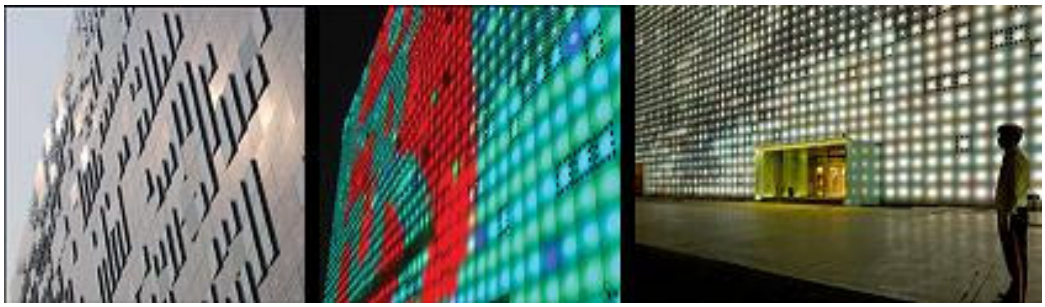


Figure 4.29. General and Detail Views of Displays (Ibid.)

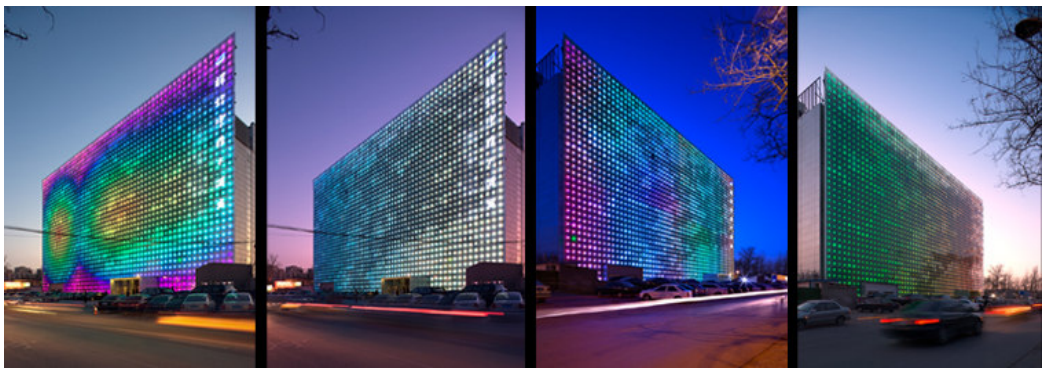


Figure 4.30. General Views of Displays (Ibid.)

4.7.3 DIGITAL WATER PAVILION

ZARAGOZA, SPAIN, 2008

"*La civilization machiniste cherche et trouvera son expressione architecturale*" (Le Corbusier, 1923). Today we could say: "Digital civilization is seeking its architectural expression" (Carlo Ratti, MIT Media Lab.).[49]

4.7.3.1 Credits

Client : EXPOAGUA Zaragoza 2008 S.A., City of Zaragoza

Architects : carlorattiassociati - Walter Nicolino and Carlo Ratti with Claudio Bonico

Façade Design : carlorattiassociati

Graphic Design : Studio FM Milano

Display Technology : Water Imaging Technology

Technical Realisation : Ove Arup & Partners

Interaction : Totally interactive water walls

Interactive Design : MIT Media Laboratory, Smart Cities Group – William J. Mitchell director

Interactive Tech : Motion Sensor Technology (in the form of camera, radar or laser)

Display Area : The total water curtain walls' area is approx. 400 m2

Display Type : Graphical layouts (patterns) and texts also with lighting effects and sound systems (coordination of water walls' rhythms with light, colour and music) - visuals are designed by officinesirtori

Light Source : LED lighting wires enclose the plastic pipes of the water curtain

Luminance : Illumination is used only night-time

Water Engineering : Lumisrtecnia Internacional

[49] "Nearly a century since Le Corbusier famously redefined the architect's agenda; we seem to be at a similar impasse - digital technology having taken the place of heavy machinery." Quoted from *Digital Domestic Landscape,* a proposal for the exhibition "Una Casa per Tutti" at Milan Triennale, 1 May-1 September 2008 (Design by 'carlorattiassociati - walter nicolino & carlo ratti', Turin, Italy, in collaboration with the 'sense*able* city laboratory', MIT, Boston, USA.). See also *Digital Water Pavilion: Operating Manual for Responsive Architecture,* (published by Mondadori Electa S.p.A., Milano, 2008) the document was taken from *carlorattiassociati,* (Turin, Italy, 20 May 2008).

What is Digital Water Pavilion (DWP)?

In 2008 the city Zaragoza hosts two important events: *ZH2O (Expo 2008)* the central theme of "Water and Sustainable Development" and *La Milla Digital (Digital Mile)* one of the largest urban renovation project seeks to achieve a successful integration of digital and information technologies in the urban environment. In 2006, carlorattiassociati developed the first project with MIT SENSEable City Lab. and Arup Group for Zaragoza's big urban project *La Milla Digital.* Their second project was design of the gateway called *La Puerta de la Milla Digital* for Expo 2008. In last, they were asked for the design of the pavilion.[50]

Digital Water Pavilion (DWP) connects to the theme of Expo 2008 and La Milla Digital by the use of interactive "Digital Water". It can be described as "a wall made with a digitally-controlled flow of water" (Ratti, 2007). The Pavilion was designed according to the Expo's main theme: "Water and Sustainability". So the content of displays is driven within the same context of the building: texts and patterns appear on water curtain represent the function of the building as an information centre of the Expo. Besides, the water curtain has ability for light displays with LED lighting source.

Addition to the water walls, this simple building is composed of three main parts: two boxes (tourist info and café with upstairs terrace), a movable wet roof, tables and benches built in the ground. The pavilion has reconfigurability with its moveable roof and digital water walls. When the roof is at ground level the building is close and reaches its min. area, when the building is open and the roof is at its highest level, all area can be used. The other important character of the pavilion is "fluidity". Except its two constant parts (tourist info and café), the rest of the building is reconfigurable and adaptable to needs of necessity and use. About the water wall, William J. Mitchell (2007) states: "Different from the other projects that are searching fluidity in their shapes; in DWP case, the building itself becomes fluid." It means that water is dynamic and this dynamism was used by the help of digital technology in both inside and outside of the building.

> The Water Wall is most effectively used, instead, to enclose and define space, modulate light and view, and create opportunities for engaging interaction. Furthermore, it has characteristics that clearly differentiate it from other types of digital displays, and make it suitable for particular types of animated shapes and patterns (Mitchell, 2007).

[50] Carlo Ratti, (interview by Esra Aydoğan, Turin, Italy, 20 May 2008).

Technical Layout

It is written in *How to Build a Digital Water System* (Ratti, 2008) that water basin and pumps were used to feed the water wall. This wall consists of a row of closely spaced solenoid valves along a pipe suspended in the air. The valves can be opened and closed under computer control. This produces a curtain of falling water with gaps at specific locations (Mitchell, 2007). Patters and texts displayed on the water façades are created from air and water on the pipes as air pixels similar to illuminated pixels on a screen. Graphics and texts are displayed by the "water imaging technology"[51]. However these falling pixels can be controlled in a particular point where they leave the valve. So, the graphic displays need to be programmed carefully. The floor under the pavilion must be able to absorb water falling. The amount of falling water needs to accumulate in a draining system for which aluminium foam boards were used as a special draining material.[52] Besides water façades, there is a dynamic roof which is driven by the hydraulic pistons with activation system. Furthermore, there is an integrated sensor technology onto the pipes that makes dynamic patterns on the water surface by touching at its any point that creates an interactive relationship between the building and visitors. By the all above technologies, the building can adapt itself to visitor flow, time of day, weather conditions, and program needs.

Location

The pavilion is conceived as a part of a long axis (Passeo del Agua - designed by Agence Ter) from Carlos Ferrater's Delicias Station to the Expo site. This long pathway is composed of two levels: ground and floor. This changing height corresponds in the pavilion as a moveable roof: at ground level, roof level and all levels between. The pavilion is acting as the entrance of the Expo and located in front of a new bridge designed by Zaha Hadid.

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[51] Graphic Waterfall: The earlier effective results in developing a digitally controllable water fall have been achieved in the past decades (developed in 1970s and improved in 1982) by Stephen Pevnik, currently a professor of computer art at the University of Wisconsin, in Milwaukee, USA. "BIT.FALL" (2001-2006): In recent years, a German artist Julius Popp (a graduate in Art and Graphics from Leipzig, Germany) interested in the implementation of art and graphics on the digital water curtains from a metaphor between the parallel constant fluxes of falling water and ubiquitous information. Each drop of water is a falling pixel like DWP's walls. his project was exhibited in "Design and the Elastic Mind" in the MoMA NY 2008. Carlorattiassociati, *How to Build a Digital Water System* (2008). Unpublished text was taken from *carlorattiassociati*, (Turin, Italy, 20 May 2008). "While there have been prior attempts to digitally control water droplets, this is the first time that the idea was used to create an architectural space." Patti Richard from News Office, "MIT architects design building with 'digital water' walls," (Cambridge: Mass., 10 July 2007), http://web.mit.edu/newsoffice/2007/waterbuilding-0711.html (accessed March 31, 2008).

[52] Ratti, *How to Build a Digital Water System*, 2008.

The Office Profile

carlorattiassociati - Walter Nicolino, Carlo Ratti and Claudio Bonicco is a rapidly growing architectural practice that was established in the summer of 2002 in Turin, Italy. Drawing on Carlo Ratti's research at the Massachusetts Institute of Technology, the office is currently involved in many projects in Europe, America and Asia. In collaboration with leading engineering practices - such as Arup, Buro Happold, Whitby & Bird - the office has developed the know-how to successfully carry out large-scale architectural projects. (Carlorattiassociati, 2007).

4.7.3.2 Remarks

Integration

Th Pavilion's artificial, technical patterns and experimental structure create a powerful liquid architecture by using water's dynamism. Water walls generate visible and invisible façade components such as doors and windows that create a "dematerialization of architecture". The digital technology was not only used in exterior surfaces, but also in every part of the building including the computer projections and WiFi installations of the interior. In other words, digital technology which is the main driver of the building instead of providing a outer skin. Visitors can perceive the content by visual, auditory (depends on sound of water) and tactile (by touching to the curtain). So, contents of both the pavilion and Expo can merge successfully where architecture and science, water and technology merge too.

Means of Communication

> Can the building itself, rather than its content, communicate a strong message to the outside world? […] Messages are not simply conveyed inside a traditional pavilion; instead, the pavilion itself conveys the message […] We thought of a responsive environment to communicate the beauty and purity of water and the interactive potential of digital technologies (Ratti, 2007).

The water wall is an "information face (gate)" of the EXPO where texts, letters, and interactive patterns can be driven. Media displays do not merely convey information to the public, but also receive something from them, interact with them. Public is protagonist in the pavilion where visitors can change the façade with the sensor technology just approaching them. Besides water and sustainability, one of the pavilion's main messages is how to create

an interactive architecture: "broadcasting is only one way from media to society, but interactivity means in two ways" (Appendix B).

Experimental Laboratory

DWP generates a platform for "experimental technology" which provides different display forms according to the shape of flexible plastic pipes that can curve horizontally and vertically unlike traditional constant forms. The pavilion therefore supplies a "material laboratory" using digital water wall as an architectural material that can be discussed in the same approach of inspiring new materials in the Industrial Revolution.[53] The other message which is coveyed from the pavilion is how to create a fluid architecture: "Using stone is difficult to create fluidity, but digital techniques open new ways to architects" (Appendix B).

Design with Branding

Architects concentrated on the visualization of digital network instead of form finding. The building's geometrical form is so simple: a rectangular shape; in contrast, its design concept and communicated messages are more complex in terms of using digital technology, water, and architecture together. Water walls are "propaganda tools" of the Pavilion which can be a signature for both Siemens (Contractor) and Zaragoza / Expo, becomes a significant example of the combination of advertising architecture and media architecture issues (Appendix B). Even though the building is so simple in form and function, usage of advanced digital technology transforms building into a brand image of the Expo.

Sustainability / Energy Production

The pavilion is creating a manifesto: "How you can control elements in the way of sustainability?" (Appendix B). So, while the pavilion is consuming much more energy to drive the water walls and movable roof, both "water" and most of the other materials are recycled to reach the min. consumption and most of energy needed for lighting, recycling and moveable roof are accumulated from sunlight by photovoltaic cells on the roof by which DWP becomes a "low emission building" or even "zero emission building" (Ratti, 2007). Through all these applications, DWP was designed in a concern to integrate digital and sustainable technologies.

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[53] Antoine Picon, "Digital Minimal" in *Digital Water Pavilion: Operating Manual for Responsive Architecture,* 29, (E-mail by Carlo Ratti to Esra Aydoğan, 20 May 2008). "With his Zaragoza Pavilion, Ratti is returning to an alternative present in earlier architectural history. This alternative reveals itself when one examines closer the contrast between seventeeth and eighteenth-century Baroque and early-nineteenth-century Neoclassicism."

Media Façade Faces Inside?

Inside the building, water becomes a dividing wall and allows the reconfiguration by partitioning the space based on necessity and use – becoming a building material for both inside and outside. Water wall is also acting as a gate, able to open and close to allow people's passing. In this case water creates an architectural space and creates a 3D media displays for both inside and outside.

The Skin Function

The water skin has a flexible character owing to the dynamism of water, sensor technology, and movable roof. The water curtain can create natural freshness both to the surrounding and inside of the building during hot weathers and protect the interior space from direct sunlight. By night or during the winter, the roof is collapsed onto the ground, disappearing and becoming a shallow pool and the DWP functions in its min. area: the info desk and café. This flexibility of walls and roof makes the whole building being invisible which creates "disappearance of architecture" in a digital technology.

Figure 4.31. General View of DWP
(All below pictures were taken from carlorattiassociati, May - July 2008.)

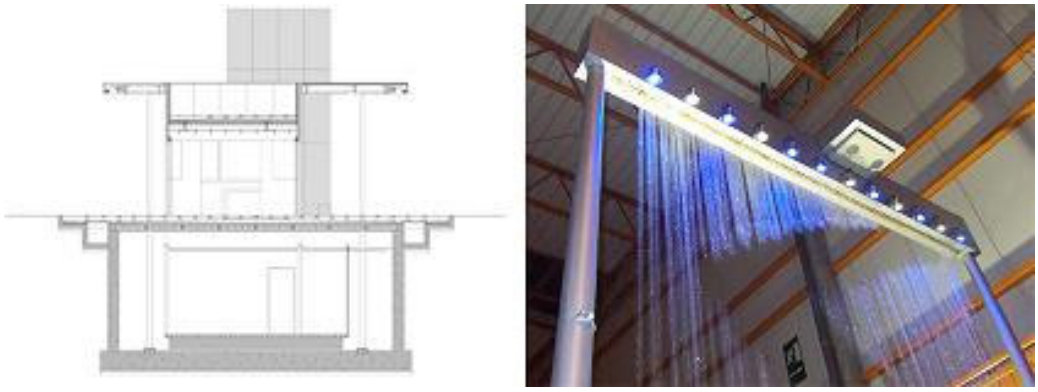

Figure 4.32. Section and the Prototype

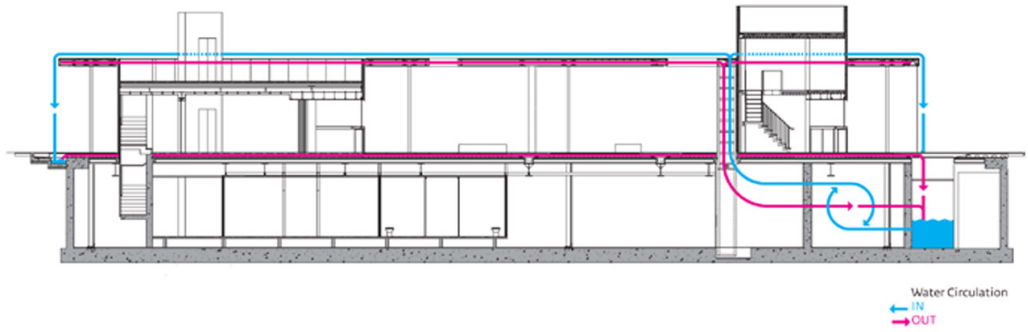

Figure 4.33. Water Circulation

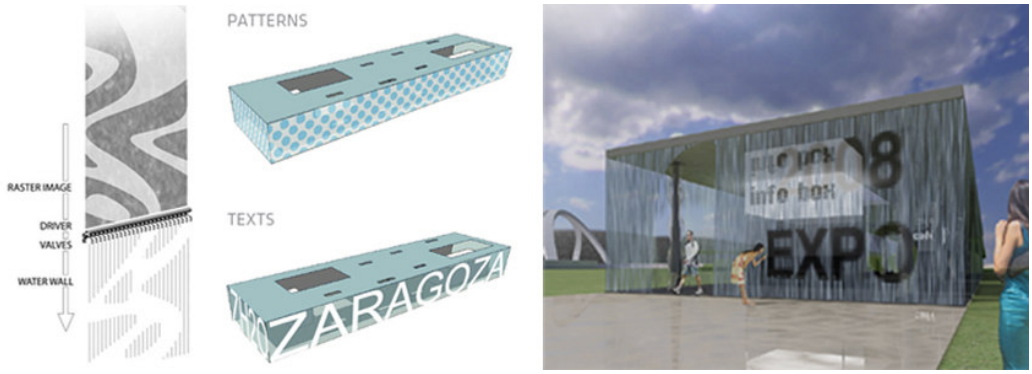

Figure 4.34. Water Imagining System, Graphic and Text Displays on the Water Wall

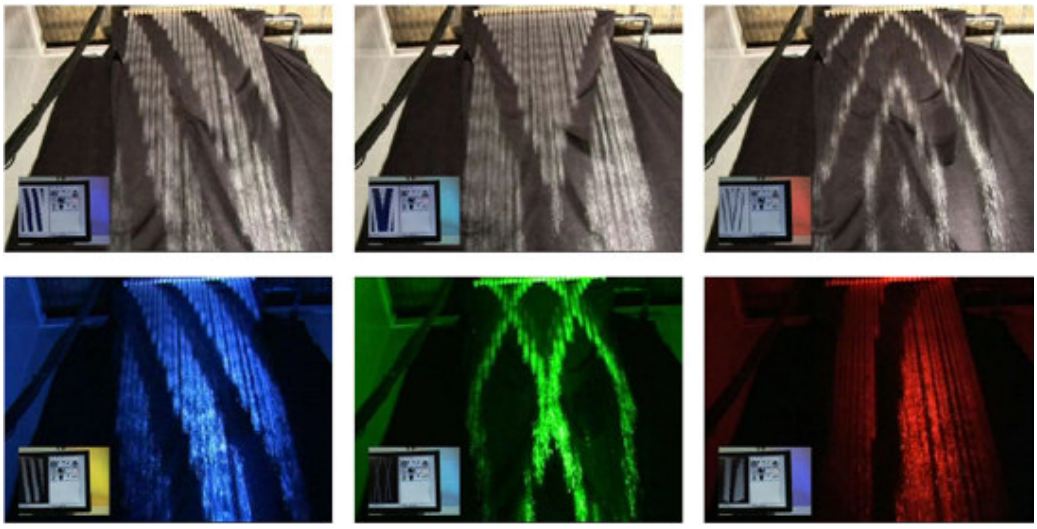

Figure 4.35. Images from the 1m long prototype developed by Lumiartecnica

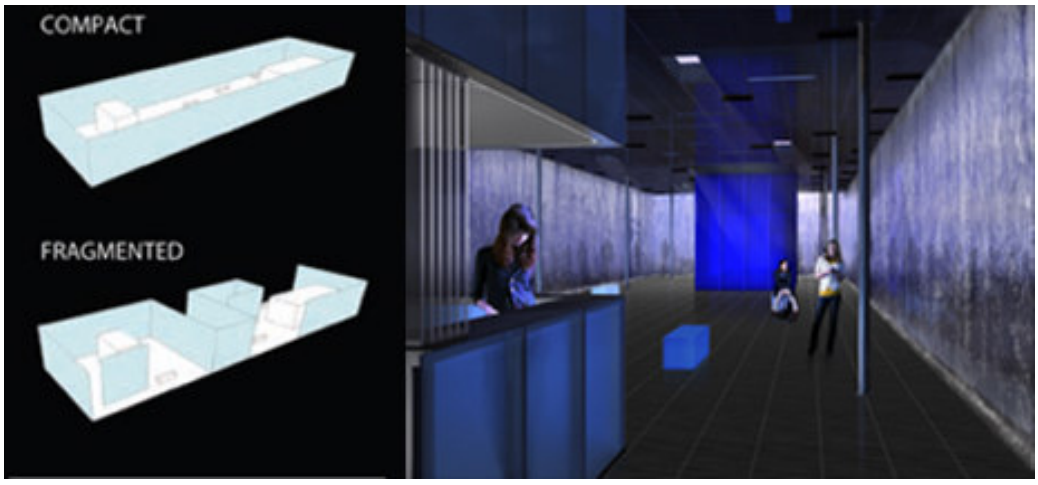

Figure 4.36. Reconfigurability of the Interior Space

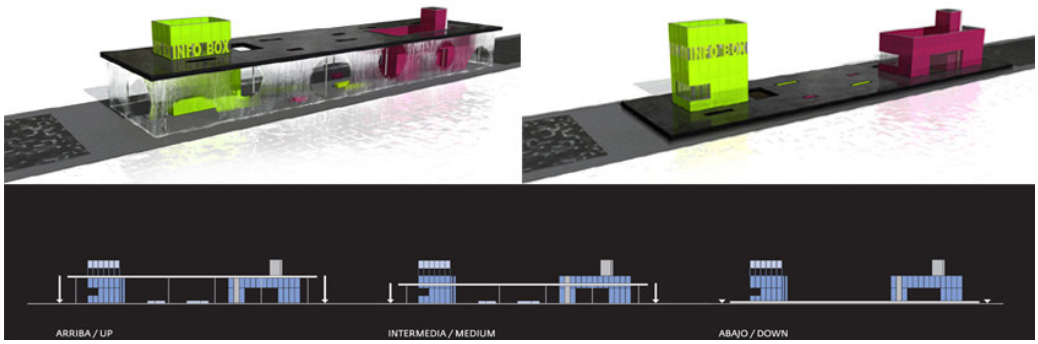

Figure 4.37. Three Levels of the Moveable Roof

Figure 4.38. Levels of the Roof (Photos by Max Tomasinelli.)

Figure 4.39. Patterns on the Water Wall

4.8 Media Façade: Describing a New Urban Space

Contemporary relationship between media technology and architecture represents complex issues in urban space. In the early stages of the experience with LED lighting and moving imagery billboards, firstly television-style advertising has expanded into urban space. Secondly, city marketing and urban management strategies are applied to create "designer cities" through what in termed "architectural tourism" as a response to the growing international competition among cities (VQ, 2006). Baudrillard pointed out that capitalism concerns with the production of signs, images, and sign systems (Baudrillard, 1972). For him, urban screens become "TV-Objects". Today, "the city is being shaped by high-speed communication networks which led the transformation of traditional building and influenced the use of public facilities" (Kagel, 2008). Building, as a whole, becomes a sign image in the urban space when media technology is used as an architectural element. As media and digital technology has defined a new form of social communication, traditional public spaces such as city squares, plazas, streets, and boulevards were displaced by new public image (Virilio, 1994). According to Paul Virilio:

> The public image has today replaced the former public spaces in which social communication took place. Avenues and public avenues are from now on eclipsed by the screen, by electronic displays, in preview of the "vision machines" just around the corner. […] Really one *public space* yields to *public image*, surveillance and street lighting can be expected to shift too, from the street to the *domestic display terminal* (Virilio, 1994: 64).

New urban architecture with media displays, computing and network systems, is transparent, translucent, and colourful. New buildings with electronic screens change themselves and their characters by carrying moving pictures. Their changing imagery gives "a sense of ephemerality" in the 21st century urban space, which becomes an experimental stage for all kinds of screen technologies, advertising billboards and video installations. Scott McQuire points out the discussion of Paul Virilio's Media Building with the medieval cathedral that:

> If both can be said to offer information, they are fundamentally divided by its speed of transmission. Electronic screens do not form part of a building's memory in the way frescoes or stained glass windows could; rather their restless constantly changing imagery contribute to a dematerialization of architecture, a sense of ephemerality which is pervasive in 21st century urbanism (McQuire, 2006: 64).

Because of these displays, the city turns into a theatrical stage at both car and pedestrian scales. Buildings with media façades present themselves as tools of an increasing digital and commercial culture, where façades are used as decorative elements. The collection of media elements has been crafted into an immersive and multimedia environment where business, digital art and entertainment are presented.

Through these experiments, the question is to address whether "media architecture" is appropriated everywhere. Media displays on façades mostly computer-controlled, but merely society-driven, create two important issues in urban space: "feeling of placelessness" and "local culture". Firstly, according to the "designer city" concept, cities are faced with a "feeling of placelessness" caused by the spread of international architecture and branded shops. In terms of media technologies, façade designs without consideration of building's content and surrounding environment tend to look the same everywhere. However, media façade, which is designed with local motifs can merge with its environment, support relationship with "local culture" and reach to a wider audience.

> The city of the future in fact foresees the co-existence of two urban realities: the real city (with its center, its periphery and the well-known problems that presently characterize it) and the virtual reality (Ranaulo, 2001: 20).

Figure 4.40. Media Façades in an Urban Space
(http://www.mediaarchitecture.com/MEDIAAARCHITECTURE07.pdf [accessed January 23, 2009.])

4.9 Chapter Brief

Media façade itself, becomes a main spectating object instead of being a background for digital billboards. Digital media technology contributes to new applications for dynamic and colourful outer skins. The manner of integrating media tools into façade designs (discussed both in related and selected cases) rather than simply illuminating the surface, creates a second skin, which has both advantages and disadvantages. These issues are discussing under the following titles: communication, ornamentation, flexibility, ephemerality, sustainability, and location.

4.9.1 Communication: Interactor vs. Spectator

There are two communication formats that have already been discussed in this thesis: spectator and interactor. Firstly, in previous examples discussed in Chapter II and III, architecture's role is broadcasting, based on "one-way" communication from building to society. In the discussion of "advertising architecture", buildings are hidden behind images and signs, which provide backgrounds for the commercial media. It is given in Venturi et al. that signs and symbols are the main elements in Las Vegas Strip, where orientation and communication occur over these elements. For this reason, architecture of signs creates a theatrical stage in the urban space where society acts as spectators, already foreseen by Guy Debord in *the Society of the Spectacle*. Today, media façades are becoming recent trends of spectacle objects with their TV-style dynamic screens. In the case of BIX, although displays are designed for the integration of the building's form and current exhibition's content, media installation is coming to overshadow the art collection inside the museum by making the façade more spectacular than the exhibition.

Secondly, through the relation of advanced media tools and architecture, "two-way" communication occurs with the interactivity of public participation. In some examples interactivity is used as an undeveloped experimental part of media façade such as in *GreenPix*, but in some, it is the main source of the building as in *DWP*'s human operated water walls. This new format of communication creates a new experimental stage for media, architecture, and society. First, interactivity through media façades opens a new "local culture" with the engagement of building and public participation mostly through entertainment: e.g. games of *Blinkenlights* or shadow displays of *Body Movies.* Second, public participation evolves as a different kind of spectating, which makes the building

differentiated from the others. In other words, this kind of communication introduces a new form of urban stage where the media façade is the "interactive spectacle" and interactors are the players. Although people have ability to create and change the form and content of the display, giant corporations determine the limits of creativity and control the form and content of what can be spoken and shown.

Both attached screens and integrated media façades, which are new digital information devices in public spaces have ability to send changeable messages in different contents such as information, news, advertising, art and entertainment. On the one hand, while being used to simply inform people, these messages can be easily transformed into impressive propaganda tools for individuals, institutions, corporates or politicians. On the other hand, both screens and façades have digital communicative roles with the interactive installations. These installations are operated by messages from society and generally played temporarily. While creating a local culture in public space, interactive systems are legitimizing the proliferation of digital screens and making people to addict these systems through active participating. Thus, in time people get used to see media displays in everywhere and familiar to screens when they become strong propaganda tools.

4.9.2 Design with Branding: Ornamentation vs. Decoration

Using graphics, signs and figures on façades is not a new application when compared to old cathedrals and their surface sculptures or Le Corbusier's *Le Modulor* installation on *Unite d'Habitation*. Screens of postmodern culture including both conventional paint billboards and today's electronic forms in Times Square are not part of building's memory in the way of frescoes or Le Modulor could. They are developed by company managements and attached to the building as independent decorative elements, becoming more visible and more dominant to advertise commercial goods. In media façade projects, digital media tools which are considered as architectural elements are becoming an integral part of the façade instead of a huge sign in Las Vegas Strip or an electronic screen at Times Square.

Even though all these digital media tools have been used to create display contents, they also serve as ornaments on façades which are changing the appearance of the building. For example, digital media is integrated particularly to create a "dynamic digital ornament" through image, video, and graphic displays, which are composed of direct (halogen, fluorescent lamps, projectors and LEDs) and indirect (reflection and kinetic energy) light

sources. For example, while screens on *Victory Park*'s façade are acting as decorative elements (discussed in Chapter 3), *Galleria Store*'s glass discs become integral architectural elements of the building and creates a "dynamic light ornament" in day through sunlight reflection and at night with LEDs (discussed in Chapter 4).

Although digital technology gives way to design media displays with innovative materials, the integration of media displays makes the building different from the others in urban space, where a media façade becomes a huge digital sign. The technology and materials facilitate the way using façade as a symbol and to this end, this kind of intention will increase the proliferation of media façades, which can cause a new form of digital dominated urban space. For example, in the case of *GreenPix,* media façade becomes the building's, the City's and also the architect's symbol as the world's first media integration with PV cells and world's largest colour LED display. In addition, Nasdaq Tower and Bayer Tower are intended to become both companies' and their sites signs with respect to their huge media façades.

> Four years ago, Frank G. Zarb, chief executive of the NASDAQ stock market's parent company, decided to take the role of visionary leader to a new level: he would commission a Times Square sign so big and bright that it would make all the others blur into the background (Papadimatos, 2005: 18).

> Most modern technology permits also - independently of the time of day - the representation of two approx. 40 times 40 to meters large representations of the BAYER cross on the east and west front of the building. Thus the tower becomes an impressive indication of the region and will be far away visible sign ("Bayer Tower, 2007).

4.9.3 Flexibility: Digital Technology vs. Stone

It is more expensive and difficult to change graphics on façades with bricks and mortar. However the most important aspect of media façade experiments is reaching a "dynamic" appearance different from the stone stability of cathedrals. All media façades except *DWP,* discussed in the previous chapter have dynamic outer skins in constant forms. For example, *T-Mobile* rectangular shaped media façade like a flat screen shows video displays in different contents during day, *BIX* 2.5D installation on irregular shaped façade represents moving imagery based on different contents and lighting effects or *Blinkenlights'* interactive displays can be changed in the limit of 144 windows. However in *DWP*, advanced digital technology

reached a 3D "flexibility" in architecture where the building itself becomes a flexible object in addition to media displays. In this case, the responsive technology gives flexibility to building: appearing and disappearing through movable roof and gaining reconfigurability with water walls which makes architecture disappear. These dynamic walls can be changed frequently to create an ephemeral exterior surface for the pavilion. While it is difficult with "stone" to reach this kind of flexibility and fluidity in architecture, digital technology facilitates this way and opens innovative approaches to architectural design.

4.9.4 Ephemerality: Dynamic Space vs. Time

Unlike periodical advertising contents and permanent messages, media façades have changeable contents and displays through time. On the one hand, according to Mirjam Struppek, their changing imagery from one second to the next contributes to "dematerialization of architecture" and "sense of ephemerality" in the 21st century urban space. On the other hand, using lighting technologies, the building can represent itself in different aspects every time during the day, which creates a change in the perception of time and space. These two aspects of media façade can be discussed as examples of David Harvey's term "time-space compression". In *The Condition of Postmodernity,* Harvey's discussion is a specific research on the flexible accumulation of rapid flow of money. In terms of consumption, he identifies a tendency of fashion in the marketing of goods as well as in life-styles. He states that:

> The first major consequence has been to accentuate volatility and ephemerality of fashions, products, production techniques, labour processes, ideas and ideologies, values and established practices. […] The dynamics of a "throwaway" society, as writers like Alvin Toffles (1970) dubbed it, began to become evident during the 1960s. It meant more than just throwing away produced goods, but also being able to throw away values, buildings, places, people, and received ways of doing and being (Harvey, 1989: 285-286).

According to Harvey, the trend of image-building becomes a vital aspect of the companies to establish an identity in the market place. For this reason, a media façade can be discussed as a new research field for both designers and corporations in consideration of future trend for contemporary architecture, like using historical styles in a collage technique of postmodern fashion. Ben van Berkel (UN Studio) defines himself like a fashion designer in "In the View of Fashion Icon" as the following:

> As an architect I am interested in dressing the future. Like a fashion designer, but on a much larger scale, I am helping the world figure out how it will look tomorrow. [54]

4.9.5 Sustainability: Energy Production within Environmental Pollution

At a time of increasing energy consumption and alarming importance of sustainable design, it is inevitable to see that media façade consumes quiet much energy in some cases. As a result of climate change and unpredictable fuel costs, the significance of lighting products (especially LED system) that can improve energy efficiency whilst reducing carbon emissions and fuel costs is increasing constantly.[55] Furthermore, by replacing halogen light with LED product, energy consumption will be reduced by 42 percent. Although in most cases LEDs generate a second skin and become the driven sources of media displays, they are also more energy consumers, depending on the effectiveness and brightness of illuminations, as well as their numbers. Especially LEDs are brighter like sunlight and can generate effective light displays; however, they are too small to crate a comprehensible image, so they are preferred to be used in high numbers to compose a high-resolution quality. According to the density of pixels, size and brightness of the display area, both cost and consumption levels are getting higher as in the case of *Nasdaq Building* where 19 million LEDs were used. *T-Mobile* media façade consumes much more energy, because of displaying both day- and night-time through the brightness of LED system. In *GreenPix,* energy concern is the driving force of the display despite produced in high costs. The media façade works as a self-sufficient element where PV cells absorb energy from sunlight during day and use for display activation at night.

Additionally, to decrease the energy consumption during day, some natural sources can be used to create different kind of displays, which are not based on light and energy. Direct "sunlight" was used in *Galleria* and "water" was a component in *DWP,* however, it needs to consume more energy to drive water displays and the movable roof. "Wind" activates *FLARE* units and creates dynamic light and shadow effects through sunlight. In addition, some other natural sources such as "rain water" or "plants" can be used as other forces for the future projects.

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[54] "In the View of Fashion Icon."
[55] "Leds Boast More Then Energy Efficiency and Durability".

Besides the issue of energy consumption, the media façade as "propaganda tool" of a building causes visual and noise pollutions. On the one hand, as mentioned above, light is the main source of both advertising and media façade examples. Although more light means less criminal and less accident, people and residence units in the environment are bombarded with undesired "spam" light. In terms of visual pollution, the question of the limit between adsvertising and media is raised. The proliferation of television-style advertisings increasingly fills the blanks in cities: parks, junctions, blind walls and so on. Everywhere full of simulative messages of images, letters, and videos, make an impression of information on individuals, which turns into a visual pollution through bright illuminations at night. Similar to the billboards, façades without "well-balanced" media and light planning can cause huge visual pollution to the surrounding residential areas and drivers on the traffic. On the other hand, installation of new sound systems in electronic plazas can open new alternatives such as live concert broadcasts, commercial purposes or administration propaganda. This kind of installation can carry a potential noise pollution.

4.9.6 Location: Territorial vs. Placelessness

Media façade as a new layer of the built environment opens a discussion on the distinction between local and global issues. The development of information technology and the proliferation of media façades allow rapid connection and relay of information with other people almost everywhere in the world. On the one hand, the world becomes more connected with those intelligent devices; on the other the competition between cities or companies is encouraged by symbolic and international architecture, where a question about sense of place arises.

In fact, screens with their similar faces in different environments give way to a "feeling of placelessness". Media façades which serve as urban screens can create international characters as in the *Bayer Tower, Nasdaq Building* and *T-Mobile*. These media façades are serving as the companies' brand images, which are applicable in every environment without consideration of local requirements. Differently, some projects support the continuation of local culture and give the content of site-specifity. For example, *GreenPix* media installation which behaves like a huge screen in the Olympic Games site, includes an important message for the city's future about the intentions of merging sustainable technology with digital media. Besides design intentions, media façades which are located in key points transform those specific places into a local public area. The media façade creates different atmospheres

by day and by night, becoming a landmark to be perceived from long distances as in the case of *KPN, Uniqa* and *BIX.* It is mentioned about Uniqa that:

> Designed by lighting designers Licht Kunst Licht, the installation is a fantastic example of how LED can be used creatively to transform buildings and identify them as distinctive landmarks. At night the tailor made content for Uniqa brings the building to life and ensures Uniqa is noticed by everyone in Vienna (*Leds Magazine*, 2006).

Another important aspect of media façade to support identification of "local culture" is its being interactive which was discussed in the communication part. Intelligent tools create a different relation between media façade and public, where strangers come together and get engaged with the building at a different level of communication: one who acts as an active citizen instead of behaving merely as a consumer can change the environment's atmosphere by the media display. This kind of media façade increases its popularity among society and makes public to interact itself in a curios way as in *Blinkenlights*. Its temporary installation transformed the surrounding into a popular local area by displaying huge shining hearth, ping pong game, etc.

Currently, these projects are becoming landmarks and individually providing local areas in the urban sites. However, when this trend becomes pervasive in the worldwide, the undesired proliferation of media façades has potential to create undefined urban spaces. In other words, although a media façade signifies its location as a landmark, urban spaces where these projects take place together become similar to each other and cause a feeling of placelessness. For example, currently, most cities' centers like Times Square or Piccadilly Circus have similar aspects because of proliferation of billboards and lack of local intentions.

To conclude, digital media technologies open new design intentions to architects in the creation of more dynamic outer skins for buildings. In this chapter, these intentions were investigated under the term "media façade". According to this investigation, media façade projects' advantages were discussed under the issues of communication (one-way and two-way communication platforms, spectator and interactor society), ornamentation (media tools as architectural elements, dynamic digital and light ornaments), flexibility (dynamic outer skins, fluidity in architecture), ephemerality (dematerialization of architecture, changeable content through time), sustainability (by using PV cells or natural sources) and lastly, location (local culture, local public area). On the other hand, the disadvantages were also

discussed under the same issues but, in different approaches. They are: communication (becoming an interactive spectacle and an impressive propaganda tool), ornamentation (becoming a huge digital sign), ephemerality (change in time and space perception, becoming a fashion object), sustainability (consuming much more energy, causing visual and noise pollution, and spam light) and lastly, location (causing a feeling of placelessness within undefined urban spaces).

CHAPTER 5

CONCLUSION

5.1 Summary

Inspired from the discussions of the conferences *Media Architecture London 2007* and *Media Façades Festival Berlin 2008* and from the recent dynamic, colourful and bright applications of façades, this thesis questioned the transformative relation between media technology and façade practice as a growing trend. From this inspiration, it is observed that a "media façade" with its huge scale and dynamic media displays becomes an attractive information screen for mass communication in an urban space. Beginning with experimental art installations, a media façade is also a potential advertising tool for giant corporations and a new form of spectacle for spectators, where Guy Debord's Society of the Spectacle (1967) is carried to the domain of architecture. To this end, the thesis aimed at investigation of the change in digital media and architecture relation which not only initiates a new kind of architectural communication platform, but also indicates the emergence and proliferation of a potential propaganda tool.

Proceeding from the idea that a façade, in addition to its skin function, has a "communicative role" which conveys the messages of its function, technology, culture, and so on; the thesis mainly focused on the symbolic and communicative role of media façades. Accordingly, the thesis delineated different façade attitudes within the conventional and up-to-date techniques of using media tools in façade designs.

Although it is possible to see this communicative role as a common belief in different times, the thesis has gained different faces and thereby, what façade signified for society underwent various changes. The thesis made a short historical overview of using graphics on façades from Gothic cathedrals to recent media façades, and observed that adding signage onto

façades has altered in three ways: First, images, letters, and graphics were installed on blind walls. Second, “sign value” of a building was used by company managements as a symbol of their products. Due to the inspiration of postmodern culture, the façade was completely hidden by signs and symbols under the control of brand developers rather than architects (e.g. Las Vegas Strip). Venturi (1977) suggested that architects instead of brand developers could use façade as an integral element of a building. In this thesis, these applications were discussed under the “advertising architecture”. Third, technological developments open new research fields to architecture and façade designs with the use of digital media. To this end, architects have an ability to control lights, colours, and displays of the entire façade with the help of these technologies. Although these kinds of projects were defined under different terms such as “Media Building” by Virilio or “light architecture” by Ranaulo, in this thesis, these projects were discussed under the term “media façade”.

The thesis suggested that the media installation is significantly tied to technological developments in the design medium. In the early examples of media façades, integrating media into the built form was realised by traditional light sources (halogen and fluorescent lamps) with the control of a computer system; thereafter, innovative designs have been created by LED systems which can display image, graphic and video installations rather than simply applying lights to a surface. Being small components (i.e. as dots, curtains, boards), LEDs can be integrated onto a façade structure, to provide homogeneous light distribution and create high-resolution displays with better image quality. In some cases, media façades have transparency, which let the direct sunlight through inside and people can see the outside.

The sketch given below is for the purpose of making a comparison between the sculptural graphics of a Gothic façade, the attached billboards of “advertising architecture”, and integrated digital media tools on contemporary “media façade”. The first has a stone façade with reliefs that are conveying permanent messages at pedestrian level in day. The second façade is hidden by huge opaque screens that are carrying periodical advertising messages and illuminated signs at both pedestrian and car levels in day and at night. The last façade has an integral second skin, which displays comprehensible graphics from every distance during the whole day. The skin, therefore, is able to be transparent to allow direct sunlight through the inside.

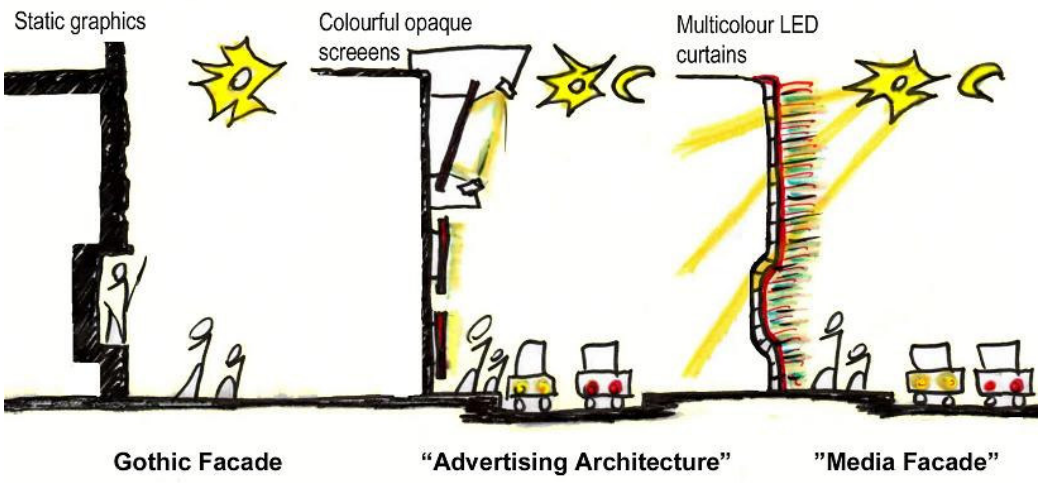

Figure 5.1. Comparison of the Perception between Façades in Different Periods
(Sketch by Esra Aydoğan.)

5.2 Findings

While focusing on the usage of media tools in façade practice, the thesis investigated the shifts from the industrial age to the information age, from the society of the spectacle to the information society and from advertising architecture to media façade. The thesis investigated related projects of both "advertising architecture" and "media façade", focusing on three selected applications of media façade: *BIX Installation*, *GreenPix Zero Energy Wall* or *Digital Water Pavilion.*

Although the symbolic importance of buildings is a part of visual communication system, digital screens (LED&interactive billboards) are becoming more dominant in the public space and bombarding inhabitants with luminous advertising. Hence, Baudrillard's "TV-Object" has moved from the home to the street as an "urban screen". These applications from traditional print billboards (e.g. Las Vegas Strip) to recent digital screens attached onto buildings are discussed as media attachment (e.g. Times Square) under the term "advertising architecture". On the other hand, projects which were designed with media integration are discussed under the "media façade". While the thesis investigated the differences between these two, the main concern was the similarity of them in terms of including an advertising content (Table 5.1).

Table 5.1. The Comparison of Using Media Tools on Façades in terms of "Advertising Architecture" and "Media Architecture"

ADVERTISING ARCHITECTURE	MEDIA FAÇADE
1. Attachment: digital media screens are attached onto the built form afterwards	1. Integration: digital media tools are integrated into the built form both at the same time and afterwards design process
2. Façade: as a background for media content	2. Façade: as a means of media content
3. Display: Image, graphic, and letter installations are defined by brand developers or specialist designers	3. Display: Image, graphic, video, and light installations are designed by architects or graphic artists
4. Communication: One-way (spectator)	4. Communication: One-way (spectator) and two-way (interactor)
5. Decoration: Independent element	5. Ornamentation: Integral element
6. Stability: Façade has a stone stability	6. Flexibility: Façade has a digital flexibility
7. Durability: Periodical advertising content and stable billboards	7. Ephemerality: Changeable content and display through time
8. Unsustainable	8. Sustainability: by using PV cells or natural sources

1. "Media integration" is the main technical difference to investigate the projects of these two implementations. Integration is about using media as a design input which is taken into consideration from the conceptual stage of the project. On the other hand, "media attachment" is about hanging billboards onto the built form after design process, where billboards act as independent elements.
2. A media façade can be used as a means of media content, which conveys a message with its entire body. On the other hand, a façade of advertising architecture acts as a background of signs, sign boards and billboards to carry messages.
3. Although advertising messages are composed of image, graphic and letter installations, which are defined by brand developers and special artists, media displays are operated by the collaboration of various experts such as architects, designers, engineers, and company managements.
4. A billboard generally broadcast messages in one-way communication, from itself to the society, however, a media façade has ability to interact with spectators in two-way, where society acts as interactor (eg. Blinkenlights and Body Movies).

5. As mentioned in the first issue, while attached screens are acting as independent decorative elements on a façade (eg. screens at Victory Park), integrated media tools act as architectural elements, which define a new kind of ornament (eg. glass discs of Galleria).
6. All media façade projects have dynamic appearances with the help of digital technologies. However, in the DWP, new materials and advanced technology (water, sensor technology and movable roof) make the building visible or invisible, which contributes to a digital flexiblity instead of a stone stability.
7. Even though attached screens carry periodical advertising content, media façades have changeable content and display through time. Unlike traditional paint billboards or sign boards, recent electronic ones (LED and interactive) are also operated by computer systems. Besides billboards, these systems control the huge media façades and change their appearances from one second to another.
8. Although a media façade consumes much more energy due to the display area's size and brightness, it can be designed with respect to the issue of sustainablity. In some cases, architects took environmental concern into consideration and designed media façades with PV cells (GreenPix), natural sources (DWP) or with low tech systems to decrease the cost (halogen lamps of BIX).

In addition to the comparison above, the thesis discussed the **disadvantages** of media façades in urban space and public perception such as:

1. A media façade with its perceptible scale and dynamic displays not only creates a "local culture" in its surrounding environment, but also transforms the building into a new form of spectacle: that is in Best and Kellner's words "interactive spectacle".
2. Proceeding from David Harvey's "time-space compression", dynamic appearances of media façades introduce a change in the perception of time and space, and in the local design issue of building with its environment. These intentions produce an architectural area with global issues and a fashion of media façades as the new commodities of consumer culture.
3. LEDs are more energy consumers, when they are used in huge numbers (19 million in Nasdaq Building). In additon, their bright and changing imageries cause visual pollutions with spam light, that also include potential noise pollution with sound systems. The increasing projects of media façades can cause a landmark pollution in the urban space.

4. Although a media façade is an important tool to indicate its specific place, both its ephemeral faces and proliferation of such projects can cause a "feeling of placelessness" in Mirjam Struppek words, within undefined urban spaces.

According to these advantages and disadvantages, the thesis found out some **aspects of media façades** in urban space as such:

1. In all projects discussed, it is observed that a media façade becomes an information face of a building, which displays various contents such as information, entertainment, art, and advertisement according to building's content. For example, a media façade can be a platform for artistic expressions as Body Movies, BIX or GreenPix media façades. On the other hand, some buildings which are totally close to the outside as cinema, museum or shopping mall can prefer to create an information face (media façade) to convey the interior messages to the outside. A cinema wants to broadcast its current films or a shopping mall prefers to use temporary façade displays to advertise the shops' logos. For example, GreenPix is designed to transform the box-like building's opaque façade into a dynamic entertainment wall which serves the entertainment function of the building. Architects of CEPA intended to use the façade as an information screen to broadcast the news and sales of the shops.
2. In some cases, it is observed that a media façade creates a "second skin" for the building, which provides a second level of boundary function to the inhabitants. For example, in BIX, water membranes were installed between the double skin to provide a water protection.
3. A media façade creates different atmospheres by day and by night and can be perceived from long distances. Technology can create powerful landmarks, visible from afar and easily identifiable. For example, Bayer Tower's huge company logo was integrated with 3,5 million LED lights on the main façade to be perceived during the day from the hi-way.
4. A media façade becomes an impressive brand image for various controllers such as company managements, brand developers, or architects. A media façade, therefore, contributes to various associations' "respectability, quality, prestige, reliability, and innovation" (Harvey, 1989: 288) which increase the desires of corporates and proliferation of media façades. This proliferation opens a new competition area for

companies and cities under the slogan of "World's Biggest and Brightest Media Façade".

5. Lastly, a media façade is a potential propaganda tool of individual, institutional, commercial or political intentions. While Gothic façades were both designed to convey the oppressive influence of religion or Renaissance civic façades represented the patron's glory, recent media façades are acting as huge brand images and they are open to be controlled for commercial purposes. In time, they can be used as screens like billboards in squares, which are rented to broadcast temporary advertisements.

According to the investigations and discussions made in this thesis, following **results** were achieved:

1. Using digital technology in merely façade designs (all the above media façade projects except DWP) or in the whole building (only DWP) conveys messages in different ways. Gothic cathedrals and Modern buildings were not only using façades to convey their messages, but also their whole spatial body. The cathedral communicated religion stories both through the reliefs on the façade and its whole space. Similarly, in the case of Modern architecture, messages were conveyed through its pure architectonics with new organizations of forms. In this thesis, all projects, except DWP, were discussed on their façade applications. However, in the case of DWP, the entire pavilion -from water walls to space organizations- was designed by digital technology, which created a "dematerialization" of architecture with movable roof and sensory controlled walls. Additionally, although Gothic cathedrals and Modern buildings conveyed permanent messages, media façades have sent temporary messages in different contents. Virilio (1994) put forth the comparison that while Gothic cathedrals conveyed static, constant messages through windows, sculptures, tapestries, mosaics; today, both the information and spaces are active and interactive.
2. Owing to the fact that digital media technologies are changing or strengthening merely the appearances of façades, they are in a way, contemporary interpretations of Venturi's "decorated shed" concept. For example, all the above projects have dynamic ephemeral surfaces, which are changing through time while the body behind façade is always constant. Particularly, GreenPix separated the media screen from the box-like building and simply designed the façade as the digital face of the

building. However, in DWP or in BIX with the organic building behind it, the entire building is a totally spectacle object, which is closer to a contemporary duck project.

3. Creating an interaction between the society and the façade is a new form of comunicational practice, which carries the spectacles to new forms and changes the society's role from spectator to interactor. Although acting in limited forms and contents of displays, this kind of communication creates a new local culture in public space. However, these systems are legitimizing the proliferation of digital screens, and increasing their usages everywhere. Thus, in time, people will be accustomed screens with excessive advertising and strong propaganda tools. Baudrillard states that while Modernity centred on the production of things (commodities and products), postmodernity is characterized by a proliferation of signs. Thus, it can be observed that contemporary architecture is looking for its language in digital technology and urban space is characterized by the increasing numbers of media façades.
4. The most significant observation of this study is the inadequacy in the controlling of undesired proliferation of media façades. The projects discussed here were designed in collaboration with various experts such as designers, architects, engineers, and company developers. Although they were defined as experimental laboratories of new media and digital technologies, their results cannot be observed in the sources. As mentioned above, the proliferation of such projects cause uncontrollable intentions toward excessive advertising, powerful branding, and strong propaganda.

Consequently, a media façade becomes a new commodity image of consumption, which sets the building different from the others. Their effective media displays convert surrounding environment into a dynamic urban space during the whole day. The issues "respectability, quality, prestige, reliability, and innovation" are the main indicators of cities or corporates to present themselves more exclusive than the others in the competition platform. To this end, media façades with their ephemeral surfaces and intentions on being fashionable represent these various associations and become exclusive projects, which increases their proliferation. This undesired proliferation of media façades has potential to create undefined urban spaces. In the light of above discussions, the thesis suggested a guidance of an expert mechanism to control media façade projects with respect to architectural identity (losing meaning and appearance, relation between inside and outside), urban issues (time, space, location), environmental concern (sustainability, energy consuming, visual, light and noise pollution), and social context (public perception, bombarding with light and graphics).

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APPENDIX A

DIGITAL MEDIA TECHNOLOGY

High-tech Billboards

Some properties of digital billboards from *OAAA* include:

> **Overall Size:** Digital billboards resemble standard bulletins and posters. For this reason, the overall size dimensions are the same as conventional billboards.
> **Design:** Simplicity is the fundamental guideline for creating good outdoor designs and the same principles apply when designing for digital outdoor media.
> **Be Simple**: Outdoor audiences are mobile and have limited exposure to messages. Use short and simple words for fast and easy comprehension.
> **Be Bold**: Use large and legible typefaces. Choose fonts that are easily read at long distances. Fonts with thin strokes or ornate script will be difficult to read. Upper and lower case letters are particularly legible.
> **Be Colourful:** Avoid using a white background when designing for LED or other light emitting technologies … The perception of color can change depending on the amount of ambient light surrounding a digital outdoor display unit. For this reason, rich background colors are more impactful during daylight hours, while pastel backgrounds are more vibrant at night and on cloudy days ... Use bold colors with high contrast.
> **Be Flexible:** Change messages weekly, daily or even hourly. Design with a creative strategy that tells a story or communicates numerous details using multiple design layouts.

Digital billboards represent advanced electronic technology and provide substantial benefits to advertisers and communities. The advantages of them are counted as such (OAAA):

- Authorities can deliver emergency and law-enforcement information:
    - Alerts to find missing children
    - Weather and disaster bulletins

    - "Wanted" information to help police find fugitives
- Advertisers can deliver real-time information
- Most advertisements on digital billboards promote local businesses, and most of those are considered "small businesses"
- Digital billboards can adapt quickly in fast-changing, competitive environments. Examples include:
    - Changing interest rates or mortgage rates
    - Lottery jackpots
    - Sales specials
- There is the potential for advertisers to target and purchase by day part, location or geography
- Advertisers no longer have printing and shipping costs
- Multiple advertisers can share prime locations
- Digital boards create demand for high-tech jobs

LED Systems

Families of semiconductors can be incorporated into devices that emit light over much of the visible spectrum upon electrical excitation. These light emitting diodes (LEDs) and diode lasers are revolutionizing many communication and display technologies. The wavelengths of light emitted can be controlled using design principles based on the periodic table, including isovalent element combinations and solid solutions. A recent technological breakthrough is the blue LED, which permits additive color mixing when combined with green and red LEDs. Light emitting diodes are composed of a chip of semiconductor mounted on one lead with a gold wire connected to the other lead. A plastic lens protects the semiconductor and focuses the light.[1]

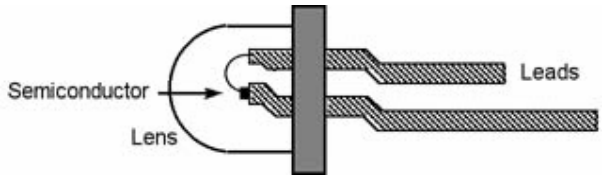

Figure A1. LED drawing ("LEDs," *University of Wisconsin.*)

[1] For further information see "LEDs," *University of Wisconsin,* http://mrsec.wisc.edu/Edetc/background/LED/index.html (accessed February 3, 2009).

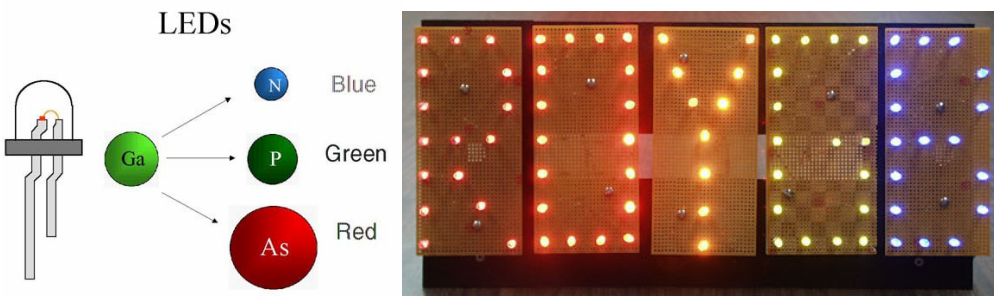

Figure A1. Rred, orange, yellow, green, and blue LEDs ("LEDs," *University of Wisconsin.*)

Benefits of LEDs from *PHILIPS*: [2]

- General benefits
  - Very long lifetimes (50,000 hours)
  - Lower maintenance costs
  - More efficient than incandescent and halogen lamps
  - Light up instantly
  - Fully dimmable without color variation
  - Directly emit colored light without filters
  - Complete spectrum of colors
  - Dynamic color control and tunable white point
- Design benefits
  - Total design freedom with hidden light
  - Vivid, saturated colors
  - Directed light for more efficient systems
  - Robust, vibration-proof lighting
- Environmental benefits
  - No mercury
  - No IR or UV radiation in visible light.

[2] "LED Lighting," *PHILIPS*. For further information see "LEDs," *University of Wisconsin,* http://mrsec.wisc.edu/Edetc/background/LED/index.html (accessed February 3, 2009).

APPENDIX B

INTERVIEWS

Digital Water Pavilion, Carlo Ratti Associati (20 MAY 2008, Turin, Italy)

1. What did client expect from architect in the means of sustainability of water, communicational importance of the building and using new technologies? Nothing. Water+technology are used together. Using water in a new way is idea of the architect.

2. Why were you chosen to design the pavilion? First project: MIT Senseable and ? lab. Created a research project for Zaragoza digital mile in 2006. Second project: The entrance(gateway) of Expo in 2006. Third project: They asked for the pavilion design.

3. Before creating digital walls for Pavilion, what kinds of technologies and researches were developed in MIT Senseable City Lab (the MIT Prototype)? Digitally augmented space (using network, cellphones): To make Zaragoza a digitally augmented space and adaptable Bus Stop in Zaragoza, 2006 (milla digital).

4. During both design and construction process of the project, which problems did you face? First, it was difficult for contractor because of using diffirent techniques as pistons and water control. Second, new approach to traditional building (means building with steel colums as usual construction method), water, and digital technology relationship. Third, SIEMENS is sponsor company.

5. Which kinds of message does Pavilion include by using digitally new techniques in building's design according to its situation in the Expo site? First, how to make an interactive, fluidity architecture. Second, broadcast is only one way, from media to society. But, interactivity means in two ways, from media to society and society to media.

6. In the case of "advertising architecture," can we say that Water Pavilion is a new phase of representing client (Expo, Zaragoza)'s branding? Yes. The pavilion can be a signature for both Siemens and Zaragoza/Expo. May be we can say that it can be an example of advertising architecture. Ads architecture and media architecture can be combined in this point.

7. Can digitally dominated façades be discussed under the issues of flexibility and freedom in architecture? (Le Corbusier's flexibility and freedom in open-plan) Le Corbusier's open-plan is on the scale of building, it depends on the building, but digital flexibility depends on society, technology and architecture. Using stone is difficult to create flexibility and freedom, so digital techniques open new ways to architects.

8. Can we say that the project is an example of communication over materials rather than scale of the building? (The importance of simplicity) Yes. The most important thing is the simplicity of the building and importance of a new technology. Building's simplicity is like a gate.

9. What is the role of society on the building's organization with new digital techniques? Interactive society and Guy Debord's spectacular society can be discussed in this issue. Because communication networks are very huge, architecture doesn't close to the building. It is openning to the world.

10. In the approach of fluidity in architecture, does changibility of façades create ephemerality and flexibility in architectural environment? I don't see this result as a problem. Because the digital technology makes everything easier to open to the whole world so as architecture too.

11. Will interaction of society instead of dominated by media signs create a new public culture and a new mode of communication between technology, architecture and society? In 2007 there was a news in NewYork Times that was written about pavilion as one of the best invention ("The Best Inventions of the Year, Architecture, Water Works"). Because of that, the society is really very excited and waiting for the pavilion. Yes, I expect but I don't know. We will wait and see together. We hope so people respond with interaction more.

12. What is the main message of the building? First, environment with building: water and sustainability to create a manifesto: how you can control elements in the way of sustainability. Second, to create a place that responds to people.

After the EXPO 2008: [3]

13. How was the people's interest on DWP (children and adults)? The people were enthusiastic! This was really a surprise for all of us: the dwp became immediately a play both for adults and kids in the sunny and dry city of Zaragoza. The goal to create a public space used by citizens was reached. As you can see from the pictures (www.dwp.qaop.net/#gallery), during all day long people used to jump in and out the patterns created by the digital water curtains with the smile on the face.

14. According to experts, what are the both positive and negative critiques? We haven't heard a critique on this project until now. In september there was a visit on site of the advisory board hired by the city to draw the vision for the next urban transformation of Zaragoza. The famous sociologists Manuel Castells and Saskia Sassen, the english urbanist Peter Hall, William J. Mitchell and Dennis Frenchman from MIT took part to this event and they were very impressed by the pavilion because it represents a new way to intend the public space in the digital era. New issues as interactivity, open source installation, reconfigurable spaces were introduced in this experimental building.

15. Could you reach what you have expected during the process? This project was a sort of an open eyes dream for us. Despite the utopian character, it was realized exactly how we have imagined it. Of course during the opening there were some technical problems - at the end the dwp is a complicate machine which need a testing period- but we're proud that all the features of this digital interactive building were respected.

[3] Answers were sent by Walter Nicolino (e-mail to Esra Aydoğan, 19 January 2009).

BIX Installation, Realities: United [4]

1. What did client (Kunsthaus Graz AG) expect from architect in the means of function of the building as an art gallery, communicational importance with public place and using new media technologies? The motivation to go ahead with this installation arose as a reaction to the design developed for a competition, which was based on the idea of creating an outer skin for the building. In the plans for the execution of construction work for the art museum, however, the central idea of the outer skin in the form of a diaphanous membrane was practically lost. And so BIX came into being. It was designed to retrieve the required diaphanous quality or transparency. The project was realised, having won the sympathy of the client, the architects and the designated director of the museum at the last minute. (Tim Edler, "The systematic cultivation of media façades, A project report," p.2)

2. Why were you hired as media designers of the building's façade? In 2001 realities:united was commisioned by the client, the Kunsthaus Graz AG, to develop a "concept for the thorough integration of media technology." As a result we developed a broad catalogue of ideas aiming at the creation of an overall "technical character" suitable for the functional as well as aesthetic needs of an institution such as the Kunsthaus. BIX was one "small" part of the overall concept, described in the section titled "Electronic Aura". (Jan&Tim Edler, "Message Vs. Architecture?," footnote 4)

3. Why did you prefer to use low resolution flourescent lamps rather than leds which are used more common? It follows that one usually cannot use high-resolution displays, because they are unreasonably expensive. If the media façade for the Kunsthaus Graz had been equipped with a high resolution CRT display, the display alone would have cost nearly as much as the entire rest of the building (45 million EUR). To be able to spread the display across all 900m2 of the building's main façade, realities:united developed a low-resolution greysacale display. Its pixels consist of 930 round neon tubes- a Standard product that is inexpensive and hence remained economically tenable even when used in high numbers. (Ruby, p.1-2) The choice to use "low tech" fluorescent light tube as the basic module for the display addresses the issue of *technological sustainability* over time. In comparison to architecture, new technologies for large screens age, i.e. become outdated, at a very fast rate. However, by using conventional, circular fluorescent lights for BIX pixels, known since the

[4] Answers were compiled from the sources which were sent by Jan Edler (e-mail to Esra Aydoğan, 17 June 2008).

1960's as kitchen lamps and almost a design classic today, the question of being technologically up-to-date does not arise. By using the fluorescent light rings, i.e. an "outdated" technology, the BIX display meets the architectural demand of constancy. This central attribute of the installation – technological sustainability – saves the operator constant upgrades and guarantees an operational balance between architecture and technology at comparatively low costs. (Edler, "Message Vs. Architecture?")

4. During both design and construction process of the project, which problems did you face? The "resolution" of the matrix is extremely low. There are only 930 pixels – a mere 0.2 % of the pixels found in a typical TV screen. In addition, they are monochrome only. On one hand, such a low image resolution imposes strong limitations; on the other, however, it enables both the modular structure and the large size of the installation to be highly integrated into the architecture. (Edler, "Message Vs. Architecture?")

5. As it is written in your office profile, for you "Architecture means message." Accordingly, what is the main message of BIX Communicative Display Skin between the building, communication and technology? BIX transforms the building's main eastern façade into an alterable, performative membrane to transmit internal processes of the art institution into the public. It is an attempt to create an experimental laboratory for the development and deployment of a unique urban communication style – a "language" – which is synchronized with the architecture and its users on one hand, but which is also deferring to its urban context on the other. (Edler, "Message Vs. Architecture?")

6. For you, what is the main reason of chosing façades as urban screens? Jan and Tim Edler see media façades not as autonomous technical devices, but as a structurally, spatially and programmatically integrated element in the architecture. This implies that a media façade cannot simply be a standard, add-on product, but must be specifially tailored to the building's circumstances. One of these is building's volumetry... (Ruby, p.1)

7. Although media façades don't work for commercial purposes, they have a strong effect to present buildings. So, can we discuss information over architecture in the concept of "advertising architecture"? But we are not interested in commercial media façades. What we do is different: It is not colorful, it is not high-resolution, it is not rectangular. And of course we have to get across why it is actually better like that. (Interview, http://www.baunetz.de/talk/crystal/ index.php?cat=Interview&nr=14, 10 June

2008). The media façades designed by realities:united such as BIX or SPOTS combine the specifics of the media with the specifics of the location. The aesthetic born out of this connection is the exact opposite to the ubiqutious flood of images in advertising, which distributes said images on a wide range of different media channels. If the advertising industry produces images and then merely has to find the right vehicles to distribute them, realities:united produce image carriers for which the matching images have yet to be created. (Ruby, p.2) So the work of realities:united is inspired less by the urban environments of Tokyo or Times Square in NYC than one might suspect at first glance, because these are mostly created through walls of media images, but only in the rarest of cases through media architecture.