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TITLE OF PAPER

RAINBOW CITY: A STUDY IN COLOR OF CITIES.

ABSTRACT

Urban Design defines the city by giving it a form, while architecture defines it by giving it a structure. But Less obviously, and fundamentally, color has a significant impact on the over all perception of an urban environment. Color of cities is formed by complex interactions that informed and shape this perception. The color contributions to a city's unique character and appearance. Academic studies don't give this component as much as it deserves. For any city color can be seen in many urban features as; facades, streets, boundaries, plazas, market places and even people's clothes.

This paper looks at a perceptual view to some cities in the world, not for comparative analysis between the colorful images of the cities. Nor comparing different times in all cities and how these times change the urban perception of the city. This topic had been discussed in academic researches and books before and well known that intensity of light between different cities changes the city colors and shades. But the research is trying to explain the complex pivotal role of color in urban design and form, a specific classical and traditional color palette for cities corresponding to culture characters. Then reviewing the new color technologies in architecture specially glass and some of the recent colored façade trials that have changed the urban color palette of cities.

Hoping to reach the aim of striking the realty by discovering the contemporary palette, this is created by matter technological improvement and fashion. Suggesting how this new trend of global urban coloring can be aggregated to our academic schedules.

INTRODUCTION:

God has created the world in seven days, with seven skies as a topping and seven colors as a rainbow base. The world since has been made is considered as a colorful artistic tableau. Colors are the flavors of local urban schemes. The spices that complete the urban context of any city in the world. Imagine a cold, foggy and rainy day, without colors of a rainbow filling hearts with joy and freshness. Let us trace this rainbow and follow its color around the world, discovering its sentimental touch in each city.

People are the source of city colors. They may use their domestic and local paints in their distinctive places, as shops, dwelling or streets. The perception of color is so different in a three dimension working place. They look different than on paper, due to different circumstances of light angles and weather. For example Stockholm in Sweden has a Latitude of 59°20' N & Longitude of 18°3' E, while Mexico has a Latitude of 19°24' N & Longitude of 99°9' W. (Swirnoff, 2000) There is a big difference in the two cities' longitude and latitude that give each city its own shade and color.

This research aims to fulfill new goals in *COLORS* subject, as most of these environmental circumstances, which affect a city color, have been discussed in books before. Dealing with this traditional cultural palette of cities, an urbanized overview should be made in chapter one for some of the most precious cities in the world, as Venice, London, Paris, Shanghai, New Mexico and Cairo. Chapter two is the contradiction of the classical palette viewed before; it discusses some of the contemporary trials all over the world, trying to change this traditional urban color palette. Chapter three is the concluded new urban design usage for color palette trying to discuss the usage of new technological materials in urban design and their effects. Chapter four is a minimized trial by the researcher to change the color palette of the academic educational suggestions.

CHAPTER ONE: TRADITIONAL CITY COLOR PALETTES:

A city has to be visited on foot, to feel and experience the sequence of spaces and human perception of color by eye. The role of color in urban scheme can be linked to spatial perception. As moving eye scans and selects. A human while moving can stop to watch a spatial door, or a street with graphic façade. Visual stimulation in cities is too rich. (Swirnoff: P.9, 2000) Taking a close look to one street in any city of the world, notice that: the stimulation of color occurs from connecting or grouping of facades in the urban context of a city.

1.1 HISTORICAL COLORED CITYSCAPE: This cluster effect stimuli variety of colors and surprise Cities to be studied are considered wonderful color combination of urban schemes and can be called colored cityscape. Cases of unique traditional cities can be viewed to conclude its palette of colors.

1.1.1 Venice in Italy: Venice¹ is built and constructed on hundreds of Islands in the Adriatic² Sea. It is a city with a Republic effect. Where human had less difficulty to adopt urban space. The urban pattern of the city is painted by pale light colors.(Edizini: P.5, 2004) Venice is city with spirit of eighteenth century, noble architecture gives a richness of natural colors of marbles, alabaster, porphory, malachite and jasper. Façades oxide colors shift between *green-ocher* to *pink* to *mars yellow* as shown in **(Photo 1)**. (Swirnoff, P.26, 2000) The suspended city is facing *blue* from two sides; up in the sky and down in the sea reflecting

¹ **Venice:** 45°26'N 12°19'E, the "*city of canals*", is the capital of the region of Veneto and of the province of Venice in Italy.

(<http://en.wikipedia.org/wiki/Venice> ---5/12/06)

² **Adriatic Sea:** The Adriatic Sea is a large body of water on the west side of the Mediterranean Sea. (http://en.wikipedia.org/wiki/Adriatic_Sea ---12/12/06)

the whole city. The Gondola¹ ride boats are painted in *black* with sea horses and floral patterns. Gondolas fly through the urban canal pattern. Providing it spatial shadows with a touch of grey all over the city that gives a sensation of inner peace.

1.1.2 Paris in France: Paris² is a city light and events that has changed the history. Starting with *Julius Caesar*³ visit and barbarian invasions. Passing through several effective characters as; *Philippe II Auguste*,⁴ *Louis IX*⁵, *Charles V*⁶, *Charles VI*⁷,

¹ **Gondola:** Is a long, narrow and asymmetrical boat. Is a traditional steering ride in Venice that has always symbolized the city .(Edizini: P.7, 2004)

² **Paris:** 48°52' N 2°20' E, is the capital of France. It offers a vibrant cultural life, with its museums, monument, libraries, gardens and artistic disciplines. (<http://www.v1.paris.fr/EN/> ---1/12/06)

³ **Julius Caesar:** Caius Julius Caesar, A Roman statesman and general. (<http://education.yahoo.com/reference/encyclopedia/entry/Caesar-J-18/12/06>)

⁴ **Philippe II Auguste:** Was King of France from 1180 to 1223, the son of Louis VII. One of the most successful in consolidating France into one royal domain. (<http://www.delmars.com/family/perrault/7048.htm> ---18/12/06)

⁵ **Louis IX:** Saint Louis was King of France from 1226 until his death,.he was a member of the Capetian dynasty and the son of King Louis VIII. (http://en.wikipedia.org/wiki/Louis_IX_of_France -17/12/06)

⁶ **Charles V:** Was king of France from 1364 to 1390 and a member of the Valois Dynasty His reign marked a high point for France during the Hundred Years' War. (http://en.wikipedia.org/wiki/Charles_V_of_France 16/12/06)

⁷ **Charles VI:** later known as the Mad, was a King of France (1380 – 1422) and a member of the Valois Dynasty. (http://en.wikipedia.org/wiki/Charles_VI_of_France -16/12/06)

*Louis XIV*¹, *Napoleon*² and *Marie Antoinette*³. (Magi, P.3, 2006) These tremendous characters and events gave the city a memorial wealthy colors palette, formed with *golden* statues combined with marble stones, iron work and *grayish* marble that gives *violet* shade. Paris façades are adjoined in rows as shown in (**Photo 2**), with neutral high in value colors drawn in *Munsell scale*.⁴ (Swirnoff: P. 2000) The *Seine*⁵ river opens the urban settlements along and reflects color of water. The Parisian streets shows a sequence of *beige*, *apricot*, *rose-neutral* and *grey* and *green grey*. Parisian shops understated by *black*, *navy blue*, *cool greys* and *blonde* stones. (Swirnoff: P.147, 2000)

¹ **Louis XIV:** Ruled as King of France and of Navarre from May 14, 1643 until his death. He is known as Louis the Great and he increased the power and influence of France in Europe.

(http://en.wikipedia.org/wiki/Louis_XIV_of_France---16/12/06)

² **Napoleon:** (Napoleon Bonaparte) Emperor of the French from 1804-1815. He invaded some countries like Russia and Egypt

(<http://en.wikipedia.org/wiki/Napoleon> ---16/12/06)

³ **Marie Antoinette:** Queen of France (1774-1793) as the wife of Louis XVI. Unpopular because of her extravagance and insensitivity toward the masses, she was tried by the Revolutionary.

(<http://www.bartleby.com/cgi-bin/texis/webinator/sitesearch?FILTER=&query=Marie+Antoinette> ---12/12/06)

⁴ **Munsell scale:** Albert Munsell is an American artist, who developed a color order classification system used as standard for notation in artistic, commercial, scientific and educational work. (Austin, P.8, 1998)

⁵ **Seine:** It is a major river of north-western France, and one of its commercial waterways. It is also a tourist attraction, particularly within the city of Paris.

(<http://en.wikipedia.org/wiki/Seine>--- 12/12/06)

1.1.3 New Mexico in Mexico: The Spanish colonial overlay New Mexico city and natural environment have influenced the urban context of its streets. The streets appear as a band of color in contrast with the *blue* sky which appears deep *cobalt blue* in summer. Buildings of one story are connected painted by locals, with pure saturated colors with no regard to the next door color. *Lime green* against *magenta*, *yellow* against *bright red* and so on as shown in **(Photo 3)** Color in Mexico works as a formal component for urban design of Mexican traditional vernacular¹ and inexpensive solution for façade finishing. Mexican color is architectonic not an addition. (Swirnoff: P.140, 2000)

1.1.4 Shanghai in China: It is a city of A Megalopolis synonymous with luxury. The buildings may be built with either *red* or *grey* bricks, but wooden structures are the most common; these are more capable of withstanding earthquakes. *Shanghai*² is well known in the world not only for its prosperous cosmopolitan feature, but also for its rich humanistic resources. (Asia, 2006) There were certain architectural features that were reserved for buildings built for the Emperor of China. As the use of *yellow* roof tiles; *yellow* used to be the Imperial color, yellow roof tiles still adorn most of the buildings. They used *blue* roof tiles to symbolize the sky. The wooden columns of the buildings, as well as the surface of the walls, tend to be *red* in colour as shown in **(Photo 4)**. (Wikipedia: Chinese architecture, 20/12/06) The natural *brown* color of rocks are spread also in the urban pattern.

¹ **Vernacular:** Is Folk architecture, i.e., architecture built without formal plans with materials found at hand.

<http://www.tsha.utexas.edu/handbook/online/articles/TT/cbtut.html>-12/12/06

² **Shanghai:** Situated on the banks of the Yangtze River Delta in East China, is the largest city of the People's Republic of China and the eighth largest in the world. (<http://en.wikipedia.org/wiki/Shanghai> --20/12/06)

1.1.5 Cairo in Egypt: *Cairo*¹ saw the rise and fall of the Greek, Persian, Roman, Arab, Ottoman, French, and British Empires. It leads major roles in the history of three major religions: Judaism, Christianity, and Islam. (Cairo, 2004) All previous influences combined with the Pharaohnic sand *yellow* touch of the sun and the stones of the Pyramids. This historical city is a combination of cultures colors. marble *yellow, pink, grey and white* colors and colored stones. A view to old Cairo as shown in **(Photo 5)**, to describe stucco windows, *brown* wooden grills inlaid with *cream* ivory motifs, stained glass, *brown* wooden Mashrabiyya² screens and *bronze* doors with *filigree silver*. (Walking tours of Islamic Cairo, 06) Historical colors are integrated with the *blue* clear color of the Nile and the *cobalt blue* of the sky.

1.1.6 London in England: Is the city of shadow. Its origins lie in Romans times, when they invaded Britain in AD43. In AD 60, *London*³ was burnt to the ground by the forces of *Queen*

¹ **Cairo:** Is the bustling capital of Egypt and the largest city in Africa. It contains the tallest river in the world the river Nile.

(<http://www.emporis.com/en/wm/ci/?id=100004> ---20/12/06)

² **Mashrabeyya:** Latticed work screen of turned or carved wood. For protection from the sunrays and offered privacy to women from passers-by.

(http://www.aucegypt.edu/walking_tours/cairo/glossary/glossary.html#mash_rabiyya ---28/12/06)

³ **London: London** is the capital city of England and the United Kingdom. One of the world's most important business and financial centres.

(<http://en.wikipedia.org/wiki/London> ----17/12/06)

*Boudicca*¹. The Procurator, *Gaius Julius Alpinus Classicianus*² who rebuilt the city after Boudicca's rebellion. Later centuries they started building with *neutral color* of stones. (Ford, 2001) London passed with several ages from; Dark age, Saxon, Norman, Medieval, Tudor London and Stuart London, when the Great 4 days fire flew to the heart of the city in 1666. (Johnson, 2001) The Georgian London was a time of opulent architecture, the most magnificent buildings, were rebuilt on the *Thames*³ front. The 19th century great building works started with Buckingham House. (Johnson, 2001) These rich eras passed through this powerful city gave it a sorrow, *dark* color in its urban context, combined with *green* thick grass color as shown in **(Photo 6)**. Traditional culture led the role of colors to relegate ceremonial medieval display. Primary colors as *red*, *blues* and *gold* are spread with hierarchy in the city. (Swirnoff: P.92, 2000)

1.1.7 Copenhagen in Denmark: *Copenhagen*⁴ is a harbor and a commercial city. It was occupied by the Germans in the Second World War and the city was destroyed. But since the seventies the started building on what was called the five finger plan

¹ **Queen Boudicca:** The wife of Prasutagus, the late king of the Icenians.

(<http://www.britannia.com/history/docs/tacitus.html#boudicca> ---16/12/06)

² **Gaius Julius Alpinus Classicianus:** Was procurator of Roman Britain from 61 to his death in 65.

(<http://www.answers.com/topic/gaius-julius-alpinus-classicianus> ---16/1/06)

³ **Thames:** It is a river flowing through southern England, in its lower reaches flowing through London into the sea. One of the major waterways in England.

(http://en.wikipedia.org/wiki/River_Thames ---17/12/06)

⁴ **Copenhagen:** The capital of Denmark, and the seat of the national parliament, the government, and the monarchy. It is located on the eastern shore of the island of Zealand . (<http://en.wikipedia.org/wiki/Copenhagen>---16/12/06)

commuter trainlines to surrounding towns and suburbs. (Wikipedia:Copenhagen, 20/12/06) The urban edge of open environment is seen in facades facing the sea. The sky of its cloudy violet color and the sea reflects their blue color on the urban fabric. Red bricks are used on façade to give the *dark red* color, combined with *copper* pipes. *Indigo* is used also and *grey violet*. Contrasted values are used like; *pale yellow, slate blue, deep orange-ocher, pale blue, grey and white* as shown in **(Photo 7)** The Danish sensibility seems to like visual contrasts. (Swirnoff: P.157, 2000)

1.2 TRADITIONAL CITY PALETTE: From the previous case studies, the urban visual colors can be concluded in one palette of colors for each city as shown in **(Figure 1)**. The palettes are deprived from the façades only, to reduce the conclusion. These palettes proved that these traditional cities had a logical color palette for its historical memorial and influences. What about the thinking of new generations?

CHAPTER TWO: MODERN USAGE OF COLORS:

Contemporary colors are no more strict to city palette. A new color palette occurred in our age. A palette formed as a result of technological improvements and new properties of matter. New techniques are used now all over the world, to give new palette than the traditional city ones. Artistic philosophies are explored by lamination, film, sandblasting, colored glass, colored metals, extreme coloring paints and screen printed enamels which can cover a whole area in the urban context. These new trends, gave the research an authority, to represent the coloring urban city spaces in the following analytical concluded color trends or themes of design. Each kind is viewed by an international case study for explanation.

2.1 EXTREME COLORING: Since the invention of dyes and paints, architects and urban designers have been using this fabulous tool for creating colored effect in any scene. For ages designers were using

coloring paints with caution, as too much color can cause distortion in our vision aspects. But recently, extreme contrasted colors are used by paints to evoke special meanings;

2.1.1 Youngsters like colors: Looking to the work of artist *James Rizzi*¹, in a small historical city called *Braunschweig*², thus old churches and brownish colors. He built “*Happy Rizzi-Haus*” as a row of buildings complex for Expo 2000. It is highly distinctive, cartoonish office building (Wikipedia: Braunschweig, 2006) In a middle of a German traditional city, an extreme child like, colorful and three dimensional paintings on the façades. A combination of all hues blue, pink, yellow and so on as shown in **(Photo 8)**. This trial considered as a shock and a strike in the centre of the city. Extreme paints are the easiest and cheapest trend in modern coloring urban trend. (Field work, June 2004)

An Egyptian trial for youngsters like color was designed in *Giroland* Theme Park in *s*³. The urban context carries the child like colors all over the place as a fairy tail story as shown in **(Photo 9)**. (Research work)

¹ **James Rizzi:** (October, 1950) is a prominent American pop artist. He is most famous for his 3D artwork, especially the large, elaborate prints and teeming anthropomorphic cityscapes.

(http://en.wikipedia.org/wiki/James_Rizzi ---25/12/06)

² **Braunschweig:** Is a city located in Lower Saxony, Germany. has been an important industrial area. Today it is known for its University and research institutes. (<http://en.wikipedia.org/wiki/Braunschweig> ---25/12/06)

³ **El Obour City:** One of the 16th new cities in Egypt, located at 35km away from Cairo. Designed to alleviate housing shortage in Cairo.

[http://www.grundfos.com/web/grfosweb.nsf/GrafikOpslag/case_history_ww2/\\$File/Egypt_El_Obour_City.pdf](http://www.grundfos.com/web/grfosweb.nsf/GrafikOpslag/case_history_ww2/$File/Egypt_El_Obour_City.pdf) --2/1/06)

2.1.2 Artistic painting: Copenhagen as shown is an artistic colorful city, even in the modern era. Artists used their paintings to express the function of the gallery building as shown in **(Photo 10)**. The building of ArtNetGallery. The internet art gallery aimed at exhibiting and selling international contemporary art of high quality. (Art, 1998) A new urban trend in expressing colors, by drawing a large scale piece of art on the buildings and walls.

2.1.3 Porous paint: A young Japanese architect has designed a *blue* waiting area from outside and white from inside. The design is pergola like, porous to enable the *white* color of sun light as shown in **(Photo 11)**. The blue building vanishes in the area with the sky and snow. (Architecture Record:, P.97 12/06)

2.2 CERAMIC COLOR: The manufacture of ceramic has been widely and technologically improved in the last few years. Some countries have been globally advanced this manufacture as Spain and Germany. Ceramic can be pigmented by any color or even art work as the Egyptian trial of *Dr. Farouk El-Gohary*¹ in creating a ceramic wall with a painting for the minister of culture "*Farouk Hosny*" in Ismaillia culture house a shown in **(Photo 12)**. Also he designed a ceramic wall in the runway of Aswan airport which transfer the Egyptian colors to any visitor landing to the Egyptian lands as shown in **(Photo 13)**. (Research work)

2.3 METALLIC HUE: One of the new trends of creating colors, is the metallic effect. Technological improvements in properties of matter and metallic materials manufacture, have enabled designers to manipulate the metallic color as rubber;

¹ **Dr Farouk Elgohary:** An Egyptian professor architect, who is considered as a pioneer in installing colors to the Egyptian urban context. (Research work)

- 2.3.1 Dynamic metal:** *Frank Gehry*¹ designed a dynamic animated hotel in *Elciego*² village in Spain. The hotel lies under huge unfurling ribbons of pink and gold hued titanium and mirror finish stainless steel. In contrast with the local architecture used in the building of neutral lime stone color as shown in **(Photo 14)**. The inspiration of the colors came from un-corked wine bottles (Architecture Record: P.130, 12/06) My opinion is this dynamic colored design goes in harmony with the mountain site.
- 2.3.2 Recycled colors:** Creating metallic hue by using domestic or recycled materials from soda water and food cans. The trial of *Micheal Hoenes* in *Leosotho*³ at South Africa was amazing coloring effect. He designed tin can area, all urban settlements was built with shiny cans as shown in **(Photo 15)**. Cans together gives the hue of colors deep and shiny as shown in the finished houses are coated in red as shown in **(Photo 16)**. (Smith & Topham: P.38, 2002)
- 2.3.3 Perforated aluminum:** In year 2000, a Japanese trail of the architect *Kumiko Inui*⁴. Using perforated aluminum panels and

¹ **Frank Gehry:** Is a famous architect, born in Canada in 1929, he studied works by Le Corbusier when he lived in Europe.

<http://www.pritzkerprize.com/gehry.htm#...about%20Frank%20Gehry-25/12/06>

² **Elciego:** Is a town and municipality located in the province of Álava, in the Basque Country, northern Spain.

(<http://en.wikipedia.org/wiki/Elciego-25/12/06>)

³ **Leosotho:** Is a country in South Africa known as the Kingdom in the sky. It has the highest lowest point of any country in the world (1400m) and is the only country to be entirely above 1000m. (<http://wikitravel.org/en/Lesosotho-26/12/06>)

⁴ **Kumiko Inui:** A young Japanese female architect who had a BA in architecture and then in music. She designed modern projects in Tokyo.

printed aluminum panels with lighting in between. The prints are for Dior famous perfume bottle and at night the lighting gives the area a ghost like appearance as shown in **(Photo 17)**. (Architecture Record: P.99, 12/06)

2.4 COLORED GLASS: Glass art had stable techniques for more than thousand years. The late decade artists started having new aesthetic glass language. They starting basing the architecture on it, building walls in colored glass not just a slit of it. The technology in the last few years has created big panels of glass not small pieces. It is the revolutionary process of annealing glass. (Richards: P.13, 2006) Contemporary architects want now a seamless, frameless, weightless and colorful experience. (Moor: P.8, 2006)

2.4.1 Clear colors: Playing with colored glass, combines reflection with colors and transparency. *Hal Ingberg*¹ is one of the architects who inhabit the interface between art and architecture. He designed the new convention centre “*Palais des Congress*” in Montréal, by creating an urban icon with transparent multi color glass panes as shown in **(Photo 18)**. The surrounding space is bathed by the projected colored lights, giving a dynamic multi-dimensional effect for the environment, at day and night. Reflection with transparent colors is a very powerful trend for dynamic use of glass that gives works ranges from sculpture to architecture. (Moor: P.56,2006)

In *Wunsiedel*² clear glass was used in urban spaces as

(http://www.japansociety.org/web_docs/050318L_design_bios.pdf ---2/1/06)

¹ **Hal Ingberg:** He is a Canadian architect whose activity is developed through an architecture of conceptual practice and contextual specificity. He studied in both Los Angeles and Montréal and worked in London.

(<http://www.halingberg.com/menu-cadre/0-cadre-en.htm> --2/1/07)

² **Wunsiedel:** Is a town in the German free state of Bavaria. It is located in the

sculptures. To give the sense color dynamic motion especially if the sculpture is even moving, as shown in **(Photo 19)**. (Moor: P.153, 2006)

In *Cairo*, an Egyptian trial was made in a residential building by Dr. *Farouk Elgohary*. He used clear colored glass in handrill to match the color of balcony ceiling as shown in **(Photo 20)** and in decorative façades for Mubarak’s city of education as shown in **(Photo 21)**. (Research work)

2.4.2 Holographic Module X: *Michael Bleyenberg*¹ is an artist intrigued by contemporary technologies and especially fascinated by laser technology. He used the idea that white light splits into its spectral colors in mid air in buildings. He decorated the side of the scientific institute in *Bonn*² in the form of hologram decorative design. Technically he used a “*holographic*”³ film⁴, laminated between two layers of glass. (Moor: P.182, 2006) The light is enabled through glass to show the art work on the film that gives a spiritual effect on the urban area as shown in **(Photo 22)**. Module X system elements create color lighting on buildings’ exterior; as glass, Halogen and Laser transmissions hologram. (Bleyenberg, 2/1/06)

Fichtelgebirge mountains. (<http://en.wikipedia.org/wiki/Wunsiedel--> 2/1/06)

¹ **Michael Bleyenberg:** A German artist who is fascinated with laser technology and discovered the autonomous color.

<http://www.lucem/index.htm&sa=X&oi=translate&resnum=5&ct=result&prev=/search%>

² **Bonn:** It is the 19th largest city in Germany, located on the river Rhine. (<http://en.wikipedia.org/wiki/Bonn> --2/1/06)

³ **Holography:** Is the science of producing holograms; it is an advanced form of photography that allows an image to be recorded in three dimensions. (<http://en.wikipedia.org/wiki/Holography> ---2/1/06)

⁴ **Film:** Type of foil used to add safety to glass to reduce solar gain.

- 2.4.3 Opaque enamels:** Materiality of glass in these trials is denied, as it was used only for the shade of colors. The work of architects *Herzog & de Meuron*¹ in the *Labon Dance Centre* in London, shows the transition effect of opacity of colored and translucent glass as shown in **(Photo 23)**. The glass panels sweeps with different colors belying its sophisticated nature. (Richards: P.200, 2006)
- 2.4.4 Pigmented lamination:** Laminated glass is widely used for the last few years. It comprises two layers of glass bonded together by a flexible plastic or, to ensure that glass will not fracture they can fix it by colored resin interlayer as windscreen. There are three mechanized systems² for lamination manufacture, thus the recent pigmented one is the dry PVB³ system. That allows a wide range of possible tones, which used to be only nine basic colors. It shows the rich multicolor context in the urban fabric of Christchurch art Gallery in New Zealand as shown in **(Photo 24)**. (Moor: P.44, 2006)
- 2.4.5 Screen prints:** In the work of Alsop architects of the office building they called “*Colorium*” in *Düsseldorf*⁴. The façade is covered with 30 colors of silk screen glass panels, printed in

¹ **Herzog & de Meuron:** A Basel-based Swiss architecture firm, founded in 1978 by Jacques Herzog and Pierre de Meuron.

([http://en.wikipedia.org/wiki/Herzog & de Meuron](http://en.wikipedia.org/wiki/Herzog_%26_de_Meuron) ---2/1/06)

² **Three mechanized systems:** Poured, UV-curved and dry lamination. (Moor: P.44, 2006)

³ **PVB:** Polyvinyl butyral.

⁴ **Düsseldorf:** Is the capital city of the German Federal State of North Rhine-Westphalia. (<http://en.wikipedia.org/wiki/D%C3%BCsseldorf> –1/1/06)

viscous ink to give perfectly bright hues as shown in **(Photo 25)**. The red color in the upper truss construction connects the colorium with the surrounding urban context. (Richards: P.174, 2006) A brilliant piece of art has been created by the British artist David Pearl in Wales. He designed two glass multi colored water towers in the middle of the city that visually penetrated. Water creation made a colored theme appears as illuminated columns of colors. (Moor: P.90, 2006)

2.4.6 Slumped colors: This unique mechanism turns glass into a more natural material. The float glass is heated over a mould to turn into an organic un-mechanized colored material, thus gives a romantic impression and has a potential to awe people. Looking to the seating features in London by *SOM*¹ as shown in **(Photo 26)**. And the colored wall in Jerusalem that created an urban colored texture in the surrounding space around the wall as shown in **(Photo 27)**. (Moor: P.149, 2006)

2.5 CONTEMPORARY PALETTE: The previous colorful and tremendous trials all over the world should lighten up our minds. The coming era will sure be different, new technological creations in coloring effect of urban contexts, new generations discovering that all the previous were old fashion and so on from the new events. The most effective truth is that the color palette of cities has been changed to a new technological eventual one. With no respect to any cultural, historical or traditional urban colors. The new palette is unified in all the world and globalization in colors themes may occur. New palette may be depriving from human senses and artistic instincts as shown in **(Figure 2)**. It is a strike full of hues, no more neutral colors, high saturation of colors and the most important item is NO FEAR

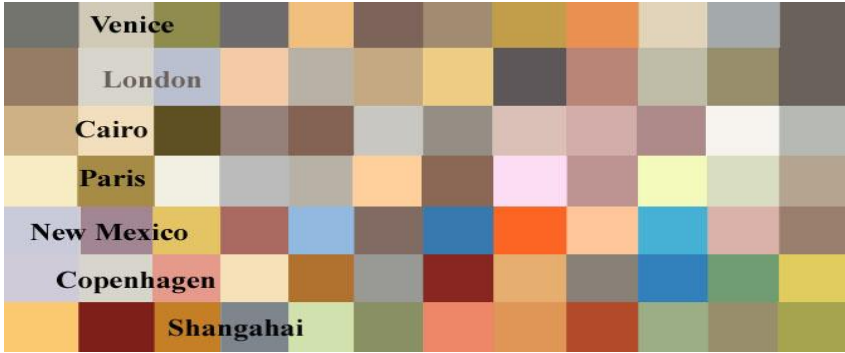
¹ **SOM:** Founded in 1936, Skidmore, Owings & Merrill LLP (SOM) is one of the world's leading architecture, urban design, engineering, and interior architecture. ([firms. http://www.nyc-architecture.com/ARCH/ARCH-SkidmoreOwingsMerrill%20.htm](http://www.nyc-architecture.com/ARCH/ARCH-SkidmoreOwingsMerrill%20.htm)) --3/1/06)

from clear colors.

CHAPTER THREE: ACADEMIC PROPOSAL:

New city color palette is a recent trend in urban designers thinking. Students as nature want to know more and understand the reasons. The research suggests a post graduate course, focusing only on this subject. Opening for young researchers new trends to follow. Giving them points for each technological new property of matter and leave them to search for it. By the end of the course, all students should attend a seminar to be evaluated by Jewry, who will definitely adore colors.

LIST OF FIGURES:



(Figure 1): Traditional Palette of colors. (Research work).



(Figure 2): Traditional Palette of colors. (Research work).

LIST OF PHOTOS:



(Photo 1): Venice's palette of color facades. Source: (Field work, Sep.,2004)



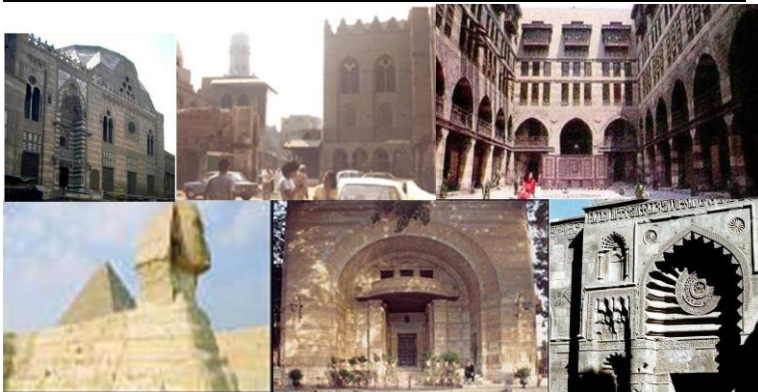
(Photo 2): Paris' palette of color facades. Source: (Field work, August 2006)



(Photo 3): New Mexico's palette of color facades. (Research mix of photos)
Source : (http://images.google.com/images?ndsp=20&svnum=10&hl=en&lr=&rls=GGLR,GGLR:2006-49,GGLR:en&ie=UTF-8&oe=UTF-8&q=new+mexico+facades&sa=N&tab=ni_-2/1/06)



(Photo 4): Shanghai's palette of color facades. (Research mix of photos)
(<http://images.google.com/images?q=shanghai+facades&ndsp=20&svnum=10&hl=en&lr=&rls=GGLR,GGLR:2006-49,GGLR:en&start=60&sa=N> -2/1/06)



(Photo 5): Egypt's palette of color facades. (Research mix of photos)
(<http://www.google.com/search?q=El+Azhhar+facades&hl=en&lr=&rls=GGLR,GGLR:2006-49,GGLR:en&start=10&sa=N> ---2/1/06)



(Photo 6): London's palette of color facades. Source (Field work, August 2006)



(Photo 7): Copenhagen's palette of color facades. (Research mix of photos) (<http://images.google.com/images?sourceid=navclient&aq=copenhagen%20facades&ie=UTF-8&rls=GGLR,GGLR:2006-49,GGLR:en&q=copenhagen+facades&oe=UTF-8&sa=N&tab=wi> ---2/1/06)



(Photo 8) Happy Rizzi house, Germany. Source (Fieldwork: June, 2004)



(Photo 9): GiroLand El-Obour. (Field work, 2001)



(Photo10): ArtNetGallery, Copenhagen. Source (Art, 1998)



(Photo 11): Blue waiting area, Japan. Source (Architecture record, 12/06)



(Photo12): Culture castle Ismailia. (Field work,05)



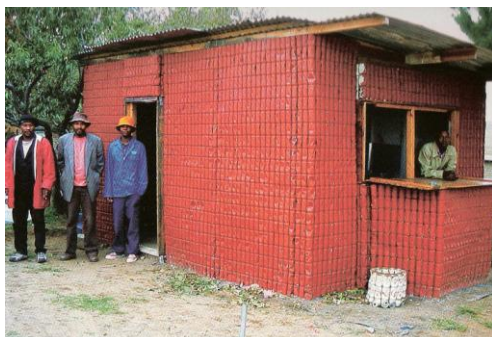
(Photo 13): Aswan Airport. (Field work,05)



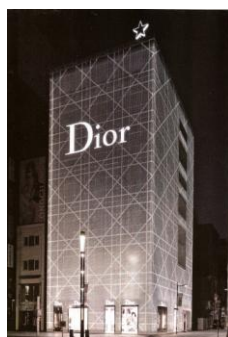
(Photo 14) Gehry hotel in Elciego, Spain. Source: (Architecture record, 12/06)



(Photo 15): Multi colored can Houses, South Africa.
Source (Smith &Topham: P , 2002)



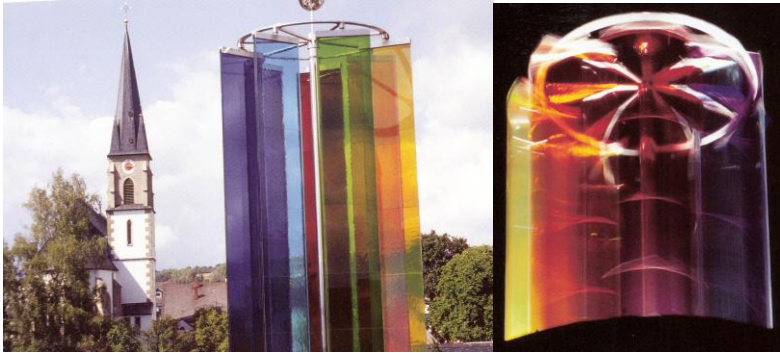
(Photo 16): Red cans Houses, South Africa.
source (Smith &Topham: P. 38, 2002)



(Photo 17): Dior metallic show room. (Architecture record, 12/06)



(Photo 18): Palais des Congrès, Montréal at day & night.
Source:[http://en.wikipedia.org/wiki/Palais des congr%C3%A8s de Montr%C3%A9al](http://en.wikipedia.org/wiki/Palais_des_congr%C3%A8s_de_Montr%C3%A9al)) 2/1/06)



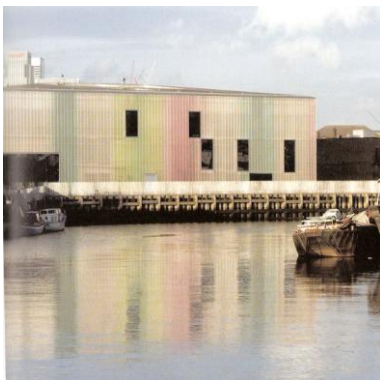
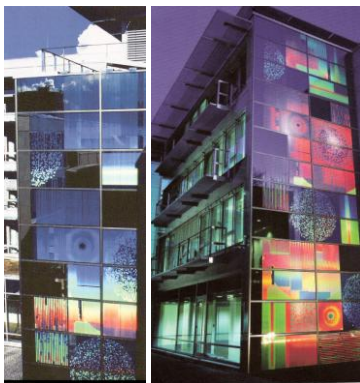
(Photo 19): Glass Sculptures in Düsseldorf.



(Photo 20): Residential building in Cairo (Field work, 2006)



(Photo 21): Mubarak Educational city, Cairo. (Field work, 2006)



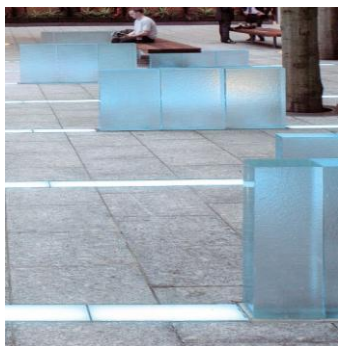
(Photo 22): Scientific Institute Bonn. **(Photo 23):** Labon Dance Centre London.
Source: (Moor: P.183, 2006) Source (Richards: P.207, 2006)



(Photo 24): Christchurch art Gallery in New Zealand. (Moor, P:44 ,2006)



(Photo 25): Colorium, Düsseldorf. (Richards: P.176, 2006)



(Photo 26): Seating features.
in London. (Field work)



(Photo 27): Glass wall in Jerusalem.
Source: (Moor,2006)

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