

CHAPTER ONE

Introduction

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1.1 Introduction:

There is an increasing concern for The interior environment , because the interior space of any building touches and affects the users more beside providing the space to practice their life activities it catches there sight from the first look and prints a positive or a negative impression, therefor it is significantly important to be designed carefully and creatively having in mind the satisfaction of the users.

Interior architecture is a contemporary specialty that combines art, architecture and interior design (Kurtich,J&Eakin,G.(1993,p.462-464). It uses lighting, colors, textures,etc. to create comfortable , attractive and functional interior spaces .

1.2 Problem statement:

There is lack of knowledge about the real meaning of interior architecture particularly in the malls that created gaps and lack of applying the requirements and elements of the interior architecture in the design stage.

1.3 Research importance:

- To identify the basics of interior architecture .
- Setting outlines during design stage so as to achieve a complete and enriching the interior architecture space in malls
- To identify the requirements of the space of the mall

1.4 Research objectives:

- To define basics and requirement of interior architecture of malls.
- To develop the level of interior architecture in sudan .
- To create a functional space which will meet the functional requirements of the users.
- To apply a study in interior architecture specialized in malls.
- To identify the components of interior architecture space.
- To add some interest and enjoyment inside the interior space (horizontal movement –visual connection)which will attract the users.

1.5 Research hypotheses:

- There is lack of knowledge about interior architecture .
- The more we study the requirements of (interior space-function) the better we meet the need of users.
- The beauty of the interior space (in which we use the suitable finishing materials , textures ,lighting system , colors, horizontal movement –visual connection) will add some interest , enjoyment inside the interior space, attract and in comforts the visitors more.

1.6 Research Methodology:

It is descriptive analytical approach searching based on scientific published books, internet web pages and site visit to malls on Khartoum state. Through identifying the problem statement, literature review, collecting data through questionnaire, the researcher choosed case study and analyzed it , studied the positives and the negatives of the case then concluded recommendations to help improving the interior architecture of the malls.

1.7 Research Limits:

- **Subject limit:** The study includes the interior architecture of malls and their effects so as to comfort the user.
- **Geographical limit:** Study of local example (Khartoum city) and international example.
- **Time limit:** From November 2015 till November 2017

1.8 Research Obstacles:

The obstacles that confront the researcher are:

- The interior architecture is not established as a specialized department.
- Basic information of interior architecture are not available easily.
- The researcher has not find a similar studies or researches in the libraries of the Sudanese universities and specialized colleges, although she found books and scientific researchers by foreign writers and specialists.

CHAPTER TWO

Literature Review

- 2.1 Introduction.
- 2.2 Background
- 2.3 Definition of the interior architecture.
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- 2.5 Introduction to malls.
 - 2.5.1 Mall Definition
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 - 2.5.3 Mall planning levels
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 - 2.5.5 Malls design guidelines.
- 2.6 Interior architecture of malls.
- 2.7 The previous studies .
- 2.8 Conclusion.

2.1 Introduction:

This chapter contains two parts the first one intends to introduce the concept of interior architecture to the reader. It will look the definitions and fundamentals of interior architecture misconceptions that people commonly have about interior architecture. The second part related particularly to malls and how can enrich the interior space of the mall comfortably and functionally , and reflect that with sample to support the idea , in addition to go through many previous studies and analyses it.

2.2 Background:

“ If any body in any part of the world opens the door of any building, and enter to the space behind the door, he will experience a response unconsciously. Subsequent responses may reinforce or modify that first one. These sensations are not accidental. They are the result of the senses (sight, sound, smell and touch) conveying messages to the brain, which analyses them with reference to previous experience, to a sense of balance and proportion and to a psychological (and often very personal) reaction to the stimuli of light, color and acoustics. It is these sensations that the effective designer orchestrates in the design of interiors and which the experience when he enter the interior space. Of course there is more to this than generating a theatrical experience. Using the skills and understanding borne of study and practice, the designer is endeavoring to create an environment that not only feels appropriate, but also functions in a way that supports the needs of its users”. (Coles,J& House ,N.(2007,p.8)

2.3 Definition of the Interior Architecture:

“ The term ‘interior architecture’ emerged in the 1970s as the description of a discipline that employs architectural theory, history and principles in the design and creation of interior space. Its growth was in part due to a perception that by employing the rigor of architectural thinking together with the sensory understanding of interior design, a synthesis could be produced that was both intellectually and humanistically satisfying, and which overcame the narrow specialism of façade-driven architecture and context-free interior design that were prevalent at that time.” (Coles,J& House ,N.(2007,p.8)

“At a more pragmatic level, the use of the term ‘interior architecture’ is a response to the uncertainties inherent in the title ‘interior design’. These uncertainties have been accentuated by the increasing use, in magazine ,articles and television makeover programmes, to describe the process of choosing curtains, furnishings

and surface treatments: activities which might be better titled ‘interior decoration’. Over the course of the last thirty years the title ‘interior architecture’ has acquired a growing acceptance and an increasing sense of identity. That identity is distinguished by the following ideas:”

- It acknowledges and respects the enclosing structure and its context as initiators of design strategies.
- It is an activity that is involved in the manipulation and enjoyment of three-dimensional space.
- It employs the sensory stimuli of sound, touch, smell and sight as essential parts of the interior experience.
- It recognizes light as a medium for defining space, creating effect and producing well-being.
- It employs materials and color as integral components of the designed environment. (Coles,J& House ,N.(2007,p.8)

“In terms of philosophy and practice interior architecture is a discipline that is heavily (although not exclusively) involved with the remodeling and repurposing of existing buildings and so has an important role to play in the sustainable reuse of the built environment. This reuse finds expression in an enormously wide range of buildings and activities. There is no building, however grand or humble, that is exempt from the interior architect’s portfolio. Palaces, hotels, airports, offices, department stores, restaurants, railway stations, corner shops and apartments all offer the opportunity to reformulate, update and improve living and working environments. To undertake this work requires an ability to analyze the existing building and its environs, to understand the needs of the client and the wider society and to generate a concept and a design that creates a synergetic relationship between these elements.” (Coles,J& House ,N.(2007,p.9)

“The role of the interior architect will vary from practitioner to practitioner and from commission to commission. It will involve understanding and interpreting the needs of a client, who may be an individual, a public organization or a commercial business, and creating a collaboration with other professionals: architects, structural engineers, craftsmen, quantity surveyors, heating and ventilation engineers among others, to develop a creative response to those needs and to oversee their translation from a concept to a built reality. During this process the interior architect will be responsible for specifying and documenting the myriad decisions and activities required by the building process and will ensure the fulfillment of legal and regulatory obligations. All these things add up to a demanding professional life; but a life in which one is uniquely able to make a real difference to the conditions and experiences of people in their day-to-day lives.” (Coles,J& House ,N.(2007,p.9).

2.4 The fundamental of interior architecture:

- **Key stages in design:**

- **The brief and design analysis:** In this stage the client outlines the nature of the design task while, the designer explains the contribution and sequence of the design process. This formalized as the design brief. It will form part of the contractual agreement between client and designer in which fee structures, a description of the services to be provided and the stages of the project will be set out.
- **Information gathering and design concept:** in this stage (phase) the parameters of the building will be recorded as a building survey. Detailed information may be readily available for a new building, or one that has recently been modified, the good designer will test this information for accuracy by checking overall and critical dimensions. At this stage the designer wants to make a photographic record of the existing building. Then the designer will develop a design concept. which will communicated to the client as a design presentation. Agreement on the concept is necessary before the designer is able to embark on the next stage of the project. (Coles,J& House ,N.(2007,p.147)

Design implementation: At this stage all information required is going to transformed from concept to reality .All this information will include working drawings and product specifications, which will be assembled as *tender documents* which are presented to prospective builders and specialist contractors to enable them to supply *quotations approvals* for the building works is necessary to be sought from local authorities. The contract for building work is generally created as an agreement between the client and the contractor

- **Project management & the building process:** The designer may undertake the project management of the project to handle this part of the process, schedule of works are created to identify the sequencing and timetabling of the various activities. On a project of any size a *planning supervisor* may be required. (Coles,J& House ,N.(2007,p.149)

2.4.1 Site and function:

The word 'site' means the piece of land on which a building sits, also refers to the totality of the building and its location, so the designer should have a proper understanding of the site.

- **Analyzing the site:**

These involve understanding the following things:

1- Position

The architect should analyze a building and its surroundings under different conditions.

2- History

Some sites reflect a history of stable continuity, others of change and modification. The role of the interior architect is to recognize this history to integrate the old with the new in a considered and productive relationship.

3- Building typology

It describes the architectural form, construction and original purpose of a building. The designer should understand materials, structural systems and fixings that can inspire the design decisions. It is important that the designer appreciates and learns to recognize the underlying materials and structures on which the visible surface depends.

4-Orientation

It is important to the interior for two reasons: the position of the building in relation to the path of the sun is the key to making best use of the available daylight and sunlight, also it determines the way that the building is perceived in its surroundings and the views that can be achieved of those surroundings. The effects of orientation may extend to affecting the choice of color for internal spaces.

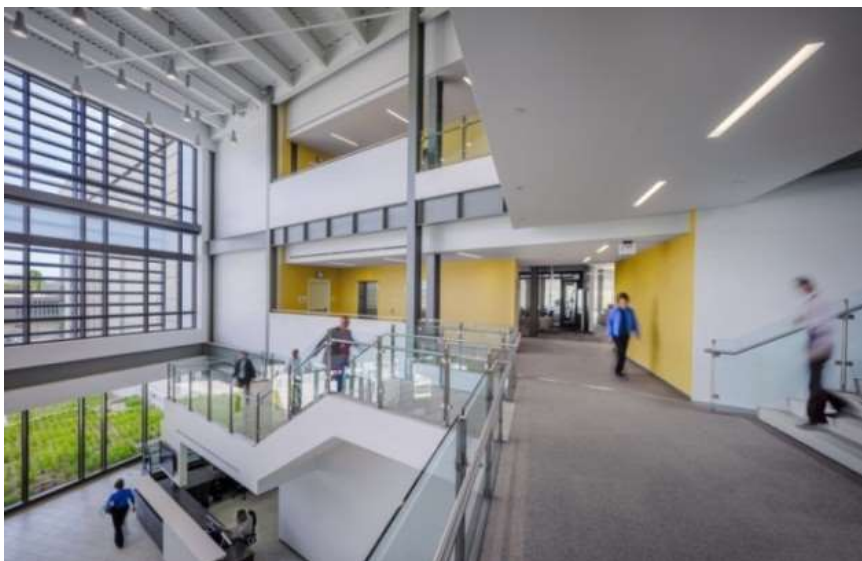


Figure (2- 1) the orientation and how its effect inside the space

Source: [//www.google.com/search?q=orientation+in+the+interior+space](http://www.google.com/search?q=orientation+in+the+interior+space)

5-Structure

The structural systems For most designers, that they will discover and employ are likely to be variations on (or hybrids of) a limited number of structural types. The designer should have knowledge the type of structure in the design and structural elements which have a significant visual and spatial effect on the internal environment, also which systems offer much greater freedom to the interior structure allowing maximum efficiency and effect and which of those systems permitting to be more responsive to requirements of daylight and vista if that is involved.



Figure (2- 2) structural elements which have a significant visual and spatial effect on the internal environment

Source: <http://www.spacedimension.ae/>

6-Services

It involve water, electricity, gas, drainage, heating and ventilation systems. These things are important not just because of their effect on the functioning and comfort of the building but because the routing of wires, pipes and trunking that serves them needs to be taken into account in the layout of the interior. Unless an industrial aesthetic is intrinsic to the design concept. (Coles,J& House ,N.(2007,p.45-55)



Figure (2- 3) how services can be taken into account in the layout of the interior
Source: <https://i.pinimg.com/736x/0c/e8/fa/0ce8fa5421fb228ce35d6436cfff7cb5--exposed-ceilings-blue-ceilings.jpg>

• Types of Interior:

It is important that the designer has a clear understanding of the functional needs of the project and the creative vision to ensure that these can be fulfilled in a way that will create the appropriate emotional response in the building's user. The design should have knowledge about type of spaces which will design, because the interior spaces varies from one to another . According to the requirements of interior spaces buildings building could be classified as fellow:

- Retail spaces (Shops, banks, showrooms ,restaurant & bars)
- Work spaces (offices, workshops, studios, factories)
- Living spaces (residential buildings, hotel, motel ..etc)
- Public spaces (airports, railway & bus stations, cinemas & theaters ,museums & galleries, religious buildings)
- Restorative spaces (hospitals, clinics, spas, gymnasiums)
- Transient spaces (exhibition , display)

2.4.2 Form, Space And Place

Place refers to a particular point in space which is singular or multiple identities. It is important for an architect to identify himself and to understand spaces that we occupy and both physically and emotionally.

- **Understanding the sense of place:** Places are spaces with meaning in construction history is necessary in the creation of place. Understanding the sense of place and its spatial context is an essential in the design process.

The interior architect's role is to breathe new life in the history of spaces and places which are affected by social, economic and fashion pressure to keep spaces and places identity and to fulfill the practical and aesthetic requirements of the design.

It is excellent to employ old buildings in new situations without demolishing them. Any building has a financial and environmental value that would be expensive to replace so we must create a tangible link between the past, present and future. (Coles, J & House, N. (2007, p.15))

- **Building reuse:** It is important to protect and preserve buildings from the effects of time and weather.
- **Restoration :** It means using period materials and techniques as if it is untouched by time.
- **Renovation :** It means renew the building to make it suitable for contemporary life without major change of function or form.
- **Remodeling :** It locates new function within an existing building which accepts that interjection. (Coles, J & House, N. (2007, p.17))

- **Elements and Composition of Interior Space:**

In this part we introduce the elements of space and vocabulary used to describe the creation and understanding of interior architecture.

- **Plane:**

It is a fundamental element of interior architecture. Essentially a two-dimensional form, it serves floors, walls and ceilings, and other interior elements to enclosing and modulating space.

The plane may have thickness which is visible. In traditional architecture we find that, a designer uses thickness plane. On the other hand, slimness is often used as an expression of modernity. (Coles, J & House, N. (2007, p.23))

- **Scale:**

The term 'scale' has two meanings for the designer:

- The first is used to reduce the size of the real-life of the building to fit its size in papers , to do this we can use ratios.
- The second meaning is comparing something in relation to something else. The interior architect is concerned with providing space for human activity to be able to refer to 'human scale' which is comfortably fit with our own dimensions . (Coles,J& House ,N.(2007,p.25)



Figure (2- 4) scale based on known objects

Source: <http://www.vrainteriors.com/scale-and-proportion/>

- **Proportion:**

proportion refers to the dimensional relationship of the design elements. The human eye recognizes the qualities of a space by its proportions in relation to its size.

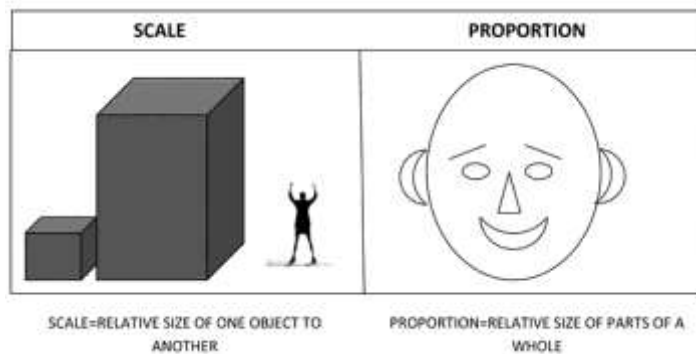


Figure (2- 5) the difference between proportion and scale

Source <https://springsemester2015artz363.wordpress.com/proportion-scale/>

The height is important, Low ceiling spaces of large plan areas can generate sense of oppressive while smaller spaces of the same height might make sense of comfortable. The height is important also for the practical functioning of a space it is also allow daylight to illuminate the space properly.

Scale and proportion are important to be appreciated since long ages. these old systems have ranged from golden section.

In 1947 the great modernist Swiss architect Le Corbusier proposed a system known as *The Modulor* which incorporated both anthropometry and a mathematical proportioning system. (Coles,J&House,N.(2007,p.29)

- **Vista:**

Vista is the case that a number of spaces need to co-exist and that visual (and practical) links need to be incorporated between them and perhaps with the world outside.

Designers have used form, proportion and vista to generate practical and delightful spaces

Related to *vista* is the contemporary interest in linking internal and external spaces, through history designers have used form, proportion and vista to generate practical and delightful spaces, but there are other tools available to them . one of them to surprise, to let the public inter and discover the world explode into space and light an experience impossible to forget. (Coles,J& House ,N.(2007,p.31)



Figure (2- 6) the explanation of the word vista

Source: Coles,J& House ,N.(2007,p.32)

- **Movement:**

Studying circulation is very important in spaces particularly the vertical circulation which include stairs, ramps, escalators and lifts .these routes play practical part in moving their users through space.

Stairs are the most common of the three devices. It is important to link between forms and materials on consecutive levels. The materials of stairs can be made are marvels in themselves.

The ramp has both pragmatic and aesthetic qualities that have been employed throughout history such as Guggenheim Museum in New York by winding the ramp into a spiral around a hollow.

Escalators and lifts work slightly differently. The escalator provides a composite of the experience of lift, ramp and stair. The form and materials of the escalator and the awkward transition between human and mechanical propulsion at the beginning and end of the journey are less satisfactory(Coles,J& House ,N.(2007,p.34



Figure (2- 7) The horizontal and vertical circulation Through this shopping mall is key to the form and successful Functioning of a large space.

Source: Coles,J& House ,N.(2007,p.34)

- **Transition:**

It mean movement in the buildings from space to space, room to room, inside to outside. Any space linking two others is a transitional preparation. A designer should make decisions about the direction of travel and the sizes of openings. The way that the user move directly or obliquely through the space. (Coles,J& House ,N.(2007,p.37)



Figure (2- 8) Transient environments operate on the threshold between spaces . Corridors are typical of such environments and serve to link together the different areas of an interior.

Source: Coles,J& House ,N.(2007,p.38)

- **Accessibility:**

Recently buildings have been designed for that proportion of society which is strong, mobile and with good vision, completely discounting those – the young, the elderly and the disabled – for whom heavy doors, stairs, narrow openings and lack of visual contrast are a real barrier to their use. The designer should think to create accessibility and usability for all sectors of society. (Coles,J& House ,N.(2007,p.40)

2.4.3 Materials and Texture:

Appreciation the qualities of space relate to materials, textures and colors used in that space. Employing materials and finishes in unexpected ways and in unusual combinations create intrigue and excitement.

- **Understanding The Interior:**

understanding the elements which are integral to the existing building fabric and making decisions about their preservation, alteration and treatment. those elements are considered as part of the project strategy.

➤ The integral elements, the interior fabric, will define the volumetric space, or spaces, within which the interior architect will operate.

Most of buildings are modified and extended to suit need and fashion and part of their fascination and character is a result of these changes.

Designer needs to weigh up the options. In some situations retention of the historical legacy, in others a stripping away of the accumulations, may be the appropriate response. The building style and character are created not just by the major elements of walls, ceilings and floors and of their materials but also include smaller, more detailed elements: doors and windows for instance, their fastenings and accessories as well as *architraves* and *skirtings*. The presence of those elements is essential to the character of certain building . (Coles,J& House ,N.(2007,p.77-80)

➤ introduced elements The extent of any intervention with the existing fabric will depend on the needs and strategies of the individual project. Where major spatial remodeling is called for, the introduction of new wall, floor and ceiling elements and their conjunction with the old, which require careful thought not only in detailing of the junction between them but in the materials chosen to form the elements and make that junction. This is not just a matter of finding a construction method to do a job, but of architectural expression.

Building remodeling include furniture and furnishings In addition to structural forms. furniture and furnishings may be regarded as transient artefacts that are able to respond to change and fashion more readily than the primary elements. (Coles,J& House ,N.(2007,p.80)

- **Selecting Materials**

To specify materials and finishes for every aspect of the interior, the designer risks being overwhelmed by the breadth of choice available. To identify the qualities required of any particular material by reference to four primary categories.

- **Aesthetic qualities:** This is the most difficult of the categories in some ways, because it is the one least susceptible to quantitative analysis. In making aesthetic decisions the designer should give each surface and component its proper visual and tactile position in relation to every other surface and component.. As in every building there will be a hierarchy of spaces from the most important to the lowliest, so within each space, a hierarchy of forms, surfaces and effects will serve to give identity and meaning to that space. (Coles,J& House ,N.(2007,p.87)
- **Performance specification:** Every material has individual performance characteristics, which encompass its strength and damage resistance, its workability and adaptability, its ability to accept surface finishes, its light reflectance and sound absorption and its capability of being fixed to other materials. Part of the designer's role is to understand these characteristics so that the appropriate product can be identified. Another part is to keep up to date with new and modified materials arriving in the marketplace. (Coles,J& House ,N.(2007,p.91)
- **Sustainability:** the ideal is to use products and systems created and used at minimum environmental cost, which can be easily adapted and repurposed ,also at the end can be recycled or disposed of with minimum ecological impact. These principles are easy to define but hard to implement in the real world(Coles,J& House ,N.(2007,p.93)
- **Cost:** is an important determinant of the material palette. Design is a balancing act in which expensive choices in some areas may be counterbalanced by savings in others. Sometimes more expensive material with better quality will offer savings in labour or long-term maintenance. (Coles,J& House ,N.(2007,p.94)
 - **Perception of quality:** The possibilities for the construction and decoration of interior spaces include an extra ordinarily different range of materials, finishes and products. (Coles,J& House ,N.(2007,p.97)
 - **Surface qualities:** Recognition of materials generates perceptual understanding in the building user, but in the majority of situations it is not the structure of the material but its surface character that is important. This importance is partly to do with the material's perceived value (its connotations of affluence or cheapness, modernity or tradition) but also the way it responds to light and sound, and as a tactile experience. (Coles,J& House ,N.(2007,p.97)
 - **Durability:** The difference between 'natural' and 'man-made' qualities appears in the age of that materials and in our response to that ageing. 'natural' materials such as timber and leather are in a constant state of change, but never lose their appeal, conversely manufactured materials are easily marred by scratching and discoloration at which point they lose the delight. Quality relies on strength in depth and is not simply a superficial attribute. (Coles,J& House ,N.(2007,p.99)

- **Connections:** the way in which material relate and are fastened to one another that determine the visual character of a space or thing. Modern structural adhesives and fixing systems make it possible to assemble many materials in a seamless and invisible manner although we seem to find comfort in being able to perceive how one element is fastened to another, particularly if those elements are of dissimilar materials. Different methods of fastening evoke different responses. Invisible fastenings suggest slickness but, at the same time, may imply inflexibility and inbuilt obsolescence. Visible fastenings offer the reassurance of accessibility but need to be integrated and positioned in a way that complements rather than material and form. (Coles,J& House ,N.(2007,p.103)

2.4.4 Light and Mood:

Light and it's effects are key to the enjoyment and functional success of spaces. The light allows us to perceive form and texture, also it is allows us to discern differences in color and tone.

- **Understanding light:**
 - **Sunlight:** It is used to describe light from a visible sun; it is uni-directional and the light itself contains the full color spectrum. Sunlight has both a physiological and psychological effect on human beings. The well-being of the people using the spaces we design can be enhanced by introducing sunlight to the space and, where this is not feasible (for reasons of physical layout or seasonal shortage), replicating the character of sunlight by artificial means.
 - **Daylight:** It describes the light that is produced whenever the sun is above the horizon, but takes no account of whether it is actually visible. It contains direct sunlight, reflected and diffused sunlight. (Coles,J& House ,N.(2007,p.119)
 - **Responses to light:** One of the delights of natural light is the changes in direction, strength and color that occur through the day and as a result of seasonal and weather patterns .In early history daylight openings were simply holes in the wall, devoid of glazing material and limited in size to keep out the weather. The glass has been invented, it increased availability and affordability, the potential size of the opening expanded so that, over time, it became possible to create buildings in which entire wall planes were made of glass. (Coles,J& House ,N.(2007,p.121)



Figure (2- 9) Window display

Source: Coles,J& House ,N.(2007,p.122)

- **Artificial light:** All buildings with which interior architects work employ artificial illumination to replace or supplement natural light. In the design of the interior environment we are often endeavoring to replicate the positive aspects of systems and products while minimizing or overcoming the shortcomings by identifying needs and developing a lighting design ethos that marries the requirements of space, activity and mood, it is possible to specify a lighting system. In practical terms artificial light is usually intended to do one of the following things:
 - To provide the sole means of illumination at night.
 - To augment the light provided by windows in order to provide better modeling.
 - To provide light to compensate for poor natural lighting in poor weather conditions.
 - To provide supplementary lighting where rooms are too deep.

For the designer the choice of artificial light will be determined by the effect that needs to be achieved to meet aesthetic or practical goals, by the cost of the fitting and its power consumption and maintenance, and by the extent to which the light fitting itself contributes to the appearance of the space. It is possible to use invisible light sources where the illumination is produced by bouncing the light off adjacent surfaces.

The luminous relationship of background lighting to task lighting is vital in the creation of a comfortable visual environment. Too great a difference will lead to visual discomfort while too little will make it difficult to give the task the focus it warrants and will create an over-lit visual environment. (Coles,J& House ,N.(2007,p.123-125)

- **Using light:**

An interior architects may well be constrained by the form and positioning of existing windows when remodeling an interior. However ,it does help to understand the principles that will allow the designer to achieve the best results from daylight conditions.

- **Windows:**

The shape of the window, the depth of the wall in which it is housed and the color and form of that housing all have an effect on the way that light enters the building, and the perception of that light by the building user. Tall, narrow windows allow light to penetrate deep into the building, producing illuminated swathes that move radially over the space as the sun tracks across the sky during the day. The horizontal ribbon windows create a formal separation of the living and ceiling planes, while providing a panoramic view of the landscape.

With a ribbon window, the extent to which light is able to penetrate the space is entirely dependent on the position and height of the window in relation to the internal volume and planes.

- **Light control:**

Internal blinds, curtains and shutters all have a role to play in controlling the light entering a space from the outside and help define the aesthetic identity and mood of the space. These light control devices can be created in an enormous range of types, styles, colors, textures and materials to suit the proposed identity of the space. Shop windows need to be illuminated internally at least as brightly as the light on the pavement side, but in offices and domestic buildings, this also leads to the disconcerting realization that the inhabitants of the space are on show to invisible observers outside. So curtains and blinds hide the mirror effect, creating privacy for the building occupants. Once the sun's rays hit the glass, the greenhouse effect ensures a heat build-up on the inner side. Coatings applied to the glass at the manufacturing stage can modify this effect, but the most successful ploy is to stop the sun's rays hitting the glass in the first place. Traditionally this is achieved in hot countries by the use of external shutters and in modern buildings which extending horizontally at the top of the window obstruction to the weaker sunlight.(Coles,J& House ,N.(2007,p.129-133)

- **Color:** The color quality and strength of light sources, be they natural or artificial, have a considerable effect on the way we perceive colors. Color is a contentious issue in interior architecture, despite the difficulty of predicting the Individual's response to a particular color there are things that may be said about the relationship of colors one to another. Colors take on different qualities depending on their association and in relation to the direction, type and strength of the lights by which they are seen. Colors can appear radically different at different times of the day as daylight changes to direct sunlight, which in turn is succeeded by artificial light. Color has different meanings in different cultures and religious.

In the United Kingdom red is the color of urgency and potential danger; in Chinese societies it represents luck and happiness. We can say the importance of colors in interiors is not about the colors itself but the ways in which they are related one to another that is important. (Coles,J& House ,N.(2007,p.135)

2.4.5 Presentation:

Architectural design is a curious activity which expect to be able to create full-size models. It may seem to require huge time, effort and money. But the qualities of the proposal are invisible until completion. The architectural designer needs variety of devices and methods to explore, test and communicate the design intentions of a project.

the designer must be able to employ skills to explore, develop and convey design ideas. Some of these are cheap and simple to employ, others require investment in materials and technology. The principal methods, devices and their application are :

- **Sketching:** The simplest, cheapest and most versatile method of conveying ideas is by using pencil on paper. Despite the prevalence of computing in design, sketching retains a powerful appeal by dint of its immediacy and portability. The ability to sketch is a valuable skill at initial stages of the design process ,it also be scanned and transferred to the computer to be stored or developed further. (Coles,J& House ,N.(2007,p.153)
- **Drawings and visuals:** The difference between sketching and drawing is a subtle one. The sketch shows a preliminary idea or act as a device for identifying and outlining a particular aspect while a drawing is an altogether more complete and considered artefact and can make use of mechanical aids , drawing boards and drafting devices such as compasses and set squares – or a computer. Drawings are often utilized to generate a sense of three-dimensional spatial quality by employing the mechanics of perspective and by the application of color and shading to suggest material and lighting qualities. At their most sophisticated these may be indistinguishable from photo reality. Drawings of this type are often referred to as visuals and are the principal means by which the designer explains concepts and final designs to the client. Visuals may be manually generated by applying rules of perspective to a set of *orthographic drawings* at a drawing board or may be extracted from a *three-dimensional computer model*. which has a big advantage of allowing speedy adjustment of viewpoint , angle of vision and focus point to achieve the most effective result. Many designers are able to create useful perspective views as free-hand drawings – these can be invaluable in the early stages of a project. Color may be incorporated in drawings by using artist or graphic media by using proprietary computer software such as Photoshop to *render* and *texture-map* the image. (Coles,J& House ,N.(2007,p.155)

- **Orthographic:** It is used to describe a set of drawing conventions in which any sense of perspective is eliminated, as if the building is viewed from an infinite distance. These conventions are the basis of what are referred to as working drawings which are required to get the work constructed. Orthographic drawings give little insight into the qualities of the finished building but offer insight into the dimensional relationship between the parts and the whole. In order to do this orthographic drawings are made to scale. The scale chosen will depend on the amount of information and the degree of detail to be expressed . (Coles,J& House ,N.(2007,p.159)
- **Scale models:** the intention of interior architecture is to create a spatial experience, in miniature – a scale model. It the promotional devices available are easily understood by the non-designer. It is preferable that architectural models are often made in white or muted colors with colored visuals. (Coles,J& House ,N.(2007,p.162)
- **Digital design:** The digital revolution has ensured that the techniques and conventions are now available via the computer. The advantage of the computer to the professional designer is that it makes every piece of project information; drawings, text and specifications in a single database. Properly this will ensure that all information is consistent and up to date . The computer makes skills and techniques more accessible, time-consuming, has been made more accessible and cost-effective by the use of the computer. Part of the reason for this is the development of 3D modeling techniques. Design drawings were initiated in two dimensions, being extended into three dimensions by the use of models and visuals, now it is feasible to build a three dimensional computer model at the outset, abstracting two-dimensional drawings from this model. This is the most appropriate sequence of working, it allows the possibility of creating unlimited numbers of sections and visuals from the primary because it is easy to produce, explore and identify exactly the right drawing for each purpose. Computer texture-mapping and rendering techniques allow the designer to experiment with color, texture and lighting positions and effects, and to express these as color visuals. The computing power and time required to create a visual of a complex spatial and lighting scheme may be considerable. Recently the three-dimensionality was only achievable as a series of two-dimensional visuals or as an on-screen walk-through of the space.
Recent developments in printing techniques make it possible to build a true three-dimensional model, building up a resin material in successive layers each only microns thick to create a scale facsimile of the building. As these techniques are developed and refined the designer will be able to spend more time working in three dimensions and less in two to the advantage of the design process. (Coles,J& House ,N.(2007,p.164)

2.5 Introduction to mall:

Human being used to develop himself, also he always try to learn ,make use of and communicate with others. According to this he searches for tools to entertain himself and others. those countries which are able to achieve this are classified as developed country. The concept of creating remarkable areas which have multiple function (cultural ,social, commercial, administrative, entrainment ...etc).Malls include all previous mentioned functions, also it reflects a remarkable and urban picture of the city.

2.5.1 Mall Definition

A mall is defined by *ICSC* (International Council Of Shopping Center) as a shopping Centre which is typically enclosed, climate controlled and lighted, flanked on one or both sides by storefronts and entrances.

A shopping mall or simply mall is one or more buildings forming a complex of shops representing merchandisers, with interconnecting walkways enabling visitors to easily walk from unit to unit, along with a parking area a modern, indoor version of the traditional marketplace. Mall has become the fashionable, dynamic, and bright life Centre that fulfills various requirements of users. The competitions among the malls become violent. However, due to the change of the attitude of users towards organized retail market segments mainly due to increased income levels, strong economy, behavior, demand, changing life styles and shopping habits of users. The mall is now not only a place for shopping, but also for a form of family entertainment, satisfying a social need and cultural hot spot where people of all ages can come to interact.

2.5.2 Functional requirements of malls:

Mall is considered to be multi-function building as it includes activities such as (social, entertaining, commercial, administrative, service, ...etc). Properties of those activities varies from one mall to another according to the size area, the vision of the designer and clients needs.

Activities in malls including but not limited to:

- **Commercial activities:**

it include all types of shops. It has classified as the needs. There is shops for daily needs as in hypermarket , shops for periodical needs as clothes , home and office utilities and children needs in addition to those shops they are shops for less needs such as jewelry, electronics, furniture and electronic utilities ...etc. Also there are shops for special services such as pharmacy, exchange, travel agency, post office and branches of communication companies.

- **Entertainment activities:**

It involves playing halls (for adult and children),ice rink, cinemas, restaurants (food courts),cafés and health club...etc.

- **Social activities:**

It includes multipurpose halls for festivals and meetings also, waiting areas are considered as social activities.

- **Cultural activities:**

There are multi-use areas which are used as cultural space for (car show, heritage show, educational lecture, books galleries ...etc.

- **Services activities:**

We find on those areas car parking (indoor and outdoor) praying area, toilets and stores...etc.

- **Administrative activities:**

Reception area, employers offices (open areas and closed areas) and their needs.

- The challenge of design is to put the above mentioned activities in appropriate relationship. so as to make circulation easy to user, in order to create better functional environment. The designer should study the areas of those spaces in details.

2.5.3 Mall planning levels:

According to the industry's practice the accepted classification defined by the *International Council of Shopping Centers (ICSC, 2004)* is used most frequently. According to this, and to their architecture and design, shopping mall are classified into two group:

1. **Regional center** – it has a general retail range; fashion apparel and services are present in a bigger proportion. Its main attractiveness lies in the combination of anchor tenants and in the mix of fashion apparel stores.
2. **Superregional center** – very similar to the regional center, just bigger. Thus, it has more anchor tenants and the store range is wider, and it's often a multi-story building.

Shopping Centre Classification in U.S.

CENTRE	CONCEPT	AGGREGATE GLA (Sq. Ft.)	TYPICAL TYPE OF ANCHORS
Super Regional Mall	Similar to concept to regional malls, but offering more variety and assortment	838,981.872	Full-line or junior department store, mass merchant, discount department store and/or fashion apparel store
Regional Mall	General Merchandise or fashion-oriented offerings. Typically enclosed with inward facing stores connected by a common walkway. Parking surrounds the outside perimeter	481,857.893	Full-line or junior department store, mass merchant, discount department store and/or fashion apparel store

(Source: <http://www.icsc.org>)

Table (2-1) shopping center classification in U.S

source :// <http://www.icsc.org>

2.5.4 Malls planning guidelines:

- prime location with adequate space for the project
- Is not far from the nearby city
- Make sure the land is easy accessible, ideally on the main road
- Does not create traffic congestion
- Easy connectivity to the site
- adequate parking space
- clear circulation , no hidden corners.
- spaces divided by function and distributed in the different nature of various ranges
- plans to meet all the requirements of the visitors
- efficient service areas for each tenant.

2.5.5 Malls design guidelines:

- Malls are multi-function building. Trends of malls design are includes but not limited to:
 - Regarding the building as one architectural unit, contains more than one main and secondary entrances. from those entrances you can reach the main large lobby. That lobby includes escalators, elevators and corridors which to reach all building areas.
 - Dividing the building to spaces according to the function of it. Those spaces should be connected and decorated with green areas.
 - Distributing project's elements to parts which branches from main distribution center.
 - Breaking the familiar in the architectural design to make innovative interior spaces.
 - Locate shops attract the visitors in a place that ensures activate the public movement flow.
 - The design, space Dimensions and location of the Mall should facilitate the movement of the users to and from the mall without interfaces or conflicts between the pedestrian and vehicles.
 - Locate shops with same specialty classifications with each other's for example (meat and industrial shops should be separated).

- **Aesthetically requirement:**

A mall is not an isolated building takes place in a cretin site, the mall is a significant and important part of the surrounding environment and provides various services, economically and entertaining.

To design a mall deep studies are needs for the site , the surrounding , the scale , the form , the landscaping, and the internal spaces. Also the selecting of aesthetics and materials and providing a pleasant eye catching tour for the visitors is important factor in designing the mall .The mall should has a unique , attractive connected view indoor and outdoor, comfortable environment and functional spaces that satisfy the visitors and give them a comfortable , joyful and socially accepted place to visit and have a wonderful tour inside and outside.

- **Design the facades of mall:**

The facades and the landscape are the first things that catches our eyes. a mall facades should consider human scale, aesthetics, attraction ,welcoming and materials used must be functional, high quality, maintainable, attractive and resist to all the climate conditions.

- **Entrances:**

It should be clear, direct, majestic and luxurious as a transitional zone from outside to inside, it prefers to use high quality materials in additional of using of landscape elements which enhance the importance of the mall.

- **Main Entrance hall lobby foyer:** It's an area gathering the circulation paths and may host musical and cultural performances, some parts of this area may be used as exposed cafes and multiple galleries, taking into account the importance of lighting.
- **Public spaces elements:** Such as internal gardens, provide different guiding means to facilitate access to various shops according to their classifications, sitting areas, various leveling and use of colors, use of water which considered as an attractive feature and the use of acoustics to create a good effect on the psychology of the shoppers.

- **Lighting, ventilation and orientation:**

The project contains multiple elements and different environmentally requirements such as lighting, and orientation each according to its function and the success of the architect to provide appropriate conditions for each element which give the project it's strength.

- **Construction methods and materials:**

There are many methods and materials of construction with no specific instructions for building activities, but often governed by two main factors:

- Architectural character which decided by the designer.
- Economic factors.
- The structural system also affects the interior architecture and sometimes inspire the designers, showing or covering the structural elements and skeleton is an important decision to be taken , because it may affects the internal spaces and form, designers have the option to show the structural elements as a design elements equally to lighting, texture, colors,... etc or to cover them if showing them doesn't add to the design.

- **Security considerations:**

It's necessary to take it into account many of the security considerations against many expectations, such as; robbery, stealing, fire, sabotage ...etc. and the relationship between the visitors, staff and security members.

- The difficulty and ease of these considerations depends on the form of the building, the external security can be achieved by:
 - Separating the area of permanent or continues frequent use of public to be identified and clear areas.
 - Open –shows- parts should be in one building.
 - Reduce external opening
 - provided the building with technical systems of alarms and control.

- **Circulation (movement axes):**

Are the most important components and have essential role in the success and failure of the project for the huge number of the users so a great deal of rest for the users , high using proficiency , clearness , easiness and flexibility should be taken into account either in vertical circulation or horizontal movement to familiarize the expected capacity . Much attention should also be paid to the beginning and the end of the axis .Because they represent strong area for setting important components , movements of the shoppers and the workers should be taken into account.

- **Vertical Movement Components :**

Setting vertical movement components as stairs and escalators is of great importance. They should be distributed clearly and in a studied way in order to be seen by the users .

- **Escalators:** they give beautiful view and attract the sights of the users to the upper levels . Appropriate and beautiful materials should be used .
- **Elevators :** They are always recommended because they take less space than escalators . They are quicker , cheaper and transfer the items of the shoppers .

There are many kinds of them, inside glass towers which show their movement and beauty by using appropriate construction materials .

- **Corridors:** They are the component that determines the way of shopping. They are formed gradually from main ways to side passes which can lead to one or more than one convergence

The following should be taken into account :

- Providing smooth shoppers movement to a large extent.
- They should be attractive and enjoyable for walking on .
- They should include places for sitting as well as using plants ,flowers and fountains.
- The end of the corridor should lead to attractive components in the mall .
- Dimensions and width of the corridors should be appropriate shoppers waiting and movement . Their length should be appropriate that shoppers not feeling of boredom.

- **Shops:**

Shop is considered as the basic unit upon which commercial center is based . Commercial spaces should be designed in an appropriate way for all different shops . They should be provided with all necessary services as lightening , airing and resisting fire .to match their functional needs for each shop .

- **Mechanical services :**

The purpose of the services is to make shopping as easier as possible . So , they are as important as architecture design and putting into account beauty values in the success of the malls . For instance if the commercial center is humid and hot it will never whatever good its design .Mechanical services mean air conditioning , lightening , gas ,fire, water supply ,sanitary etc.. ”, those systems have a major role in designing the internal spaces , also the fixtures such as “lighting, detectors, speakers , air supply units...etc” must be considered and choosed according to the internal architecture them and concept.

- **Lightening :**

Different views upon whether to provide natural lightening or not in the malls . There are two views in this point :

- **The first** : the day light psychologically is desirable so as to create an appropriate shopping environment .
- **The second** : artificial lightening is preferable. But when thinking of consumption in energy so it is thought of using natural lightening for mall . This can take place through glass roofs (atrium). A design depends on natural lightening consists of control means of undesired effect of sun rays . Industrial lightening can be used when the reduction of the level of the natural lightening by the end of the day .

It is necessary for the mall's corridors to have high lightening level because reduced lightening level for the passes has an effect that causes depression for the shoppers whereas stimulation and attraction should be available for the shoppers .

○ **The principals of designing lightening in the malls:**

- High intensity of the light should be gradually increased towards entrances and exists .
- General lightening systems should be designed through automatic transfer system .
- Designing the general lightening via(special effects) high lightening for notices, plants, places of sitting , wall paintings and decorations panels .
- Lightening for security purpose should be provided . Some areas should be lightened in no shopping hours in addition to emergency lightening .

○ **Atrium Design:**

Today, atrium remain a popular design feature, allowing light to flood in and providing a building with a sense of space. They appeal to people emotionally by providing a connection between the building's interior and the external space within which it sits. Several psychological studies confirm the importance of atrium and natural light to worker productivity.

It is internal curtain walling that provides the design solution, allowing for large expanses of glazing to be safely and cost-effectively achieved without the need for secondary support assemblies – although specifies should always ensure that the glass and its framing system have been tested as one compatible unit.

● **Services:**

Providing services includes supplying shops with goods as well as getting rid of rubbish . Also facilitating servicing of goods cars as well as providing area for receiving and getting goods . these processes be so far from Shoppers's eyes should be taken into account.

● **Administration(offices design)**

As there are numerous activities in the mall , there should be specialized offices for management as companies and offices . They should be provided with clear movement components to facilitate smoothness and quickness in movement . An appropriate area should be foe each office . Using of design of its two kinds close and open should be taken into account

2.6 Interior Architecture of Malls:

- Based on what have been discussed earlier about the fundamentals of interior architecture it is the important that the designer should has a clear understanding of the functional needs of the project and the creative vision to ensure that the mall will create appropriate emotional response in the users .
- There are considerations that should be taken into account when designing the interior of the malls along what have been already discussed which are:
 - **Display** : proper display should encompass understanding of:
 - a) The values and aspirations of the company .(*brand values*)
 - b) The way that materials ,colors and forms are perceived by the society in general and the target market in partiqular.
 - c) *Ergonomics* , *anthropometric* (which of us has not Struggle to reach products ,or read information , on shelving too high or too low for comfort.
 - **Choice of materials** : it will have a significant effect in perception of quality and acoustic ambience of malls e.g. A large group of people in a social setting will produce a significant amount of noise and this will need to be factored into the choice of materials. while hard materials(metals-ceramic, plaster, plastic laminates etc.) will create bright acoustic , the same number of people in a carpeted, heavily curtained and soft-furnished space will experience the muted, respectful ambience redolent of restaurants, shops and playing halls. (Coles,J& House ,N.(2007,p.57-59)

2.7 The Previous Studies:

There is a number of previous studies addressed in the design of the malls of the multiple aspects which are considered as a reference for the researcher, depending on some of the points that did not address on those studies is considered as a start step of the researcher in this subject.

2.7.1 A study of key factor affecting customer relationship towards shopping mall. By Ajay Kumar 2014

The objectives of the study is to identify the factors that affect the shoppers to shopping towards shopping malls and To provide managerial implications to improve performance of shopping mall . Along with this research efforts have been made to explore various factors which affect the behavior of consumers in a retail outlet. Through literature review various factors are focuses which affects the consumer behavior towards shopping mall while visiting for shopping. A sample of 100 respondents was taken who are the visitors of shopping malls or their mostly purchases are from shopping malls. The data was collected through the questionnaire and Statistical analysis was done. The study was accomplished to discover the factors that affect the customers towards mall shopping and gives the direction to retailer to improve the performance of the mall by concentrated the factors that affects the shopper to shopping in mall When a consumers to make purchases from mall to buy something, he or she is affected by assorted factors. The main affecting factors towards mall have been identified as availability of branded, quality and variety of product, alternative and ease of find product. New product is also affecting the customers to shopping towards mall. Another factor is safety and security which affect to customers to shopping in mall with family and children. It recommended to apply the concept of this research in shopping mall policy is focus on safety and security factor to gain the renew portion and used cooperation factors as a tool to encourage management performance score. This study addressed the key factor affecting customer relationship towards shopping mall particularly as a managerial aspect, but this study differs from it in how the extent of knowing and applying the fundamental of interior architecture can create a unique space and enrich the internal space of the mall.

2.7.2 A scientific paper about shopping malls attractiveness a segmentation approach. By Mohammed Ismail El-Adly 2006

The paper aims to determine the attractiveness factors of UAE shopping malls from the shoppers' perspective and then to segment shoppers according to these attractiveness factors. This study revealed six mall attractiveness factors from the shoppers' perspective: comfort, entertainment, diversity, mall essence, convenience, and luxury. It also arrived at three mall shopper segments, specifically, relaxed shoppers, demanding shoppers, and pragmatic shoppers. Each segment was profiled in terms of mall attractiveness attributes, demographics and shopping behaviour. This study is limited in that it surveyed UAE University staff as shoppers. Identifying mall attractiveness factors for a segmented market gives a better understanding about patronage motives than when it is applied to the market as a whole. This enables mall managers to develop the appropriate retailing strategies to satisfy each segment. This is the first study to provide an insight of mall attractiveness factors as identified by different shopper segments in an Arabian environment without ignoring the special cultural differences in the UAE. This paper reflects the attractiveness factors from a shopper perspective then to segment shoppers according to these factors from a managerial point of view, but this study focuses on knowing these factors in addition to how to reflect them eternally and to know the fundamental of interior architecture of the mall to achieve appropriate internal space which will meet all the requirements of the users.

2.7.3 Evolution of shopping malls: Recent trends and the question of regeneration . By Buket Eregun Kocaili 2010

This thesis explores the history of shopping places through recent trends in shopping mall design. The aim of the study is to put forward the importance of 'regeneration of shopping malls' as one of the future directions, and to make clear the criteria for successful regeneration of shopping malls.

In this thesis, shopping malls are accepted as urban public spaces. So, the scope of the study is originated according to urban public space quality of shopping malls. The study comprises a research on definitions and theories of public realm, public space, and urbanity and their interaction with shopping mall design concepts. The shopping places in history and the contemporary shopping mall, from the beginning through the emerging types, are exemplified and examined from literature and World Wide Web, in order to understand their evolution, their transformation, and their regeneration reasons, strategies and solutions. (The kinds of regeneration reasons, strategies and solutions, physical, social, economical, environmental, and managerial, is an extensive study that they have not examined in detail in this thesis.) In the end, the recent regeneration strategies also verify the customers' preferring of shopping malls with improved urban public space quality. The thesis was concluded by summarizing the recent

trends in design and in regeneration of shopping malls, comprises an attempt to visualize how regeneration strategies will be the solution in future, in the context of shopping mall and urbanity.

This study reflect the importance of ‘regeneration of shopping malls’ as one of the future directions, and to make clear the criteria for successful regeneration of shopping malls . but this study focusing on knowing the fundamental of interior architecture is important to designing a mall and enrich the internal space to meet the requirements of the users.

2.7.4 Working paper about Determinants of shopping behavior of urban consumers: By Rajagopal , PHD FRAS FIOMI SNI- II (MEXICO) .February 2009

This study explores the influence of geo-demographic of settings commercial centers, customers attractions in shopping malls, and routes to shopping of urban shopper . the research analyzes retailing patterns in urban areas in reference to customer orientation strategies, product search behavior and enhancing the customer value. Interrelationship among the urban retailing , marketplace ambiance, conventional shopping wisdom of customers , long-term customer service and technology led selling processes are also addressed in the study based on empirical survey. Broadly , this study makes contributions to the existing research in urban retailing toward factors determining shopping attractions, routes to shopping, and establishing the customer-centric strategies of the firms.

The objective of this study is to analyze the impact of geo- demographic location of commercial centers, customers attraction in shopping malls, and the routes of shopping urban shoppers . but this study focusing on knowing the fundamental of interior architecture is important to designing a mall and enrich the internal space to meet the requirements of the users.

2.7.5 The Analaysis of The Previous Studies:

Some of these studies touched on the main factors that contribute to attract the users toward shopping malls and some have mentioned the historical development and how to renovate shopping malls in addition to know the behavior of the shopper in the shopping malls from urban point of view . but the most of these studies was a management point of view, however these studies didn’t touch the concept of interior architecture in detail as a new concept in the shopping malls and how to apply its elements and its fundamentals since the first stages of the design process to have determination and thoughtfully design which will meet all the needs of the users and enriches the internal space .

Due to the lack of knowledge and misconception of the interior architecture and how it could be applied in the malls, there are no architectural studies addressed this concept in detail.

2.8 Conclusion:

The interior space is the part of the building that touch the user's and create the first impression either positive or negatively, to enhance the positive effect designers must study the spaces and the functional requirements needed , this further study led to developing the field of interior architecture which is a modern concept and has fundamentals and elements to reach the satisfaction of the users through study the location , neighborhood , accessibility , bonding exterior and interior of the building, study the functional spaces and relationship, materials, lighting and bearing in mind structural system and it's affects on interior of the building.

CHAPTER THREE

EXAMPLES

- 3.1 Introduction.
- 3.2 Example 1 Dubai mall(UAE)
- 3.3 Example 2 panorama mall (KSA)
- 3.4 Example 3 Myzeil mall (Germany)

3. Examples:

3.1 Introduction:

The Applied study through the examples of similar projects which have the basics of interior architecture and analysis it, will give the benefit of in the understanding of basics of interior architecture and how it could be applied on the malls.

3.2. Example 1- Dubai mall (UAE):

3.2.1. Introduction: There are a few places in the world that needs no introduction and dubai mall is among those chosen few. It has been a pride of dubai since its opening in the year 2009 and has been growing ever since. The dubai mall is a project that defies categorization due to its massive scale and complexity. It is not just a piece of architecture; it is a construction in a space of vast scale, and it possesses the complexity of an urban centre. Measured by covered area, it is the largest mall in the world, the inclusions in the mall such as the world's largest acrylic aquarium panel, world's largest candy stores and other various unbelievable options have made it one of the most visited destinations in the world. it a piece of architecture that will continue to be enjoyed by the entire family while giving retailers the most efficient and functional working environment. Catering to both the visitor and the retailer has created the best shopping experience in the world. An emerging international city, dubai has gained global attention, in part, because of its ambitious architectural projects that challenged the norms in terms of scale or audacity. The world's largest covered mall, the dubai mall, is adjacent to the world's tallest building, Burj Khalifa. Despite the mall's scale and context among the biggest and the best, it was first and foremost designed as a supremely functional space.



Figure (3- 1) External views (Dubai Mall)

Source: <https://architizer.com/projects/the-dubai-mall-1>

Source: <https://www.architecturendesign.net/inside-dubai-mall-the-biggest-shopping-mall-on-the-planet/>

3.2.2 Facts and Figures:

- It is the largest mall in the world with a total area of 13 million square foot.
 - The largest Acrylic panel that offers a clear vision of 33000 marine animals. It is also the world's largest suspended aquarium on display.
 - The mall has a 30 acre manmade lake which has the world renowned Dubai fountain choreographed beautifully and lit up by 6600 lights, 25 projectors. It shoots up to a height of 70m.
 - There's a parking facility for 14000 cars inside the mall.
 - The indoor aquarium of the mall is renowned to be world's biggest indoor aquarium.
 - Reel cinema is one of the largest cinema screens of the world.
 - The Olympic sized ice rink boasts of world class facilities.
 - It bagged the mall with the best shopping experience overall at the prestigious Grazia Style Awards in the year 2010.
 - The aquarium and under water zoon inside the mall won the Leisure and entertainment award of 'Images Most Admired Retailer of the Year' in the year 2012.
- Setting up a new standard for leisure, entertainment and shopping experience, the mall is loved by visitors who come to witness its grandeur from across the world. With entertainment and amusement facilities like no other, the dubai mall sets a benchmark of the ultimate experience for the world

3.2.3 Dubai mall design:

- planning view:
 - clear circulation , no hidden corners.
 - visual connectivity to all shop.
 - sufficient parking space and transportation.
 - efficient service areas for each tenant.
 - subdivision of the mall into zones with distinct characters.

- circulation and retail spaces need are clear and legible so visitors will not get lost.
- A quadrant circulation pattern with recognizable nodes was created for legibility. Nodes for rest and relaxation were choreographed in key locations along the walkways; these public spaces effectively created landmarks that aid in wayfinding and create attraction points that offer variety to the urban experience. Like any meaningful and rich urban setting, each node has something special and is given a specific name and theme. The scale of each node was considered in direct relation with the visitor's journey.

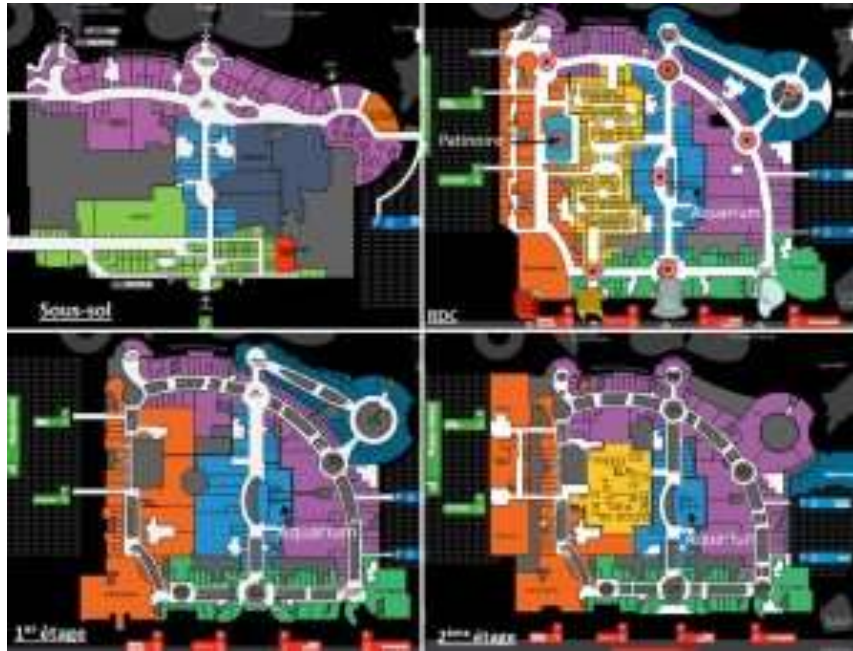


Figure (3- 2) Floors Plans (DubaiMall)

Source: <http://maps-dubai.com/dubai-mall-store-map>

- Shops can easily be seen from a visitor's perspective so that when you are in an atrium space you can see the shops on other floors. This visual connectivity allows for recognition and familiarity.



Figure (3- 3) Atrium space in Dubai Mall

Source: <https://www.pinterest.com/pin/414049759471037334/>

- It is extremely rich in programmes and public spaces. the mall
- Offers something for the whole family, it involves non-commercial programmes beyond the shops.
- The Dubai mall brings together an incredibly diverse assortment of visitors from around the world. Thus, the design encourage the mixing and variously by creating urban conditions for various social events and occasions.
- multiple large-scale attractions aquariums, an indoor triple-height waterfall, an olympic-sized ice-skating rink , unique atrium spaces and the play of natural light which create unique environments inside the mall.



Figure (3- 4) Aquarium, Water fall, Atrium and ice rink (Dubai Mall)

Source: <http://itsaboutdubai.com/info/landmarks-distination/overview-dubai-museum-review/>

Source: <http://www.dubaiwikia.com/the-best-of-dubai-mall/>

- The forecourt of the dubai aquarium and underwater zoo functions is located as a public plaza at the center of the mall's primary axis, serving as a civic destination for families.



Figure (3- 5) Dubai Mall's aquarium

Source: <http://www.dubaiwikia.com/the-best-of-dubai-mall/>

The building is accessible through four grand entrances and vehicular drop-off points, which are transition points to enter the building. These entrance pavilions operate at the scale of the car and the building through their expressive and identifiable volumes, as well as at the human scale with their detailed mashrabiya surfacing treatments and finishes.



Figure (3- 6) Accessible to the building(Dubai Mall)

Source: <https://architizer.com/projects/the-dubai-mall-1/>

- The elongated Grand Drive was conceived as a form of 'architectural promenade' to enhance the sense of arrival and create a showplace to see and be seen. Within the many levels of parking decks, entrances were named after its respective nearby landmarks, such as 'Gold Souk Entrance' or 'Ice-rink Car Park'. These cues of orientation and path-finding are part of an overall identifiable network.

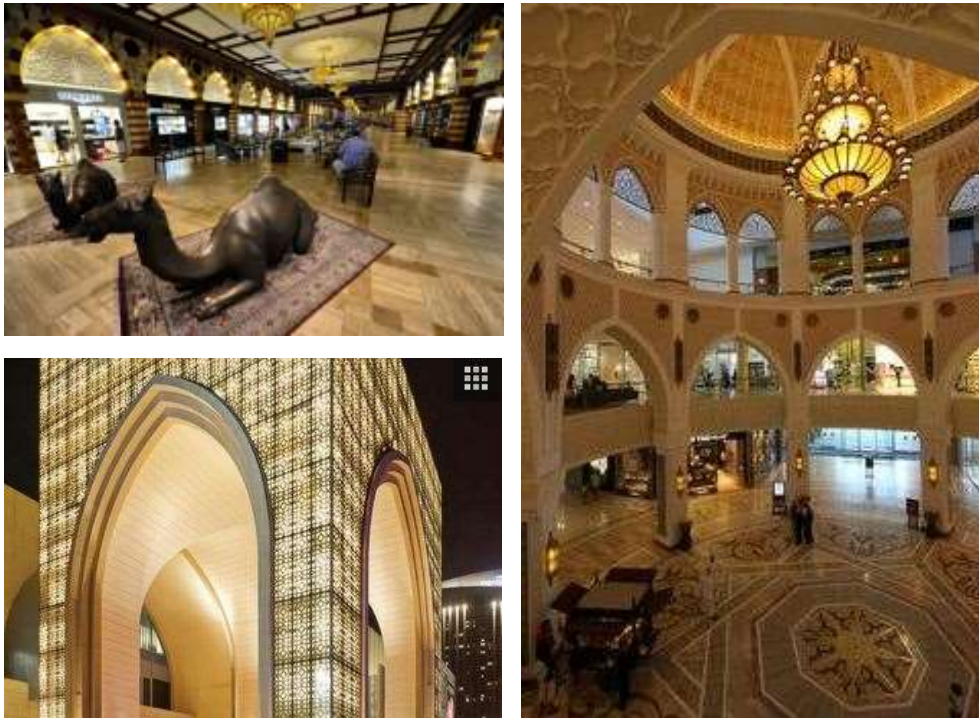


Figure (3- 6) ‘Gold Souk Entrance’(Dubai Mall)

Source : <https://architizer.com/projects/the-dubai-mall-1/>

- More obvious conditions of the mall’s design, such as the considered design of its roofs cape or the delicate selection of materiality – the true heart of the mall’s success lies in the effective planning techniques. It is supremely functional which has led to its continued success of breaking visitor targets every year since opening.



Figure (3- 7) Selection of materials (Dubai Mall)

Source: <https://www.google.com/search?q=dubai+mall+atrium&client/images>

3.2.4 What distinguishes The interior architecture in dubai mall?

- Breaking the familiar in the architectural design to make innovative interior spaces.



Figure (3- 8) Shops at Dubai mall

Source : <http://www.dubaiwikia.com/the-best-of-dubai-mall/>

- The optimum distribution of the Interior spaces and its relations with each other and linking them with out door creates distinguishes and unique environment.



Figure (3- 9) Linking between indoor and outdoor(Dubai Mall)

Source: <https://www.architecturendesign.net/inside-dubai-mall-the-biggest-shopping-mall-on-the-planet/>

- selecting of aesthetics and materials and providing a pleasant eye catching tour for the visitors are important factors which made the mall unique and attractive.



Figure (3- 10) Selecting of materials which made the mall unique and attractive

Source: <https://www.thousandwonders.net/Dubai+Mall>

- Clearness, easiness and flexibility of circulation vertically and horizontally and divided it to zones meets the expected capacity which made essential role in the success of the project.



Figure (3- 11) Vertical circulation (Dubai mall)

Source : <https://www.thousandwonders.net/Dubai+Mall>

Source: <https://www.colourbox.com/video/dubai-mall-with-visitors-from-inside-in-dubai-uae-video-2080211>

- Understanding the best practice in the design of interior , the local context and the requirements of dubai mall at the early stages of design can be seamless intertwined and unique interior space can be created.



Figure (3- 12) The Design of interior space(Dubai mall)

Source: <https://www.architecturendesign.net/inside-dubai-mall-the-biggest-shopping-mall-on-the-planet/>

- One of the most prominent features in the mall is this huge waterfall. The divers on the waterfall are made of fiberglass, and serve to “create a dynamic visual spectrum that complements the rhythmic flow of water.”



Figure (3- 13) The huge waterfall (Dubai Mall)

Source: <http://www.danielcheongphotography.com/keyword/Architecture;dubai%20mall>

- the unique for choosing the color and materials are worth and enrich the mall internally and externally.



Figure (3- 14) Choosing of colors and materials(Dubai Mall)

Source <https://www.thousandwonders.net/Dubai+Mall>

- It require in design of (interior space and interface)of shop's vision to be match with the mall's vision and design.



Figure (3- 15) interior space and interface of shops(Dubai Mall)

Source: <http://info.evolveinteriors.com/evolve-blog/interior-designer-dubai-mall>

- The lighting of the mall is studied deeply according to the function and it mixed between the natural which applied with atrium and orientation and artificial lighting in order to reflect the beauty and comfortable of space with innovative way.



Figure (3- 16) innovative of lighting(Dubai Mall)

Source : <https://www.architecturendesign.net/inside-dubai-mall-the-biggest-shopping-mall-on-the-planet/>

Source : <http://markcorporation.in/2015/07/02/10-jaw-dropping-facts-about-dubai-mall/>

- There are many atria throughout the mall, and they're all immaculately decorated.



Figure (3- 17) Dubai Mall atriums

Source: <https://architizer.com/projects/the-dubai-mall-1>

Source : <https://www.architecturendesign.net/inside-dubai-mall-the-biggest-shopping-mall-on-the-planet/>

3.3 Example 2- Panorama Mall (KSA-Alriyadh):



3.3.1 Introduction:

(Panorama Mall) located in Riyadh on the intersection of Altakhasosi street with Prince Mohammed bin Abdul Aziz Street (Tahlia), on 1.3 million m², at a cost of 200 million riyals, the company has designed the mall to employ this vital place which is one of the most strategic locations in Riyadh, entertainment , business, and established it in this position to be a recreational, and commercial, not only its services are limited to residents of the area, but include all the inhabitants of Riyadh, as well as visitors from other regions, due to the characteristic of that region at the level of the Kingdom's regions. Through the proactive studies the designer company was able to bestow the unique featured and items; during planning, implementation, and the construction, to make it an architectural masterpiece, consistent with the offer of commercial and recreational services.



Figure (3- 18) panorama mall view

Source: http://www.eyeofriyadh.com/directory/details/336_panorama-mall

Panorama Mall is one of the malls constructed according to the latest international architectural specifications and standards in Saudi Arabia. Also, its engineering design conforms to the modernization trend of the real estate sector in the Kingdom. It is also considered to be unique among the current malls in the Kingdom.



Figure (3- 19) Panorama mall view and location
Source: <https://www.asala.sa/?project=panorama-mall>

The Panorama project funded center, have a strategic location and Integrated beautiful design, which includes many of the selected stores carefully and working in integrated activities has been interest in all aspects leading to the success of the investment starting from the site and the end of the management and operation to provide an integrated approach and a privileged lifestyle. The center includes many of the world-famous brand names in addition to the dining hall; children play areas, Hypermarket and Jarir Bookstore.



Figure (3- 20) Main lobby(panorama mall)
Source: <http://www.hamat.sa/en/commercial-centers/panorama-mall>

3.3.2 Information About Panorama Mall:

- **Location:** Located at the intersection Altakhasosi Street with Prince Mohammed bin Abdul Aziz Street.



Figure (3- 21) Panorama mall location

Source: http://www.eyeofriyadh.com/directory/details/336_panorama-mall

- **The designer company:** Mohamed Habib Real Estate Company
- **Land area:** 133,557 m²
- **Rental area:** 82,878 m²
- **Parking:** 2,080
- **Number of exhibitions:**
306 Gallery
- **Components of the project:**
 - Danube hypermarket
 - Jarir Bookstore



Figure (3- 22) Al danube hypermarket & Jarir bookstore

Source:

<https://cebuawithlove.wordpress.com/2013/08/18/panorama-mall-riyadh/>

- integrated recreational area
- variety restaurants and cafes area
- global brands and different shops



Figure (3- 23) Resturants,café and shops (panorama mall)

Source: <https://foursquare.com/v/panorama-mall>

3.3.3 Panorama mall Project: Planning view:

- prime location with adequate space for the project
- plans to meet all the requirements of the Riyadh region and visitors from other regions
- Easy connectivity to the site



Figure (3- 24) Connectivity to the site(panorama mall)

Source: https://www.tripadvisor.com/LocationPhotoDirectLink-g293995-d2615272-i165543778-Panorama_Mall-Riyadh_Riyadh_Province.html

- adequate parking space
- spaces divided by function and distributed in the different nature of various ranges

3.3.4 Panorama mall Project: Designing view

- insert blocks and composition depending on the function characterized the project and reflect that in the outer profile of the building



Figure (3- 25) Profile of the building (panorama mall)

Source : <https://foursquare.com/v/panorama-mall>

- clarity of the horizontal and vertical circulations of corridors, conveyor belts and escalators.

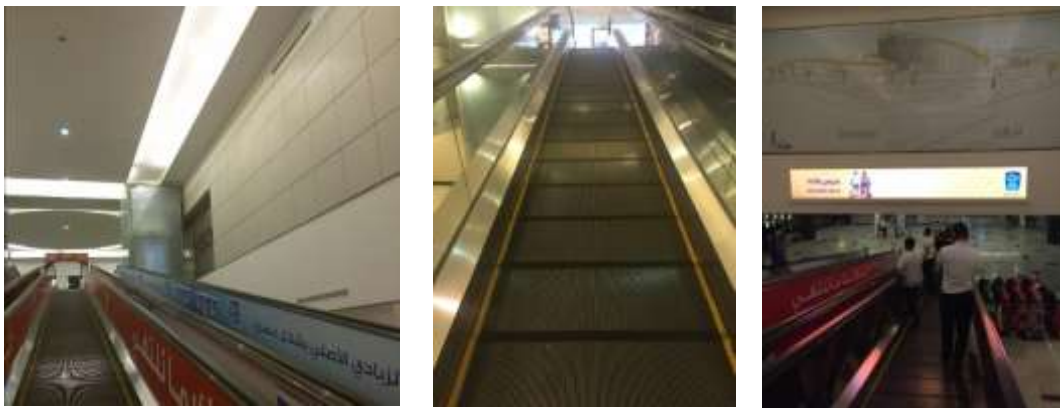


Figure (3- 26) Vertical circulation (panorama mall)

Source : <https://www.google.com/maps/uv?hl=en&pb>

- the hypermarkets and some shops have external entrances, linked with the inside to facilitate the movement.



Figure (3- 27) External entrances for some shops

Source:<https://www.google.com/search?q=panorama+mall+riyadh&client>

- A Library with all the requirements (Greer) characterized the project Library
- A good division of the functions of the commercial, recreational and service areas.



Figure (3- 28) commercial, recreational and service areas(panorama mall)

Source: <http://www.riyadhconnect.com/child-falls-to-death-inside-panorama-mall-in-riyadh/>

Source : http://sauditour.info/en/m/location.php?place_id=233

3.3.5 What distinguishes the interior architecture in panorama mall?

- Appearance of the structural elements, especially in the area of games and restaurants as part of the total internal design and how interconnected with the forming elements in the space.



Figure (3- 29) Appearance of the structural elements inside the space

Source: <https://foursquare.com/v/panorama-mall>

- Unusual design ideas (the density of the glass) and the creation of innovative spaces.



Figure (3- 30) the density of the glass in the facades

Source: <https://foursquare.com/v/panorama-mall>

- Selected Features of materials and methods of implementation represented an attraction to the visitors.



Figure (3- 31) Selected Features of materials and methods of it's implementation

Source: <http://www.hamat.sa/en/commercial-centers/panorama-mall>

- Clarity of circulation from the lobby to the different parts of the mall.



Figure (3- 32) Main lobby in panorama mall

Source: <http://www.hamat.sa/en/commercial-centers/panorama-mall>

- Outstanding use for lighting and methods of design in shops and corridors is the suspense factor for visitors.



Figure (3- 33) The use of lighting in shops an corridors

Source: https://www.tripadvisor.com.ph/LocationPhotoDirectLink-g293995-d2615272-i165543778-Panorama_Mall-Riyadh_Riyadh_Province.html

- Aesthetic use sky light of the atrium of makes an impressive combination of natural and artificial lighting.



Figure (3- 34) Sky light of the atrium (panorama mall)

Source: <https://foursquare.com/v/panorama-mall>

- Use transparency materials in the interfaces to link the inside with the outside shows the beauty of the design.

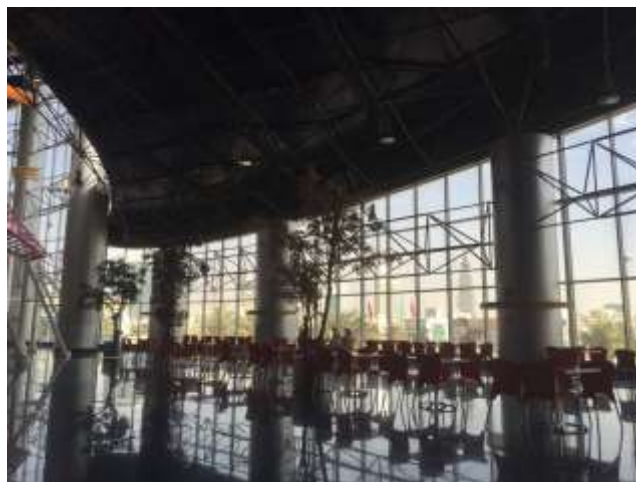


Figure (3- 35) The transparency of materials in the interfaces
<https://www.google.com/search?q=panorama+mall+riyadh&client>

- The use of botanical elements to create a comfortable indoor environment.



Figure (3- 36) Using botanical elements inside the space
Source: <http://www.hamat.sa/en/commercial-centers/panorama-mall>

3.4 Example3- Myzeil Shopping Mall (Germany-Frankfurt):

3.4.1.Introduction:

MyZeil Shopping Mall is a project designed by Studio Fuksas in Frankfurt, Germany in 2009. It is the innovative prototype of a modern shopping and leisure world. The sculptural glass facade creates impressive and dynamic spaces within the public atriums, creating a unique environment for a common activity. The 77,000 square meter structure includes shops, leisure spaces, kids areas, restaurants, fitness center and parking.

Along with functionality and efficiency, light flood, spatiality, opening up, communication as well as verticality are combined as essential project features for the first time in this form.

A new architecture has been developed; this goes for the outside as well as the inside appearance which captivates by its spacious sculpturality. Vertical shopping on 5 + 2 floors needs its exclusivity. An amorphous glass landscape, evoking the creative idea of a canyon, stretches along the whole building complex and creates a daylight-lit ambiance. Fluid spaces evolve, which offer interesting view relations across all floors of the building.



Figure (3- 37) External views (Myzeil mall)

Source: http://www.ece.de/brochures/MZF/MyZeil_Frankfurt_DE.pdf

Source: <https://www.archdaily.com/243128/myzeil-shopping-mall-studio-fuksas>

3.4.2 Information about myzeil shopping mall:

- Project name: Myzeil Shopping Mall
- Architects: Studio Fuksas - Massimiliano and Doriana Fuksas
- Interior Designer: Fuksas Design
- Client: PalaisQuartier GmbH & CO., KG
- Location: : Frankfurt, Germany.
- Address: Grosse Eschenheimer Strasse 10-14

- Total Plot Area: 77000m².
- Time of construction: 2002-2009
- Numbers of floors: 7 floors .

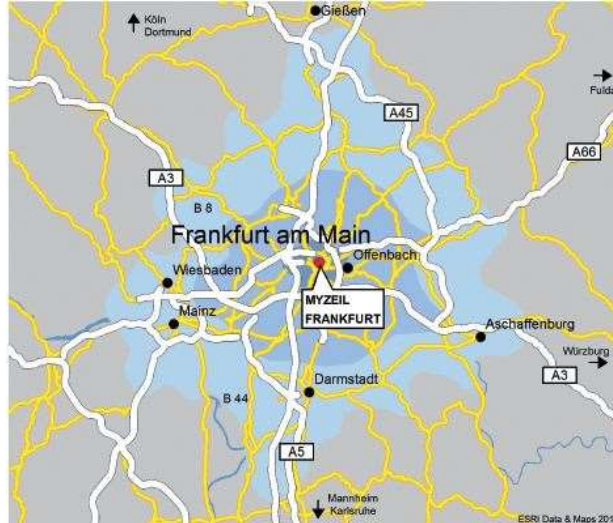


Figure (3- 38) the location of Myzeil mall

Source: http://www.ece.de/brochures/MZF/MyZeil_Frankfurt_DE.pdf

3.4.3. Myzeil shopping mall design

- The project comes from geography. It's like a river that, from above, has got different depths, reaching the depths of the Earth.
- The façade on the Zeil is sucked into a great void that makes us see the sky and that invites visitors to enter as sucked into a vortex.

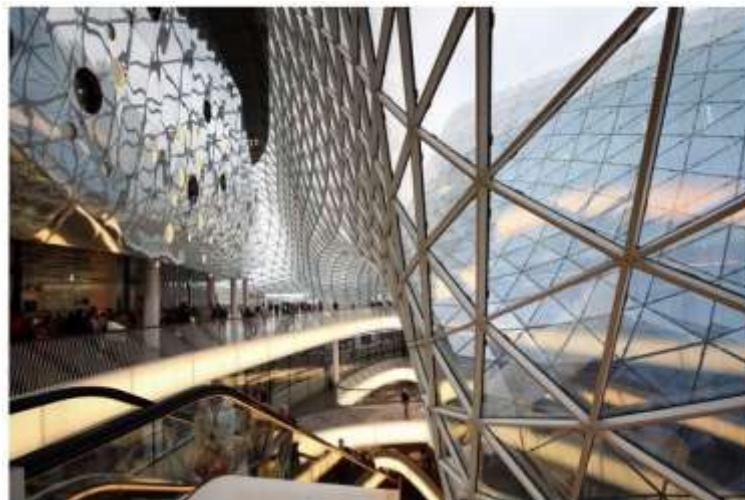


Figure (3- 39) The façade on the Zeil is sucked into a great void that makes us see the sky

Source: <https://www.archdaily.com/243128/myzeil-shopping-mall-studio-fuksas>

- The shopping mall is spread over seven floors and includes a square and meeting place that also has a fitness area and restaurants.
- The facade challenges the exterior-interior distinction with a void that is pulled into the atrium of the mall, looking very much like a vortex.



Figure (3- 40) The atrium of the mall

Source: <https://www.archdaily.com/243128/myzeil-shopping-mall-studio-fuksas>

- This external "shell", mostly transparent, through a system of voids is for filtering the natural light at all levels of the mall.



Figure (3- 41) Transparent external shell is filtering the natural light

Source: <https://www.archdaily.com/243128/myzeil-shopping-mall-studio-fuksas>

- The two facades on opposite ends of the building are designed to evoke the two distinct senses of the city. The modern city on the facade running along the Zeil expresses leisure, entertainment and relaxation. The historic-facing facade maintains a formal appearance.

- From the ground floor, users can access the various plans through a system of escalators and elevators, and go directly to the fourth floor in 120 seconds through a 45-meter escalator.



Figure (3- 42) Vertical and horizontal circulation

Source: <https://www.archdaily.com/243128/myzeil-shopping-mall-studio-fuksas>

3.4.4 What distinguishes the interior architecture in myzeil shopping mall?

- The facade is designed with alternating panels of the glass and steel. Mostly transparent, it floods all levels of the mall with natural sunlight.

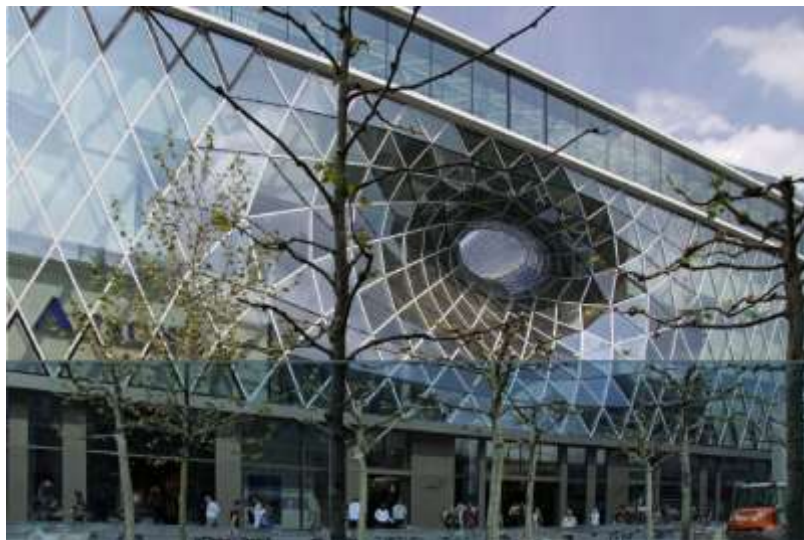


Figure (3- 43) Panels of glass and steel(Myzeil mall)

Source: http://www.moeding.de/cms/upload/presseberichte_en/MyZeil_Frankfurt_EN.pdf

- Achieved a unique design with special concept so as to attract pedestrians and users .



Figure (3- 44) The unique design with special concept
Source: http://www.ece.de/brochures/MZF/MyZeil_Frankfurt_DE.pdf

- The creativity when using the structure of the building as main element in the distribution of the internal spaces.



Figure (3- 45) using the structure of the building as main element in the distribution of the internal spaces.

Source: http://www.ece.de/brochures/MZF/MyZeil_Frankfurt_DE.pdf

Source: http://www.moeding.de/cms/upload/presseberichte_en/MyZeil_Frankfurt_EN.pdf

- The distinguish when using materials specially the glass and steel as unique and main elements, other materials could be used.
- Applying special solutions for the internal circulation so as to attract users.



Figure (3- 46) special solutions for the internal circulation

Source: <https://www.archdaily.com/243128/myzeil-shopping-mall-studio-fuksas>

- The creativity when forming voids and made the structure of building the part of it.
- The creativity when using light and connecting with artificial lighting so as to make a remarkable environment.



Figure (3- 47) Artificial lighting(Myzeil mall)

Source: http://www.ece.de/brochures/MZF/MyZeil_Frankfurt_DE.pdf

- Circulation means should be obvious and easy when moving from level to another and that was achieved.
- Using organic forms such as shell was reflected internally in distributing functions and circulation.



Figure (3- 48) Using organic forms such as shell internally
Source: http://www.ece.de/brochures/MZF/MyZeil_Frankfurt_DE.pdf

CHAPTER FOUR

Case Study (Afraa Mall)

- 4.1 Preview
- 4.2 Background
- 4.3 Khartoum city
- 4.4 Urban environment of Khartoum
- 4.5 Malls in Khartoum
- 4.6 Introduction to the case study (Afraa Mall).
- 4.7 Information about Afraa Mall.
- 4.8 Project description.
- 4.9 Floors details
- 4.10 Structural design.
- 4.11 Electrical and mechanical services.
- 4.12 Finishes.
- 4.13 Redesign of spaces.
- 4.14 What distinguished the interior architecture in afraa mall?.
- 4.15 Conclusion.

4.1 Preview:

The objective of this section is the selection and status of an area of study and then its description, analysis, and assessment to find out how it applies to the understanding of interior architecture and its basics and to reverse the downside. Furthermore, how to arrive at this solution to implement this understanding in a clear and practical manner.

4.2 Background:

Sudan nowadays witnesses a big development prosperity , discloses a good future in development and it relishes to a new stage from development and opening a doors into introduction and investment , and also there is a serious desire in development of civil environment and attract the foreign investors to our country , and it reflects in attracting investors who have been visiting our country and they invested a lot of projects and they were succeed .

Sudan witnesses in this period of time realizable economic and constructional development especially in trade activity in shopping centers (Malls) and it helps in economic development , we know there is a study showed indeed having shopping centers in country demonstrates the development and promotion of country , and the scarcity to this kind of projects seriously required , where as Sudan is lack to a lot of projects like this and it's limit , but lately began thinking in it , where as a lot of projects have been constructed collect between shopping and entertain and attract the foreign to our country too .

4.3 Khartoum City:

Khartoum is the capital and second largest city of Sudan and Khartoum state. It is located at the confluence of the White Nile, flowing north from Lake Victoria, and the Blue Nile, flowing west from Ethiopia.

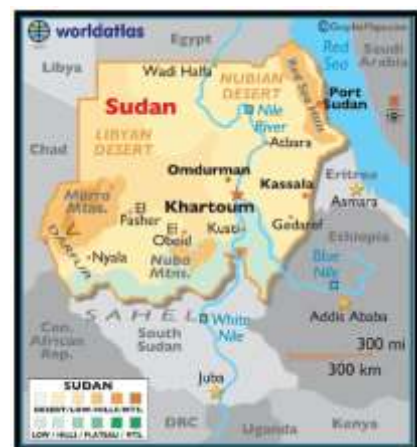
Latitude: 15.5007° N, 32.5599° E

Area: 11,583 mi²

Figure (4-1) the map of Khartoum state

source:

<http://www.worldatlas.com/webimage/countrys/africa/sd.htm>



4.4 Urban environment of Khartoum:

Recently , the state of Khartoum has developed from an architecture point of view . The ministry of urban planning has developed visions and strategies to develop Khartoum as an urban capital, by creating a structural map that aims to improve the current situation of Khartoum., and achieve the future objectives of urban development.

Include the suggestion of the city Nile interface in three localities which contain different activities(entertaining, commercial, tourist, service, ...etc). and they specify area for shopping malls. so we realize that the state concerns with construct like this projects architecturally and civil development.

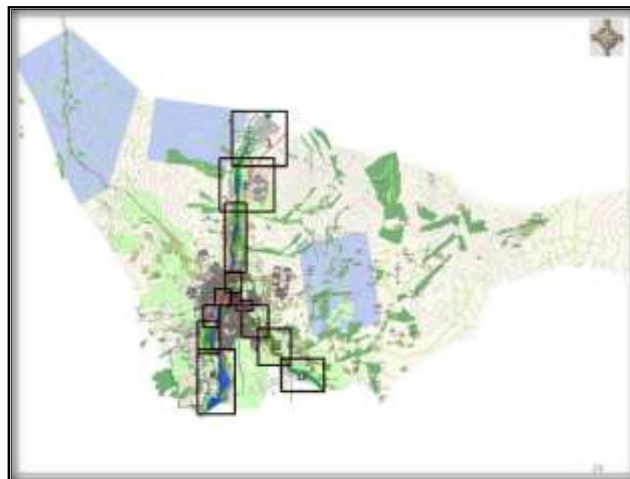


Figure (4-2) showing divisions of the Nile facades Project into 13 sectors
The source: Ministry of Planning and Urban Development 2014

4.5 Malls in Khartoum

Khartoum, like other cities and capitals, has market places, a part of basic services in the city. You can find traditional markets that display local items and products as well as commercial places that sell imported goods. Also central markets for produce and meats in varied locations around the city.

It has been observed that Khartoum lacks projects such as malls that include different activities such as shopping and creating and creating clean environments and order for all different types of goods and items, and how to display them to meet buyers' requirements. However we see that the state has recently become interested in creating these projects and the effort has been made to open several commercial malls to meet the needs of buyers, for example:

- **Afra Mall:** considered the first mall in Sudan, it was opened in the state of Khartoum in 2004 in the area of Arkaweet. From its beginnings it was designed to be a commercial mall; the first of its kind with diversified services. It has within it, a number of international restaurants, a hyper market, a cinema, playrooms and other functions that we will address in detail as case studies in this chapter.
- **Al Waha Mall:**
Geographical location: this project is situated in an area cordoned off by Zubair Bashir St. to the north, Baladia St. to the south, Al Tayaar Murad St. to the east and Abd al Muni'm Mohamed St. to the west.



Figure (4-3) Alwaha mall location

Source: <https://foursquare.com/v/al-waha-mall>

This project was finished in November 2008. The Waha project is considered one of the biggest real estate projects in Khartoum which has caused a major shift in the center of Khartoum. It has reflected a new look for the city.

The project consist of four towers. Each tower has 16 floors for government and private institutions. This project is the largest mall in Khartoum covering a space of four floors with international specifications costing 220 million dollars. Within its wall, the finest international brands. The project is considered a new model for those endeavoring to raise the level of services delivery.



Figure (4-4) external views (Alwaha mall)

Source : <https://www.google.com/search?q=al+waha+mall+sudan+images>

The first four floors are built on a space of 12500 meters with two floors underground serviced by escalators and lifts; two additional elevators service the above commercial floors.

Also added, a United Nations tarmac to be a parking lot for cars of clients of the project on the lower floors and the establishment of a large public park in Khartoum. This project changes the overall look in the center of Khartoum.



Figure (4-5) outdoor features (Alwaha mall)

Source : <http://tswog.net/location.php?ShowPicture=1&city=1>

- **Facilities of the Project**

The project is a multi-purpose first of its kind. It has a shopping center, office towers and a five star hotel managed by the International Rotana chain of hotels. In addition there is an entertainment for children, distinctive restaurant lounges and cafes. The mall also includes distinctive trademarks in such items as perfumes and cosmetics, Sina supermarket, and a gold retailer in addition to Covered parking lot.

- Basement: includes a hypermarket, commercial spaces, and a coffee shop
- Ground floor: includes huge commercial spaces, international brands, travel agencies, and a coffee shop
- First floor: includes international commercial spaces, cafes, playrooms for children, and banks
- Second floor: especially for restaurants and cafeterias
- Third floor to the sixteenth floor: for office suites

• **City Plaza Mall**

Recently opened in Al Imtidat in October 2017; it has made a major shift in the area. The project was executed on an area about 4000 sq. meters. It includes commercial places with international trademarks, a hypermarket, a number of international restaurants, and a playroom for children. The movement between floors is by escalators and lifts.

- Project owner: Al Fadh Plaza
- Project execution: Dal consultant.



Figure (4-6) internal views (city plaza mall)

Source : <https://www.google.com/search?q=city+plaza+mall+sudan&images>

4.6 Introduction about the case study (Afraa Mall)

Afraa mall has been chosen as a case study for many reasons such as, it has been the first building in Sudan that has been designed to be a shopping mall from the very early stages of design, its location was perfectly selected, it is accessible and big enough and has many good characteristics and it includes the majority of the activities that should be included in the malls. Another reason to choose Afraa mall is that it had been redesigned and that redesign was a great chance to implement the fundamentals of interior architecture, all the reasons mentioned above led to choose Afraa mall as a case study for the research.



As mentioned earlier (page 35), the interior space for malls has many different aspects taken into account in order to create a unique functional environment to fulfill the needs and requirements of the users. For all of what is mentioned above, Afraa mall is chosen to be as a case study, to study all the aspects of the interior architecture on it.

4.7 Information about Afraa Mall:

- Project name: Afraa Mall
- Owner: Abd-Elbasit hamzah
- Designers: Turkish company
- Contractors: Turkish company
- Construction cost: 50 million Dollars
- Location: Sudan/ Khartoum/ Arkawet/ Africa road-3 kilometers away from Khartoum international air port .
- Total Plot Area: 30000m².
- Height: 12.5 m
- Numbers of floors: Ground, first and basement .



Figure (4- 7) Afraa mall location

Source : <http://digiads.info/2014/04/10/afra-ar/>

Source: <https://www.google.com/maps?biw=1366&bih=631&q=afra+mall++khartoum&um>

4.8 Project description:

The concept of creating such a multi-functional complex building is for the investment promotion in Sudan to become one of the attractive investment countries.

Afraa Mall is a partnership between Sudanese and Turkish governments with percentages of 70% and 30%. Is been officially opened 21th of February 2004.

Afraa Mall consists of hypermarket, several international restaurants & cafes, entertainment activates such as bowling, skating and two games halls for children and adults. When comparing Afraa mall to other international malls dimensionally, Afraa is smaller, despite that Afraa Mall is considered as an important economical icon in Sudan.



Figure (4-8) Afraa mall project – Main Entrance

Source: <http://www.alnilin.com/12737948.htm>

Source: <http://alsudanalyoum.com/wp-content/uploads/2018/03/img-slider5.jpg?x53002>

- Afraa mall is designed and constructed by a Turkish company .It is a three story building with over all high of 12.5 m, ground floor built up area about 28,000m² as same as basement and outdoor area for parking ,landscaping and café in addition to the service back area which consist of service entrance, parking, generators, chillers and cooling towers.

4.9 Floors Details:

- **Basement Floor:** a multi-functional floor with an area of 28.000m² consist of:
 - a) Services area : laundry , pray area, toilets.
 - b) Administration: reception hall, maintenance offices ,security offices , marketing office, accounting office, manager and secretary office.
 - c) Recreational area: cinema 9D, 2 gymnasium halls(male and female).
 - d) Public services: pharmacy , bank's branches, (A.T), current exchanges.
 - e) Commercial area: bazaars, sport shops, clothes and shoe shops, electronic shops, house ware shops and cosmetic shops.
- Two cafes .
- Ice cream shop
- Stories for hypermarket.



Figure (4-9) components of basement floor (Afraa mall)

Source: (the researcher)

- **Ground Floor :**

Built up area about 28.000 m² consist of:

- Main entrance lobby , also used sometimes as multi function display area for hosts various galleries (book display area , social and heritage events).
- Brands and various shops: damas, electronic& electrical shops, toys and kids stores, cosmetic shops and stationery shop.
- Café
- Branches for telecommunication companies (zain, areeba and sudani).
- Hypermarket.



Figure (4-10) components of ground floor(Afraa mall)

Source (the researcher)

- **First Floor: (Mezzanine Floor)**

Regarded as a recreational and entertaining floor, consist of:

- Bowling hall
- Kids and adult's playing halls.
- Ice rink hall.
- Three cinemas with various capacities (a large hall with 300 seats and two small halls with 100 seats).
- Services .(toilets)
- Food courts.



Figure (4-11) components of first floor(Afraa mall)

Source (the researcher)

4.10 Structural design:

A steel structural system with truss roof in the back of the building particularly the area of hypermarket in addition to concrete structure in the front of the building also seven steel structural domes.

4.11 Electrical and mechanical services:

- The air conditioning system in afraa mall is a central air conditioning , as the main cooling units (chillers and cooling towers) are at the back of the building .
- The building is provided by safety system connected to each part of the building consist of (fire extinguishers , fire alarm, fire hoses, security cameras and monitors inside and outside of the building , alarms and emergency exits , one from mezzanine , two in ground floor and three from the basement).
- The building has 2 generator systems at the back of the building to provide each part with electricity.

4.12 Finishing :

- The mall is consists of various types of finishes internally and externally.
- External façade are covered with a special type of brick (white hollow blocks), covered with metal sheets especially in the south and north elevations of the building .

- Main elevation is covered by aluminum sheets and granite .



Figure (4-12) Main elevation finishing (Afraa mall)

Source: <http://alsudanalyoum.com/wp-content/uploads/2018/03/img-slider5.jpg?x53002>

- For the internal finishes , stair steps ,main lobby, corridors and columns are covered with marble in addition of use porcelain in different floor areas as in administration offices and some of shops, also parquet is used in some shops and gymnasium halls. some of spaces as in billiard hall cinemas are covered with carpet.

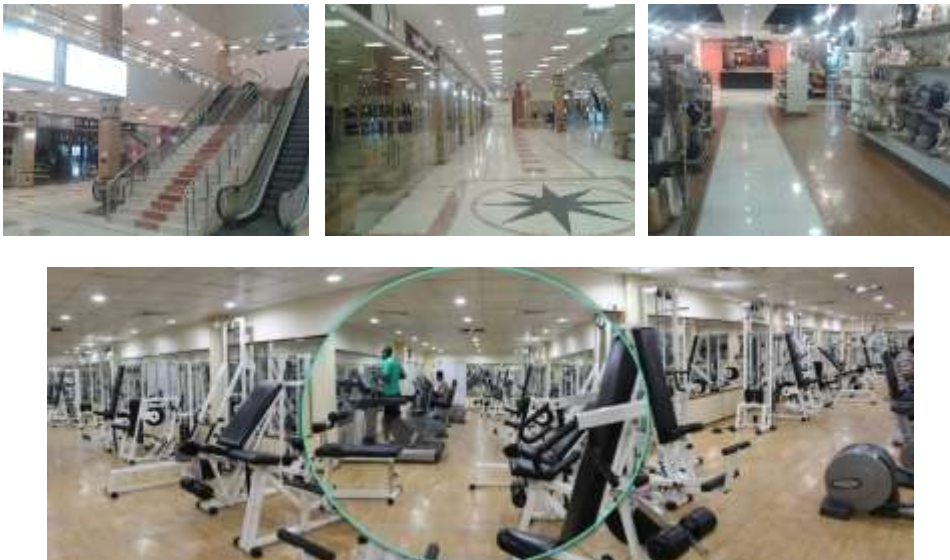


Figure (4-13) internal finishing (Afraa mall)

Source (the researcher)

Source: <http://www.afrasd.com/baz-abbcgym.html>

- The floor on the area of pray is covered by roller vinyl.
- Used ceramic tiles in walls and floors of toilets.



Figure (4-14)Pray area finishing –roller vinyl(Afraa mall)

Source (the researcher)

- As partitioning, brick and gypsum boards are used and wood partition especially in bazaar area.



Figure (4-15)Wood partition in bazaar area(Afraa mall)

Source: <http://mapio.net/pic/p-120791468/>

- All shop's front facades are frameless partitions.



Figure (4-16) Frameless glass partition (Afraa mall)

Source (the researcher)

- All toilets are cubicles partitions .
- Used gypsum boards (dry wall) and aluminum suspended ceiling in addition the use of paints in walls, ceiling and domes.



Figure (4-17) gypsum boards (dry wall) and aluminum suspended ceiling (Afraa mall)
Source (the researcher)

4.13 Redesign of spaces :

Some modifications are done in the distribution of spaces as compared to compared afraa first design and recent design . Although these changes have their advantages and disadvantages , they were done to reach a better design specially from economic point of view.

➤ Below are some of the changes which done in afraa:-

- In the first design the outdoor area of the main entrance elevation contains parking , fountain with unique height (as a landscape features, outdoor sitting café with natural materials and a play area for kids. In the recent design all above mentioned are demolished and this area is mainly used as parking for visitors and administration with some landscape features as (two small fountain and plants) and an outdoor café.



Figure (4-18) Outdoor features and facade from first to recent design(Afraa mall
Source: <http://alsudanalyoum.com/wp-content/uploads/2018/03/img-slider5.jpg?x53002>

- Back yard in the old design was regard as a service area, now it's using as a parking too for customers.
- The multi purpose hall (Lailati) which existed in the old design , is demolished and replaced by shops.
- Basement parking is no more exist and is replaced by administration offices and shops , recreational and entertaining areas and stores (for the hypermarket).



Figure (4-19)Basement parking replaced to be administration office ,recreational and entertaining areasand stores (Afraa mall)

Source (the researcher)

- According to the modifications, some rearrangements are also in the ground floor



Figure (4-20) some rearrangements in the ground floor (Afraa mall)

Source: <https://www.google.com/search?q=afraa+mall-+khartoum&source>
source (the researcher)

- the use of colorful decoration in the domes and kids play areas in the first floor was abolished .



Figure (4-21) using of colors and painting in the domes and kids play areas (Afraa mall)

Source : <http://mapio.net/pic/p-120791468/>
source (the researcher)

- The main entrance was redesigned too , arches were added to match the Turkish style .



Figure (4-22) redesign of the main entrance

Source: <http://mapio.net/pic/p-120791468/>

4.14 What Distinguished The Interior Architecture In Afraa Mall ?:

- Unique location with easy accessibility .(page 15- accessibility)
- The good study of external circulation , (entrances & exit) locations specially for car and parking.(page 8- analyzing the site)



Figure (4-23) External circulation (car parking)(Afraa mall)

Source: <http://digiads.info/2014/04/23/afra/>

- The good use of external landscape features (fountain & plants). (page 13 – vista)
- The design and form of the main elevation façade with the use of various materials as (aluminum & granite) mixed between (arches, domes and straight lines) in addition to the various aesthetic shops . (page 14- transition)



Figure (4-24) The design of main elevation façade with the use of various materials (Afraa mall)

source (the researcher)

Source: <http://www.alnilin.com/12737948.htm>

- The good design of interior spatial distribution.
- Vertical and horizontal circulation elements are located in a good way.



Figure (4-25) Vertical circulation elements (Afraa mall)

Source (the researcher)

- The material which used in the interior finishes reflect the luxury of the mall specially the use of marble floor ,columns and stair cladding.
- The good use of artificial lighting inside and outside of the mall.
- Some shops reflect it's beauty by the use of finishing materials and use of the structural elements as part of the overall of interior design concept.



Figure (4-26) structural elements as apart of interior design concept (Afraa mall)

Source (the researcher)

4.15 Conclusion:

There are a lot of factors that has been missed in designing interior environment of Afraa mall and they didn't apply all the fundamentals of interior architecture , for example:

- No use of interior landscaping , no use of plants or water features which affect the interior environment negatively.
- Lack use of benches or rest features in the interior which negatively affects on the comfort of the users.
- Arrival to the first floor is only by the use of vertical circulation (escalator or stair) with no consideration to disabled users.

- No use of the advantages of natural lighting neither by use atrium nor by the orientation of the building, only artificial lighting is used which also affect negatively in the internal environment which separate the inside and outside.
- The food court design area is not property considered the expected number of users.
- Each shop has it's own interior design which isolated from the internal design vision of the mall.(there is no one vision of the design).
- Suspended ceiling in circulation areas and corridors lack the aesthetic design , They are designed using office style. For a mall exploiting the use of hidden lighting and colors would give the visitors a unique experience .

CHAPTER FIVE

Analysis And Discussion

5.1 Introduction

5.2 Sample of the study

5.3 Design of questionnaire sectors

5.4 The analysis of questionnaire results

5.5 Questionnaire results discussion

5.6 Conclusion

5.1 Introduction:

Questionnaire is a very accurate data collecting tool because it surveys large numbers of contributors and represents their opinion about the certain topic. this questionnaire is aim to collecting data in regard to scientific research which related to the subject matter of study , so to direct the research on the appropriate way according to the given result.

5.2 Sample of the study:

The questionnaire has been distributed randomly among architect engineers in Khartoum state. 60 copies of the questionnaire has been distributed and the return percentage was 100% so the 60 copies were collected and analyzed .

5.3 Design of questionnaire sectors:

The questionnaire for this study was divided into 2 sectors :

4.2.1 sector 1 : contains identification of research name , introduction about it and the scientific purpose of it .

4.2.2 sector 2 : contains the questions to be answered by contributors , and the questions were categorize to 3 Divisions.

- **Division 1:** surveys personal information such as scientific degree , nature of job , years of experience ...etc
 - **Division 2 :** surveys knowledge about concepts of interior architecture .
 - **Division 3 :** surveys the range of applying interior architecture concepts and techniques in malls .
- Then the analysis for the questions and concluding the results.

5.4 The analysis of questionnaire results:

5.4.1 Division One: The Personal Information.

- We found that 68% of the collected sample are bachelor(B.SC.C) degree holder, while 32% of the sample have post graduate degree.

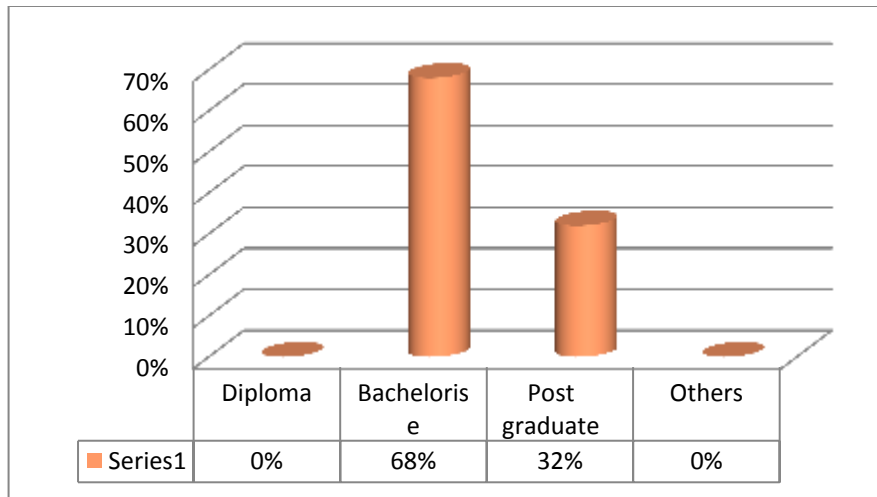


Figure (5.1) Educational degree

The Source: Prepared by the researcher according to the questionnaire

- 43% of the collected sample have a less than 5 years of experience and 43% their experience between 5-10 years , 7% between 10-15 years , and 7% more than 15 years

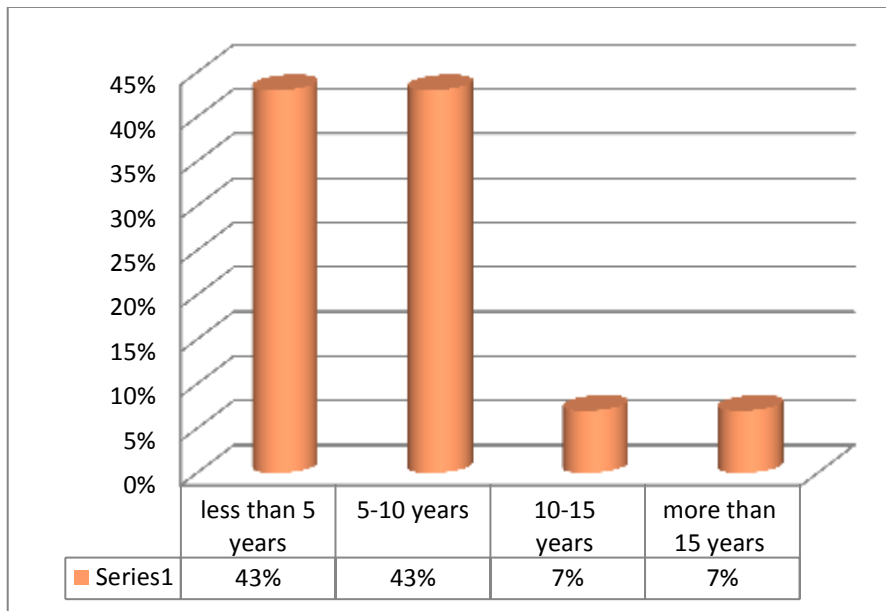


Figure (5.2) Years of experience

Prepared by the researcher according to the questionnaire

- 63% of the collected sample are working as consultants, 20% engineers , 10% contractors ,7% others.

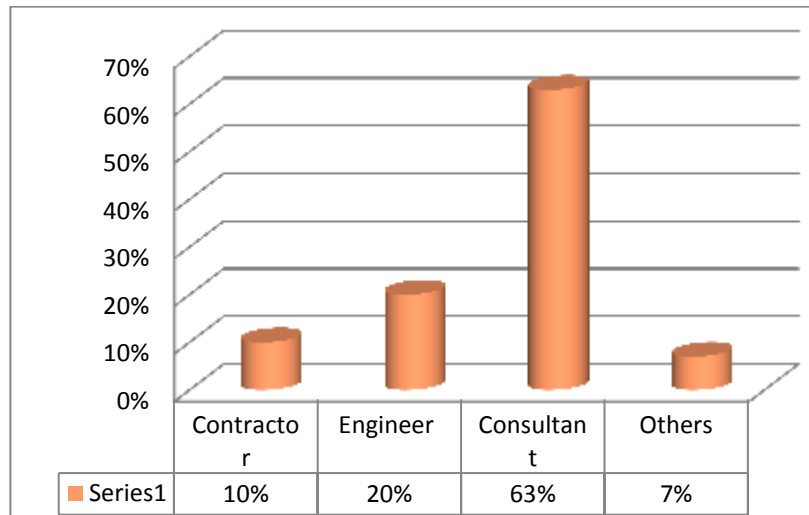


Figure (5.3) Nature of work

The Source: Prepared by the researcher according to the questionnaire

- 80% of the collected sample are working in the private sector, 10% public sector, 8% are mixed of the both public and private sector and 2% others.

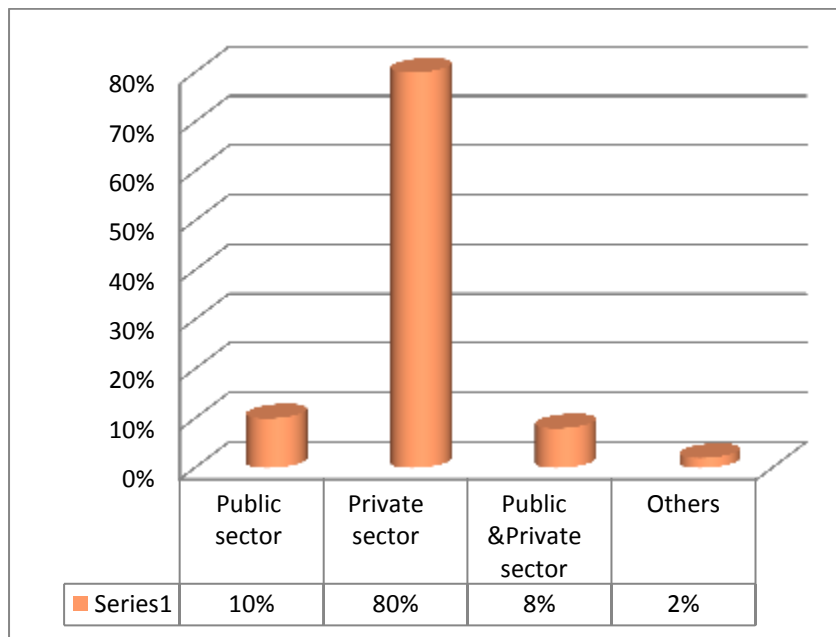


Figure (5.4) Work sector

The Source: Prepared by the researcher according to the questionnaire

- 38% of the collected sample are working in a large corporation, 38% medium , 12% in a very large companies and 12% in small companies.

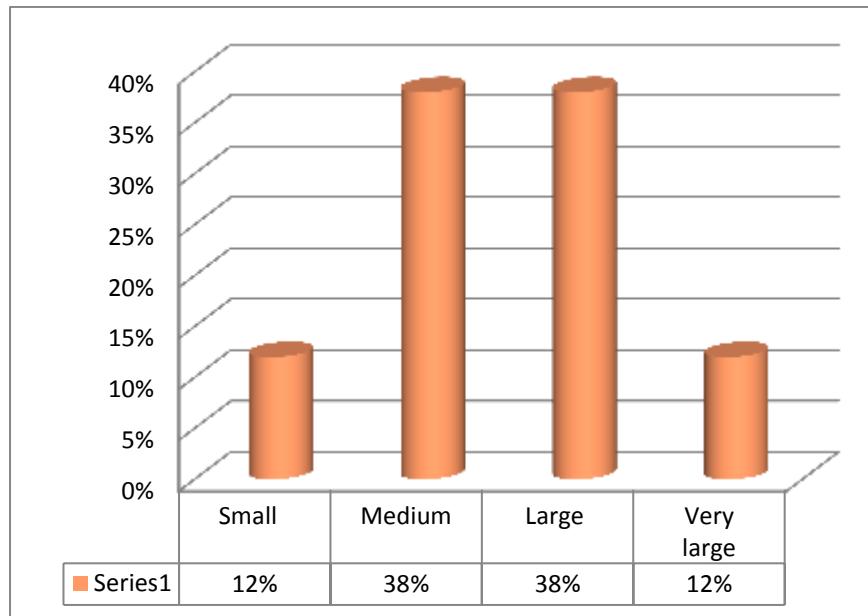


Figure (5.5) The size of corporation or institution

The Source: Prepared by the researcher according to the questionnaire

5.4.2 Division Two: Understanding the concepts of interior architecture.

5.4.2.1 The concept of interior architecture become more useable and well known in our recent time.

- 80% of the engineers are agreed for the concept that say the interior architecture became a well known.17% disagreed (this sample to be take into consideration by the specialize entities) and 39% neutral.

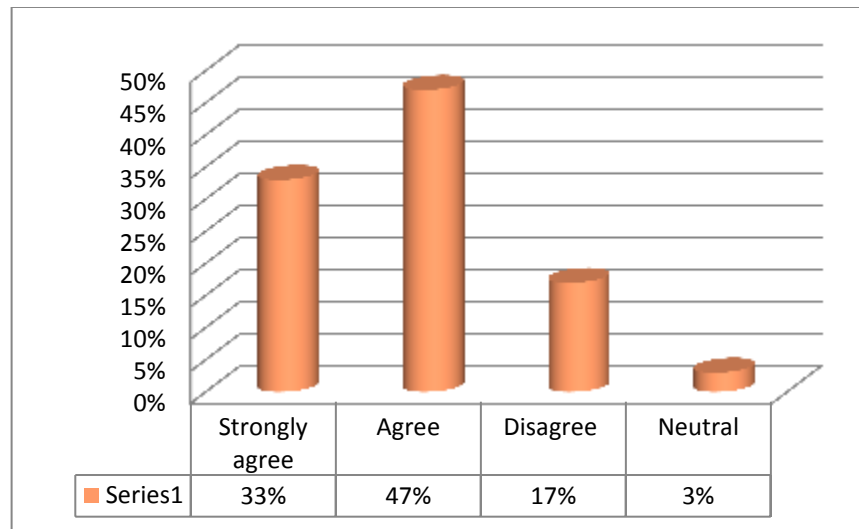


Figure (5.6) The concept of interior architecture became more useable and well known.

The Source: Prepared by the researcher according to the questionnaire

5.4.2.2 There is a considerable awareness of the concept of the interior architecture.

- The opinions are varied from agree, disagree and neutral ,but the large rate 59% are agreed ,35% with a recommendation of not to ignore this sample which will need to spread awareness in a considerable manner.6% neutral.

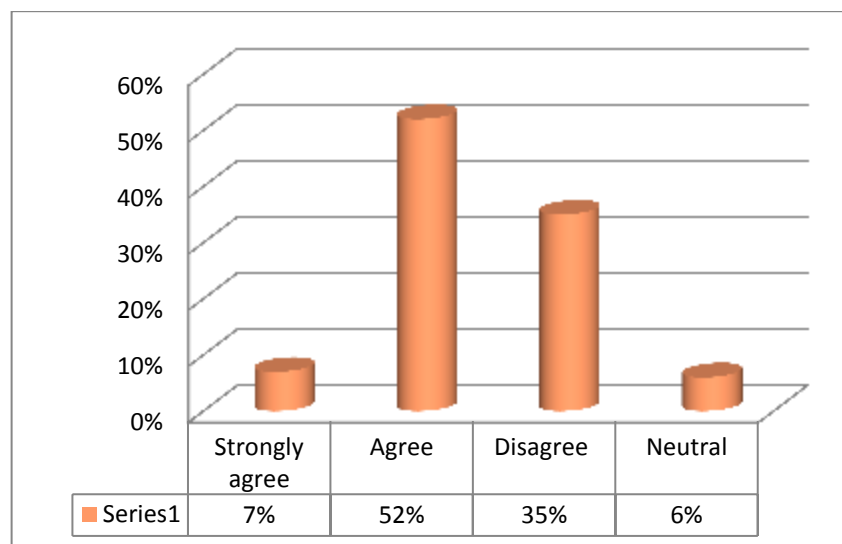


Figure (5.7) A considerable awareness of the concept of interior architecture

The Source: Prepared by the researcher according to the questionnaire

5.4.2.3 The study that you receive in the certain institution is compatible with the concept of the interior architecture and it's basic and contents.

- 55% of the engineers gets a conceptional awareness of the interior architecture and it's fundamentals , while 45% are both between disagree and neutral , this percentage is not that less to be ignored which require to address in a clear and detailed way.

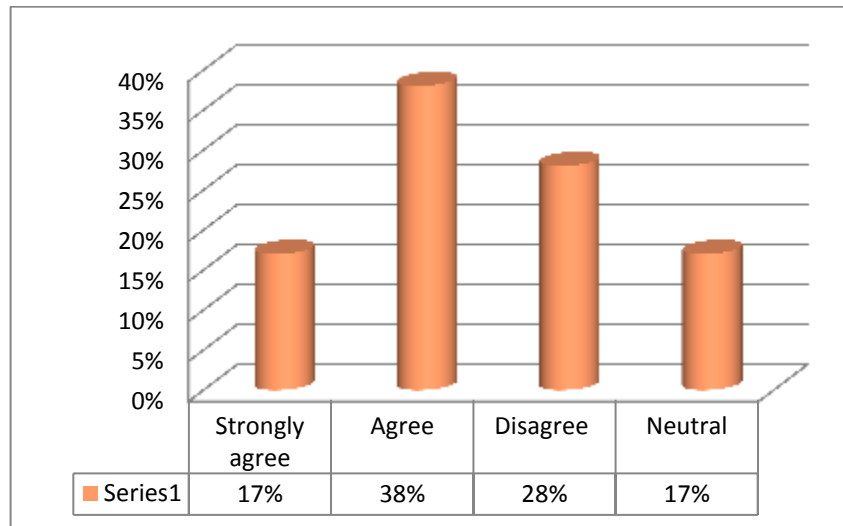


Figure (5.8) The compatible between the study that it had been received and the concept of the interior architecture.

The Source: Prepared by the researcher according to the questionnaire

5.4.2.4 the understanding of the fundamental of interior architecture since the design stage helps enriching the internal space.

- 93% of the engineers are agree, which will reflect the awareness of it's important ,2% disagree.5% neutral.

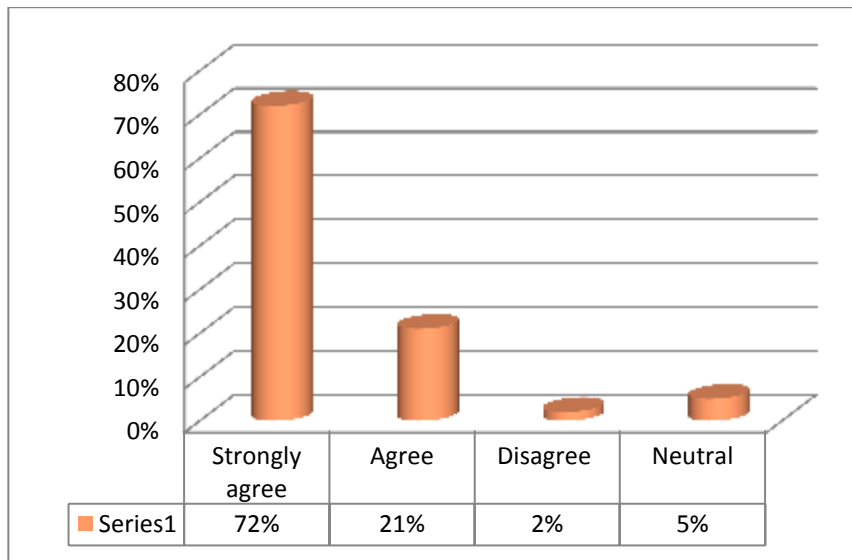


Figure (5.9) Understanding the fundamentals of interior architecture from designing stage.

The Source: Prepared by the researcher according to the questionnaire

5.4.2.5 it's very important to know the fundamental of interior architecture to reach an optimal building and designing .

- 93% of engineers are agree which reflects the high awareness and it's importance in the building process and come out with an optimum design.5% disagree.2% neutral.

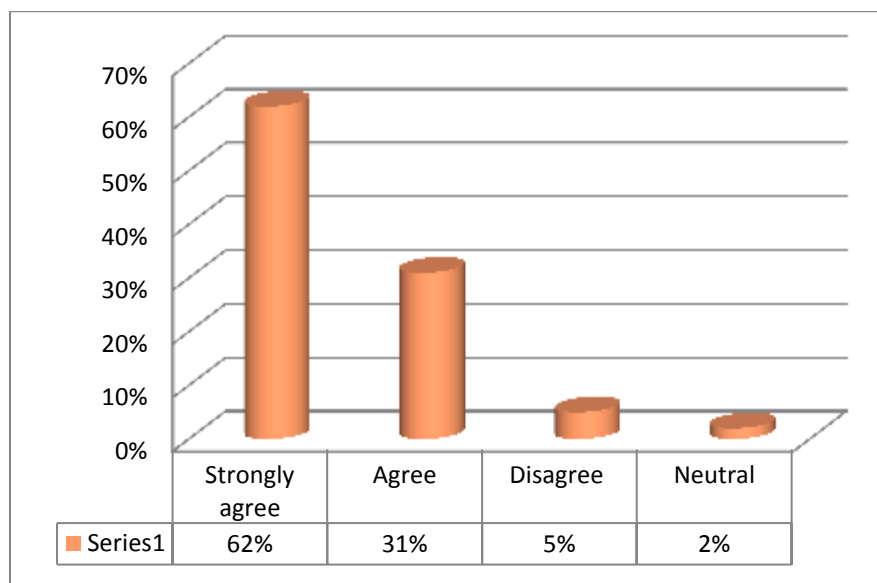


Figure (5.10) The important of knowing the fundamentals of interior architecture .

The Source: Prepared by the researcher according to the questionnaire

5.4.2.6 I use these fundamentals in my design .

- 81% of the engineers are declare that they uses this fundamentals in their design,2% disagree,17% neutral.

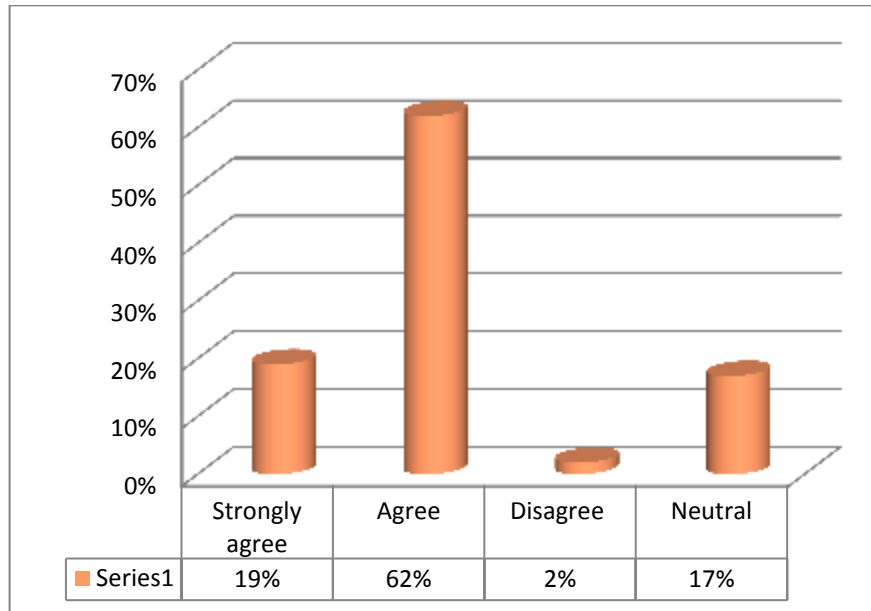


Figure (5.11) using the fundamentals of interior architecture in the design .
The Source: Prepared by the researcher according to the questionnaire

5.4.2.7 the interior architecture is only limited to colors , materials and textures.

- 88% of the engineers are disagree,7% agree,5% neutral.

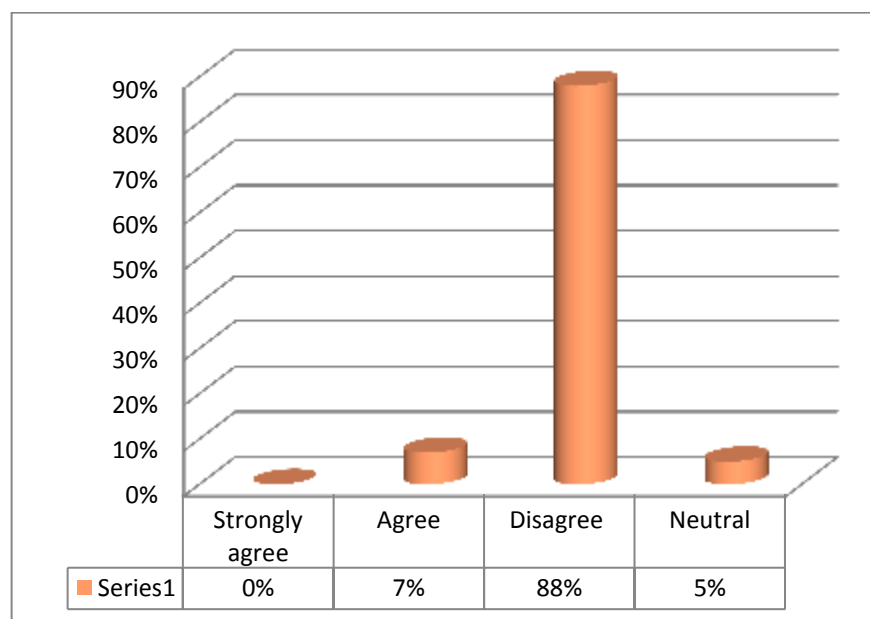


Figure (5.12) limitation of interior architecture .
The Source: Prepared by the researcher according to the questionnaire

5.4.2.8 the interior architecture is separated from the used structural system.

- 71% are seen as a non separated ,19% they sees if as separated ,10% neutral.

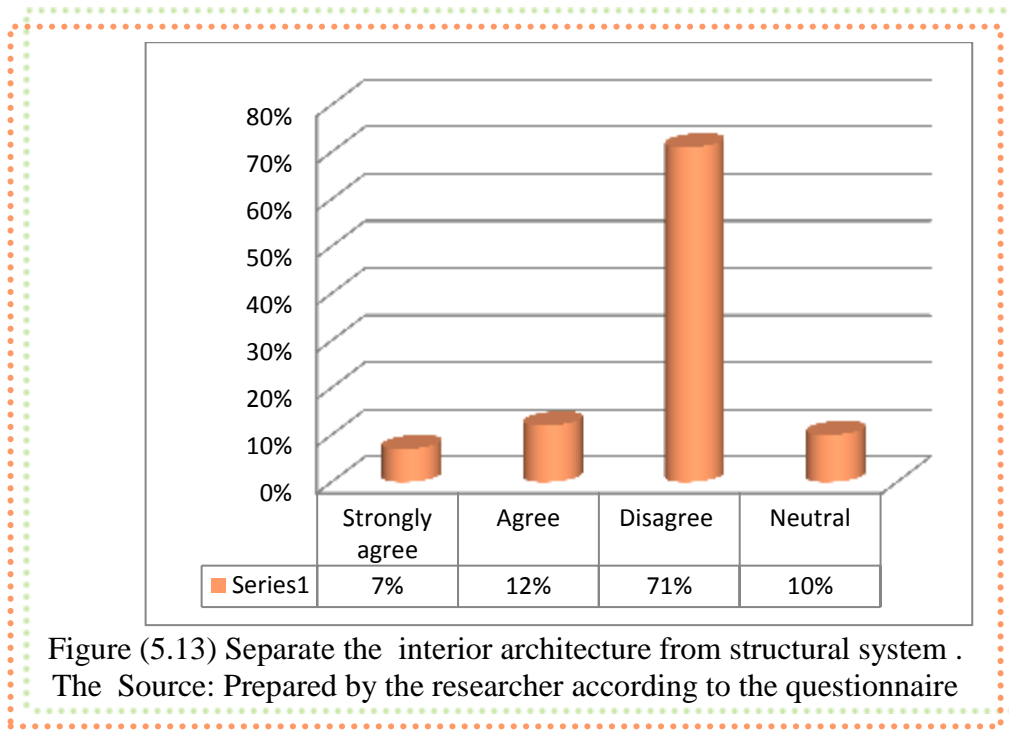


Figure (5.13) Separate the interior architecture from structural system .
The Source: Prepared by the researcher according to the questionnaire

5.4.2.9 I believe that the interior architecture should be considered within the teaching system in the university as an independent specialization .

- 82% supporting the teaching of interior architecture in the universities with an independent specialization.10% are seen that as not important .8%neutral.

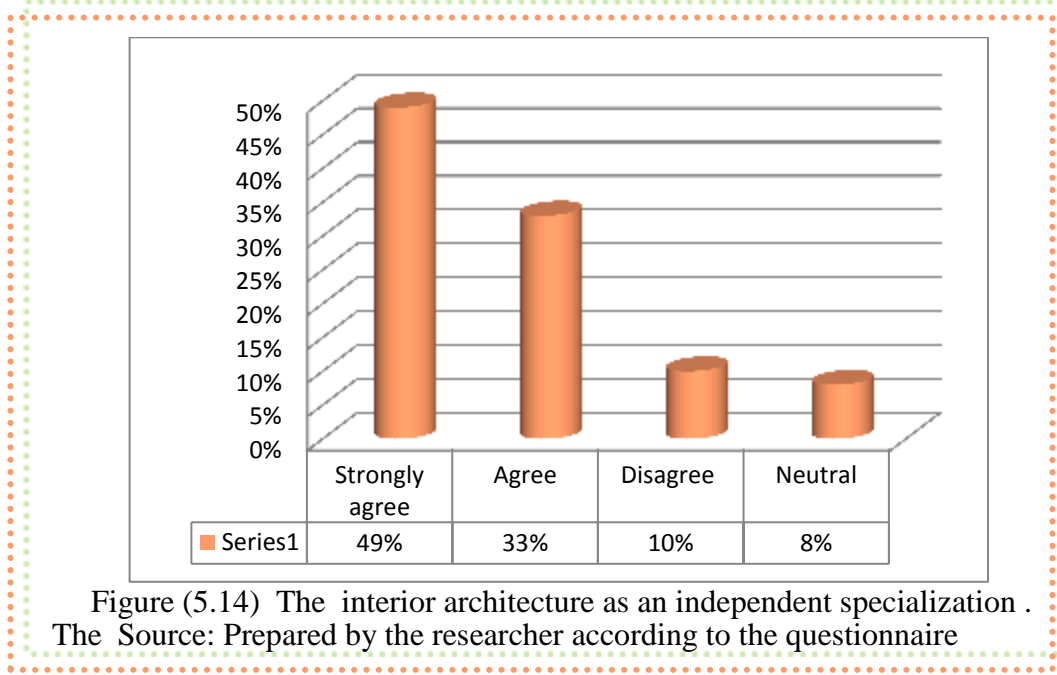


Figure (5.14) The interior architecture as an independent specialization .
The Source: Prepared by the researcher according to the questionnaire

5.4.2.10 I attended (a training course –workshop or a lecture) related to the interior architecture and it's fundamentals and it's contents.

- 60% of the engineers did not take any of the courses or workshops ,or the lectures , which will required the development of this part.33%they attended ,7% neutral

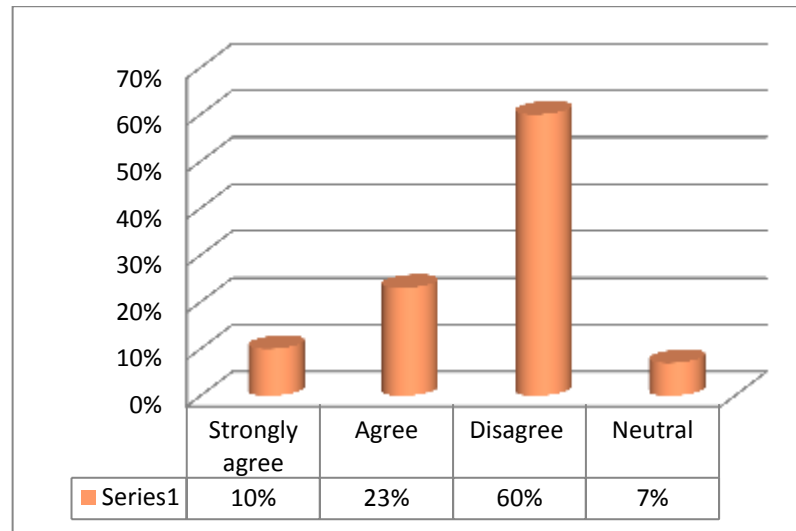


Figure (5.15) Attending courses or lectures which related to the interior architecture.
The Source: Prepared by the researcher according to the questionnaire

- 5.4.3 Division Three: The range of applying interior architecture concepts and techniques in malls .

5.4.3.1 the understanding of the community and it's requirements and it's behavior are affects in the way of distributing the internal space of the mall.

- 97% of the engineers aware of it's important and they support that .3% disagree.

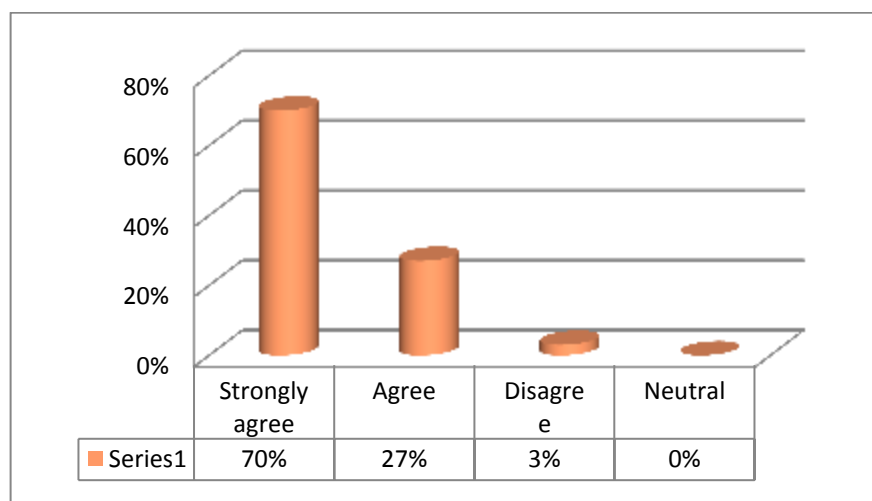


Figure (5.16) The understanding of the community and it's requirements and behaviors
The Source: Prepared by the researcher according to the questionnaire

5.4.3.2 the optimum design of the mall and it's excellent will reflect the urban features of the country .

- We find that the high percentage which represents 87%the sees it reflects the urban features of the country ,3% disagree, 10% neutral.

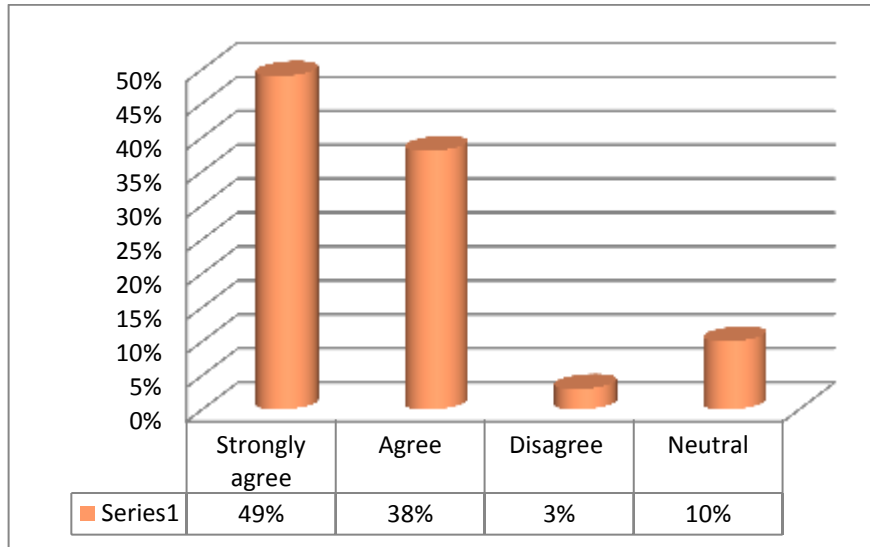


Figure (5.17) The optimum design of the mall reflects the urban nature of the country.
The Source :Prepared by the researcher according to the questionnaire

5. 4.3.3 the understanding of the functional requirements of the mall and it's relationship and hence the detail study will help in taking a right decision in designing the internal spaces to achieve the satisfaction of the users.

- 98% are agreed which will reflect their awareness of it's importance,2% disagree.

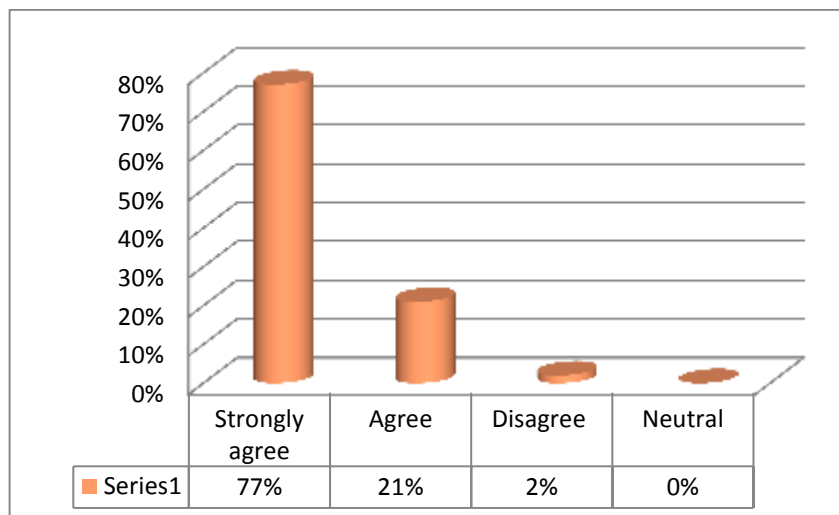


Figure (5.18) The detail study of requirements of malls helps in taking a right decision in designing the internal spaces .

The Source: Prepared by the researcher according to the questionnaire

5.4.3.4 the right selection of colors, lighting and textures in addition to the circulation (vertical-horizontal) and it's implementation will consider an important factors to attract users .

- 96% agree, 2% disagree, 2% neutral.

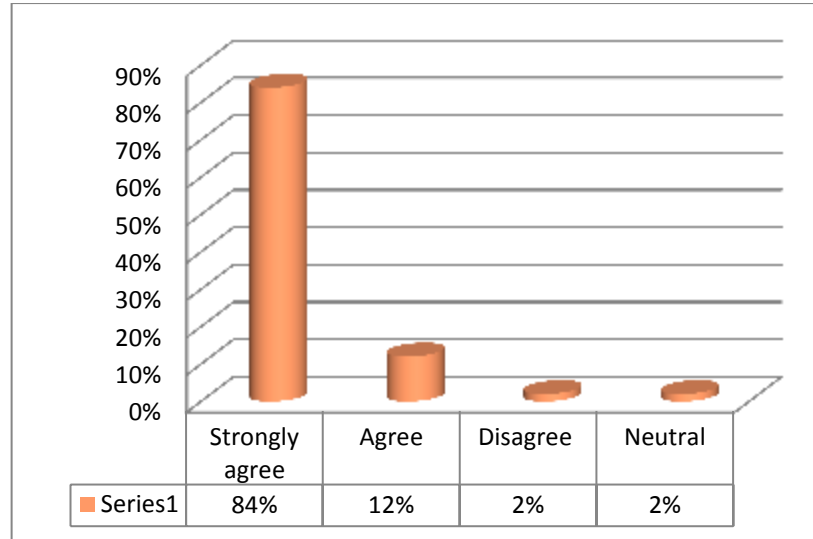


Figure (5.19) the right selection of colors, lighting and textures as an important factors to attract users.

The Source: Prepared by the researcher according to the questionnaire

5.4.3.5 introducing a amusement factors such as fountains, plants, adding attractive elements in corridors and easy movement between spaces give a sense of comfort and lack of boredom.

- 98% agree, 2% neutral.

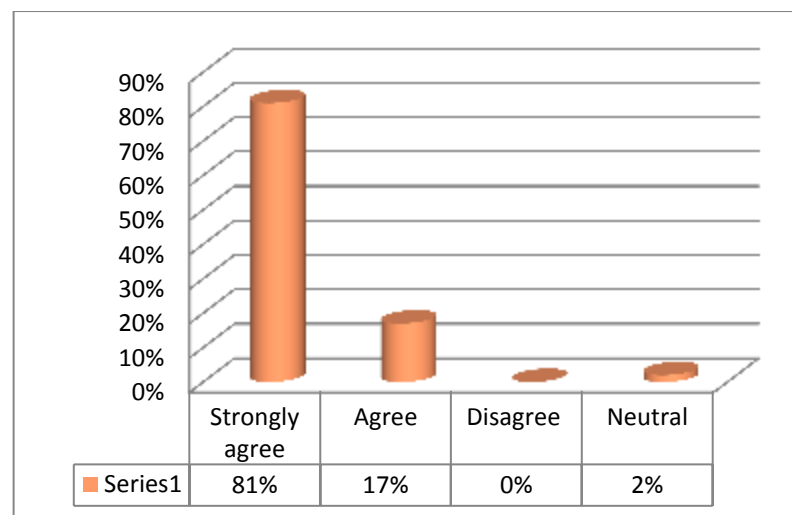


Figure (5.20) Introducing a amusement factors and adding attractive elements in corridors give a sense of comfort and lack of boredom.

The Source: Prepared by the researcher according to the questionnaire

5.4.3.6 the selection of materials ,textures and lighting of the façade of shops and the interior design of it must be separated from the whole idea of mall design.

- 68% disagree. 29% agree. 3% neutral.

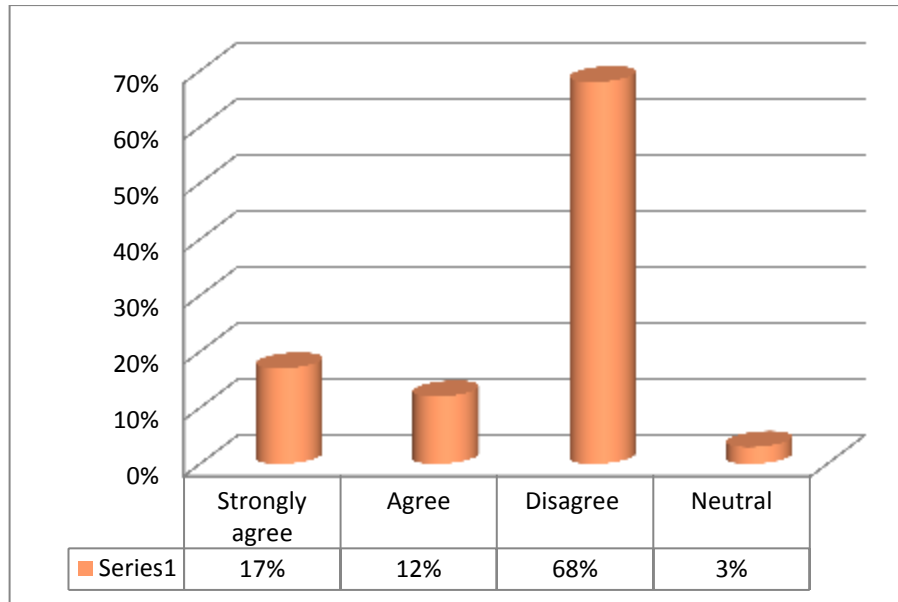


Figure (5.21) The relation between selection of materials and lighting of the shops and the whole idea of the mall's design

The Source: Prepared by the researcher according to the questionnaire

4.5 Conclusion:

questionnaire was distributed to a sample of the architects of various degrees in Khartoum state, so as to know the different views on the concept of interior architecture and its components and fundamentals, particularly in the mall and trying to revive this concept to develop the country, where we mentioned previously that the presence of malls and the optimum design is a reflection of the development and advancement of the country.

The researcher has concluded the answers analysis that there is need for more understanding and knowledge about fundamentals of interior architecture and it's applications in designing unique and functional malls. Also there are some points were noticed as following:

- people deal with the internal architecture as interior design
- The concept of the internal architecture is unknown adequately. The educational institutions need to be addressed and that existing knowledge is not supported by the study and experience.
- There are no enough scientific researches on the interior architecture and its fundamentals, it either focused on interior design or internal space or decorating, so there is a need of scientific researched on the concept of interior architecture in all its dimensions.
- A scientific conference that illustrate the concept of interior architecture and the universities curriculums need to intensify and highlight them, or held allocate a stand-alone derivative of specialization General Interior Architecture and allocates as internal architecture her tools and curriculum.
- There is a desire of engineers to learn the basics of the internal architecture so that they can apply it to have detailed designs.
- The knowledge of the basics of the internal architecture of the malls contributes to the do innovative designs and enriches the internal space.

- There is awareness that understanding of the functional requirements of the Mall and the detailed study helps in making the right decisions for the design of the interior spaces of the Mall and accomplish users' satisfaction and comfort.
- necessity and importance of focusing in colors choices, materials , lighting and using the aesthetic elements as; fountains, plants, and easiness of movement between the spaces within the entire mall, that will enrich , enhance and strengthen the internal space and give a sense of comfort and represents an important factor to attract users.

CHAPTER SIX

Conclusion and Recommendations

6.1 Introduction

6.1 Conclusion and results

6.2 Recommendations And Further Studies

6.1 Introduction:

This chapter represents the result and conclusions the researcher's reached and summarized those results and suggested recommendations to help increasing the knowledge about interior architecture and its fundamentals among architects, and encourages them to implement the fundamentals and elements to their designs to create unique designs as well as a designed interior environment that catches the eyes of the users and gives them the comfort and satisfaction.

6.2 Conclusion and results:-

- Internal space is the part that affects the users and reflects their impression from the first glance, whether it's positive or negative impression. To provide and promote and strengthen the positive side of the space, function, and the knowledge of the user requirements to access to the job satisfaction and comfort must be considered. Therefore, the application of the interior architecture basics and reflect the internal space of the building through the location, the neighborhood, connectivity and linking the interior with the exterior if required, as well as the study of functions and their relations with each other, the textures and materials quality and the adequacy with strong focus on the lighting details because it represents the main supporter for each of these fundamentals, while not neglecting the structural side its impact and reflection on the internally.

- The researcher's perspective of the interior architecture is more comprehensive and wider than the interior design and decorating, which concern about colors, materials, organization, coordination and relations with each other, in addition to decoration and ornamentation. Interior architecture concept is forming the space itself using the form and function, structure, materials, textures, lighting, Mechanical and service. All these aspects are considered from the early phase of the

design to have a special and unique design. Therefore, the main objective of this research is to reflect the importance of these components and know their role and importance and how to apply them in the mall doing distinctive designs which take into account all of these basics to meet users' wishes and satisfaction, as well as enriching the internal space.

- Through the analysis of the questionnaire results we note that there is a gap in the understanding of the components and the basics of interior architecture and how to be reversed in the mall and that existing knowledge is supported by systematic study, as well as the lack of scientific training and research courses illustrate the concept in detail, with the importance of the study of the internal space in detail from the early stages of design and came up with design decisions that will enrich the space functionally and in the design.

- Compared with the objectives and the research hypotheses was the following conclusions are reached:

- The misconception between the concept of interior architecture and interior design create a knowledge gap about what is the internal architecture about, which were not subject to the foundations of study and methodology.
- Understanding the spatial and functional requirements in detail leads to get to comfort and the convenience of the user and to meet his wishes.
- The world progress and development in the interior architecture designs for malls reflects the awareness of the importance of it, and study all the basics of interior architecture and reversed within the internal space enriching, and make unique design for the space, where all the aspects that would be taken with consideration which will promote and strengthen the space environmentally, functionality of materials, lighting, colors, and circulation into the internal space.

- Add the excitement and thrill of the means of circulations and visual elements that give comfort to the eye of the user using plants, fountains, and lighting all help to attract users.
- Ability to understand the basics connection of the interior architecture and work to be reversed within the building and its relationship to the external form of the building helps in designing distinctive and innovative and flexible buildings.
- Apply the basics of interior architecture from early stages of design; advance the level of urbanization of the country.

In general, the concept of the internal architecture of the buildings will create a suitable environment and also will preserve the right of future generations to get a good well thought out environment and achieve the degree of luxury and ease of users as well as flexibility in the design will reflects the urban nature for the country.

6.3 Recommendations And Further Studies:

- Including interior architecture in academic Celebes of specialist department in universities , also training courses should be provided.
- Presentations and seminars should be presented to clarify that interior architecture is more than interior design and decorating.
- Arranging competitions to encourage applying the interior architecture fundamentals to the design for unique malls.
- Studying and understanding the users culture and needs helps to create an internal environment that satisfies them.
- Creating an interesting internal environment using corridors , green areas, water features ,lighting ..etc will enrich the internal contexts and attract the users .
- Providing the suitable mechanical systems, circulation systems, lighting systems , fire fighting systems , air conditioning systems...etc and the regular maintenance for it will improve the internal environment.
- Orienting the researches toward a comprehensive and detailed studies on the importance of knowledge and grasp the basics of interior architecture and how to apply them in all different buildings styles.
- Urban development of the country doing well thought out the designs since the early stages of design which take into account the application of the basics of interior architecture and came up with distinct and deliberate and unique designs.
- The importance of detailed studies of the spaces function, knowledge of the requirements of each space and the relationship between them and how to implement these requirements in a distinctive designs.
- Understanding the community needs to find creative solutions and methods in the selection of colors and materials and how they are applied within the space in line with the culture of the community and its requirements.

- Pay more attention to the structural side (structural elements) and its role in influencing in the formation of the internal space and understanding its components and that would help in the decision-making while designing the interior spaces.
- detailed studies of the mall clarifying the importance of lighting, types and automatic calculation and how to apply them in the patterns of these buildings and their important role in creating a successful, thoughtful, distinctive and interesting space design for the user.
- Illustrate the importance of focusing on the circulation side inside the mall and study all the patterns of movement, and how they are distributed within the space and its impact on the success of the internal and functional space.
- Research about detailed studies to create an internal space for mall environmentally, psychologically and study the user behavior and its impact on the space design.
- Research about detailed studies to create sustainable design for shopping malls.

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Appendix

Questionnaire



Sudan University of Science & Technology

College of Architecture & Planning

Post Graduate Studies

Master Of Architectural Design



- Engineering questionnaire form: this questionnaire is consider as a research study in:

The Interior Architecture Of The Mall

- **Objective Of The Questionnaire:** this questionnaire is aim to collecting data in regard to scientific research which related to the subject matter of study , so to direct the research on the appropriate way according to the given result.
- The researcher will prepare an study to complete the requirement of the master in architectural design in the faculty of architecture and planning , the researcher will kindly submit to you this questionnaire hopping for your assistant by offering your right answers of it, hopping to see an objective of accurate feedback from you, which will definitely help to reach a positive result.

Putting in consideration that:

- All your comments and response will be appreciated and treat in a high confidential manner .
- The questionnaire will composed of four pages , divided in to three sections:

Researcher: Solafa Saidahmed Hassan

❖ **Division One: The Personal Information:**

The Name (Optional)

Please kindly put a right check remark (√) beside the appropriate answer:

1-1 Educational degree:

Diploma () Bachelorise(B.SC.C)() Post graduate() Others ()

1-2 Years of experience :

less than 5 years() 5-10 years () 10-15 years () more than 15 years()

1-3 Job nature:

Contractor () Engineer() Consultant () Other ()

1-4 Job sector:

Public sector () Private sector () Public &Private sector () Other ()

1-5 The size of the corporate or institution that you work for

Small() Medium () Large () Very large ()

❖ **Division Two: Your understanding to the interior architecture:**

Please place the number that meet your agreement in the table by draw (√) under the answer in both division two and three.

Rate Of Agreement			
1	2	3	4
Strongly agree	Agree	Disagree	Neutral

The question	Rate of agreement			
	1	2	3	4
2-1 The concept of interior architecture become more useable and well known in our recent time.				
2-2 There is a considerable awareness of the concept of the interior architecture.				
2-3 The study that you receive in the certain institution is compatible with the concept of the interior architecture and it's basic and contents.				
2-4 the understanding of the fundamental of interior architecture since the design stage helps enriching the internal space.				
2-5 it's very important to know the fundamental of interior architecture to reach an optimal building and designing .				
2-6 I use these fundamentals in my design .				
2-7 the interior architecture is only limited to colors , materials and textures				
2-8 the interior architecture is separated from the used structural system.				
2-9 I believe that the interior architecture should be considered within the teaching system in the university as an independent specialization .				
2-10 I attended (a training course –workshop or a lecture) related to the interior architecture and it's fundamentals and it's contents.				

Division Three: Design the internal space of the mall:

The question	Rate of agreement			
	1	2	3	4
3-1 the understanding of the community and it's requirements and it's behavior affect in the way of distributing the internal space of the mall.				
3-2 the optimum design of the mall and it's excellent will reflect the urban features of the country .				
3-3 the understanding of the functional requirements of the mall and it's relationship and hence the detail study will help in taking a right decision in designing the internal spaces to achieve the satisfaction of the users.				
3-4 the right selection of colors, lighting and textures in addition to the circulation (vertical-horizontal) and it's implementation will consider an important factors to attract users .				
3-5 introducing a amusement factors such as fountains, plants, adding attractive elements in corridors and easy movement between spaces give a sense of comfort and lack of boredom.				
3-6 the selection of materials ,textures and lighting of the façade of shops and the interior design of it must be separated from the whole idea of mall design.				

- If you have any opinion or additional information that you would like to share , please don't hesitate to submit.

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With my best appreciation for your cooperation.....