Effects of Lighting in the Creation of the Character of Spaces in Hotel Environments: The Case study of Lobbies of Hotels Designed by the Idea Mimarlık Company

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ABSTRACT

Five star hotels generally have high standards of architectural design and interior design. The lighting fixtures and effects are generally unique to the hotel itself. Therefore by investigating how the lighting effects bring forward the character of a hotel, the thesis tries to determine the degree of consideration and success in relation on the various spaces within the hotel. The problem statement is how are the lighting design considered within five star hotels, the consistency of lighting design, in terms of the spatial character creation, and its significance. The main aim of the thesis is to investigate lighting effects and its correspondence to the general spatial character relationship within five star hotels. The hotels lobbies will be the main focus as the type of space that gives the initial idea about the general spatial character throughout the hotel.

The thesis undergoes a literature review where the classifications of hotels, hotel lighting, hotel lobbies, lighting fixtures, lighting effects, and the types of lighting methods used within hotels. This will serve as a base for the analysis criteria and evaluation of the hotels chosen for the case studies. Furthermore the thesis observes lighting fixtures and their location within the lobby spaces of the hotels through case studies. The research method that is used within the thesis is a qualitative type research. The main body of the research will be conducted through literature review, this will comprise of scientific background that forms the criteria basis for the evaluation tables of the hotels lighting.

The assessment of the case studies the similarities and differences, along with the spatial character and what the lighting provides within the lobby spaces were definable with each hotel having their own lighting methods, techniques, effects and concepts. The conclusion of the findings assesses the lighting type's fixtures and the desired effects within the design of the hotels, the tables show detailed information on how the lighting methods, techniques and fixtures are used within each hotel. The topics of the thesis were discussed through the perspective of lighting design and the commonality of lighting designs within five star hotels. The lighting design of five star hotels needs to be considered during the design process to achieve desired standards within hotel spaces.

Keywords: Lighting design, five star hotels, hotel lobbies, spatial character.

ÖZ

Beş yıldızlı oteller mimari ve iç mimari tasarımda genelde yüksek standartlara sahiptir. Otellerin aydınlatma armatürleri ve etkileri genelde otelin kendisine özgüdür. Bu nedenle, aydınlatma etkilerinin bir otelin karakterini nasıl ortaya çıkardığı araştırılarak, denemeler otel içerisinde birbiri ile ilişkili çeşitli alanlarda önem ve başarı derecesini belirliyor. Problem bildirimi beş yıldızlı otellerde mekân karakteri yaratmada açısından mekânlarda aydınlatmanın tasarımın parçası olmasıdır. Tezin ana amacı, beş yıldızlı oteller içinde ışık etkileri ve genel mekânsal karakteri ilişkisi olan akademik yazımları araştırmaktır. Otel lobileri, otel genelinde genel mekânsal karakter hakkında ilk fikir veren alan türü olarak ana odak noktası olacaktır.

Tez literatüründe süre gelen otel aydınlatmaları, otel lobileri, aydınlatma armatürleri, ışık etkileri ve otel içerisinde kullanılan aydınlatma yöntemleri ve türlerinin sınıflandırılması yapılmıştır. Bu analiz kriterleri ve alan çalışmaları, seçilen otel değerlendirmeleri için bir zemin olarak hizmet verecektir. Ayrıca tez gözlemlerinde alan çalışmaları ile lobi içerisinde aydınlatma armatürleri ve konumları gözlemlendi. Tez içerisinde kullanılan araştırma türü nitel bir araştırma türüdür. Araştırmanın ana gövdesi literatür yoluyla yapılacaktır, bu otel aydınlatması değerlendirme tabloları için kriterler temeli oluşturan bilimsel altyapı olacaktır.

Değerlendirme alan çalışlarındaki benzerlikler ve farklılıklar eşliğinde mekânsal karakter ve lobi alanlarında ışığın oynadığı rol ve her otelin kendine özgü aydınlatma metotları, teknikleri, etkileri ve ana fikirleri belirlendi. Ortaya çıkan bulguların

ışığında, var olan aydınlatma türü ve otel tasarımı içerinde istenilen etkileri, tablo aydınlatma yöntemleri, teknikleri ve her otelin içerisinde aydınlatmanın nasıl kullanıldığına ilişkin ayrıntılı bilgileri verildi. Tez konuları, beş yıldızlı oteller içinde aydınlatma tasarımı ve aydınlatma tasarımları ortak perspektifinden ele alınmıştır. Beş yıldızlı otellerin aydınlatma tasarımında istenilen standartlara ulaşmak için aydınlatma tasarımı dikkate alınması gereken bir unsurdur.

Anahtar kelimeler: Aydınlatma tasarımı, beş yıldız oteller, otel lobileri, mekânsal karakter.

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Dedicated to my family

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Chapter 1

INTRODUCTION

1.1 Problem Statement

Five star hotels generally have high standards of architectural design and interior design. The lighting fixtures and effects are generally unique to the hotel itself. Therefore by investigating how the lighting effects bring forward the character of a hotel, and try to determine the degree of consideration and success in relation on the various spaces within the hotel.

Hotel lobbies is the first space that is entered within a hotel, therefore it is one of the most important spaces within a hotel, it gives the initial feel and character of the hotel. The problem is how the lighting design is considered within five star hotels, the consistency of design, in terms of the character created, is of significance. Here with this study, the concentration will be placed on the lighting effects in this consistency.

The analysis will be based on how the lobbies of hotels reflect the general character. This consistency will be observed through the effects of lighting in the general space organization of the lobby and its consistency within the various spaces of the hotel in a general outlook and what types of methods used to achieve the reflectance of character of lighting and space throughout the hotel.

1.2 Aim and Objectives

The main aim of the thesis is to investigate lighting effects and its correspondence to the general spatial character relationship within 5 star hotels. The hotels lobbies will be the main focus as the type of space that gives the initial idea about the general spatial character throughout the hotel.

The thesis undergoes a literature review where the classifications of hotels, hotel lighting, hotel lobbies, lighting fixtures, lighting effects, and the types of lighting methods used within hotels. This will serve as a base for the analysis criteria and evaluation of the hotels chosen for the case studies.

Furthermore the thesis will observe lighting fixtures and their location within the lobby spaces of the hotels through case studies. The intended effect of the lighting fixtures and the types of methods used within the application will be investigated to determine how the lighting effects reflect upon the general character of the hotel itself this will be presented by the analysis and evaluation through the use of case studies. The main aim is to try to determine if the lighting fixtures and effects within lobbies reflect the general conceptual idea of the hotels.

1.3 Methodology

The research method that is used within the thesis is a qualitative type research. The main body of the research will be conducted through literature review, this will comprise of scientific background that forms the criteria basis for the evaluation of the hotels lighting. Within the literature review the clarification of lighting fixtures and effects, the categories of lighting types, fixtures, applications, additionally the know methods that are used to create the character of a space via lighting effects/

applications will be researched. Furthermore the subject of 5 star hotels and there standards will be research, allowing the background knowledge of the hotels to be comprised and the evaluation criteria to form.

The thesis will conduct observations on 5 star hotels with chosen case studies. The hotel lobbies of the case studies will be observed in detail and its reflectance upon the other spaces of the hotel will be investigated, furthermore each case study will have an evaluation model, will be addressed, the certain requirements and criteria that are met within the hotel lobbies. The case studies will be comprised of visual examples, visual schematics, and the analysis tables. The analysis will be based on the scientific facts that will be brought to light within the literature review of the thesis.

The results that follow the analysis and evaluation of the hotel will form the conclusion part of the thesis. The conclusion will be referring back to the initial aim with the chosen case evaluations; will try to conclude the spatial character and lighting effects on the spatial character within the lobbies and its consistency through the various spaces of the hotel.

1.4 Limitation

There are a huge variety of hotel types; therefore it will be too wide of a subject to research all the types. This thesis will focus on 5 star hotels; the main research for the choice of 5 star hotels is that these types of hotels have a generally high standard of design, activities, variety of spaces, and are generally designed with a theme that supports the whole design approach, lighting as the key- factor in the creation of a character of spaces.

Another limitation is the focus on hotel lobbies rather than the whole hotel, this is due to the reasons that the lobbies are the first space that is entered within the hotel, therefore it must have a more significant effect in showing what the general character/ theme the rest of the hotel incorporates.

The case studies for the thesis will be chosen from an architectural design company, called Idea Mimarlik. The hotels will not have a comparison based discussion but rather criteria based evaluation as the effectiveness of the lighting effects of the lobbies and its consistency within the conceptual definition. The observation of the hotel lobbies will focus on the general layout, lighting fixture, lighting effects, and the reflectance of these as a whole character of the spaces.

Chapter 2

LIGHTING THEORY

Light, in general and lighting in particular are important part of life, without light nothing in the physical world could be visible. Humans utilize light in every aspect of our lifetimes, be it day light or artificial lighting. Within this chapter light and the basic theories of light and lighting will be investigated to form background knowledge of the essentials of light and its effects on the living environments. From the physics knowledge of light, the creative industries have gone a long way in terms of the possibilities to work with the effects of lighting. Furthermore the methods used artificial illumination of spaces will also be examined; the significance of this chapter will form a synergy with the main topic of the thesis allowing hotels and hotel lobbies to be analyzed with more precision, in the light of the scientific background light within this chapter.

Perception of light

Perception is one of the key elements of processing information within our physical world. Perception of light allows us to process what we see with our eyes, Gordon(2003) explains the perception of light as,

> ‘’Perception of the world around us is based not on the quantity of light entering the eye, but on the quantity of contrast’’ (Gordon, 2003)

Gordon's theory (2003), suggests that the quantity of light that enters the eye is not what essentially makes use perceive objects within the physical plane, but through the differentiating light levels that create contrasts is of significance in the way we perceive our world.

The perception of Light essentially is a narrow band of electromagnetic energy, this electromagnetic energy, that ranges approximately 380 nanometers (nm) to around 760 (nm). The stimulation receptors within the human eye can only function within the wavelengths within the ranges of 380 (nm) to 760 (nm) this allows the human eye to permit vision. The wavelengths are referred to as the *visible energy,* although it cannot be seen (Gordon, 2003).

'Information is light. Information in itself, about anything, is light.'

(Stoppard, 2006)

Gibson (1979) suggests is that visual information is gathered through the process of light. The term light is freely used; the initial meaning of light differs according to the science it is used in. The science of light is referred to as optics; the science of vision is also referred to a optics. Gibson (1979) tries to make these definitions separable from each other by suggesting light is a physical energy, and separates light into stimulus for vision and information for perception.

Atkinson & Hilgard suggests that visual perception is just one of the ways that we perceive information, alongside other sensory systems that provide information and stimulus. Every sensory system combined allows us to perceive our physical environments with clarity. (Atkinson, R & Hilgard, E. 2000).

Brightness perception

Light that enters into the human eye is mostly called luminance; luminance allows us to feel certain sensations of brightness within spaces. The word illuminance is best explained as the density of light that is received from a surface within a space (Gordon, 2003).

Brightness is mostly a subjective experience, meaning that it could differ from person to person, each person can perceive brightness in various ways, due to the fact that brightness is determined by the level of light that enters the eye, this makes brightness to be experienced on individual bases (Gordon, 2003). Brightness can be explained as a result of three aspects,

1. The intensity of light that is recieved witin a given region of the retina at different times.
2. The intesity of light that the retina has experienced within the recent past this is reffered to as the adaptation of the retina.
3. The intensity of light that enters different regions within the retina that creates the contrasts of light.

Therefore brightness plays an important role within the perception of objects within any given space it creates the differentiation between objects through the contrast of light, defining the physical space (Gordon, 2003).

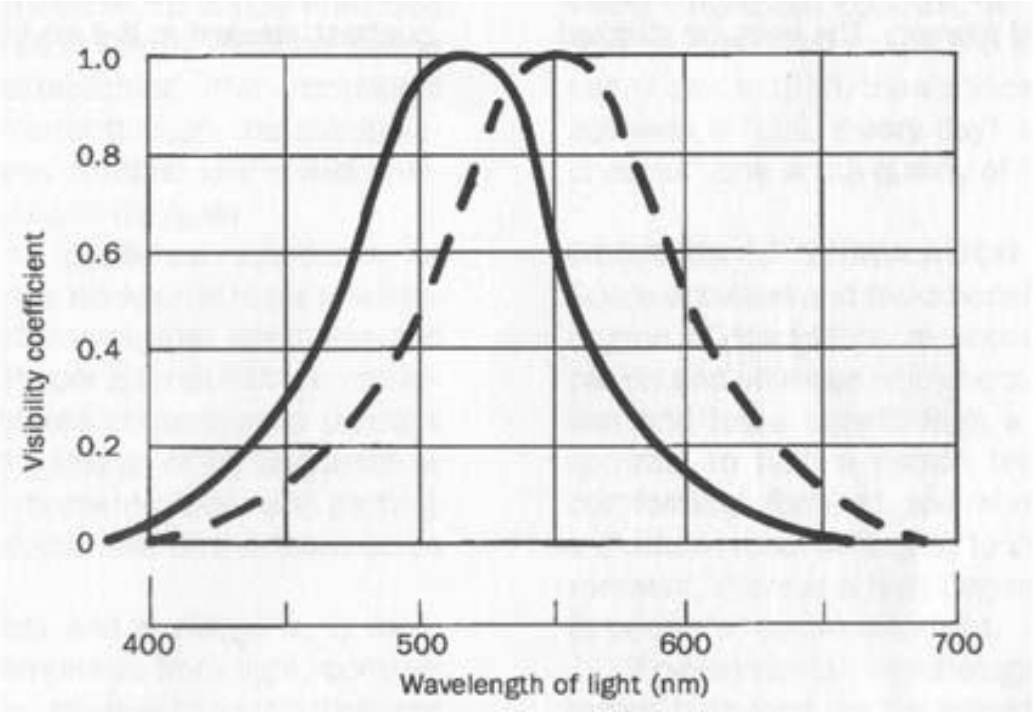


Figure 1 : The purkinje shift (Gordon, 2003).

The visual System

The visual system of the human body is discussed by Goldstien (2009), Goldstien suggests that the visual system singularly focuses on the sensing and the perceiving light waves. Light waves within certain environments can differentiate according to the level of light the certain environment is receive during the time of day/night, the waves also emit differentiation of light according to the light source such as artificial light (man- made) or natural daylight (Goldstien, 2009).

Visual information is one of the basic needs of a human, without visual information, one cannot function properly within our physical world. Light provides humans with the necessary energy, therefore allowing us to receive visual information of the immediate environment that surrounds our entity (Lam &Ripman, 1992).

William Lam (1992), discusses the basic needs of a human and the fundamental objective of light within environments. In Lam's book *Perception & Lighting as form givers of architecture.* Lam (1992) explains what light provides for a human on the basis of functionality and objectivity of light. This is solely related with our visual information of any given environment.

> "A good luminous environment helps us to do what we want to do and makes us feel good while we do it. Although it may seem simplistic, this statement summarizes the real objectives of lighting design- to provide a comfortable, pleasant, reassuring, interesting, and functional space for the people who will inhabit it.'' (Lam, 1992)

In general every type of environment created harbors different forms of human activity. The successful engagement of these activities and tasks needs some form of visual information to be processed and carried out. For example when reading a book the words within the book need to be visible for one to interpret and process the information. Another example could be tasks that need more concentration and precision such as wood carving, the detail needs to be accurately seen so that it could be judged for the process of the work.

2.1 Light and Lighting

For hundreds and thousands of years humans perceived the physical world around them by the illumination through a directional light source the sun and the moon. The natural light sources of the earth (Lam, 1992). An interesting quote related to this subject by MullaNasrudin explaining the difference between the sun and the moon,

> ''Nasrudin entered the tea-house and declaimed: 'the moon is more useful then the sun'.
> 'Why, Mulla?'
> 'We need the light more during the night then during the day'
> (Mulla Nusrudin)

Although this quote is mostly related to our distant past, in contemporary times the invention of artificial lighting has transformed our earth dramatically this transformation will be discussed further on.

One of the most fundamental elements within space is light; nothing in the visual environment can be perceived without light. Light in many cases bares a major impact upon a space; the main reasons being that with the lack of light, general aspects of a space will be invisible to the eye. With perceiving the environment light plays a significant role within its composition, thus the sensations of a space can be accurately felt. Visual perception is generally classified as being related to light levels and luminosity. Light defines form within design it creates the needed aesthetics and highlight, therefore allowing objects to be identified. The combination of daylight and artificial light illuminating a space could identify the limits and boundaries, by highlighting and accenting certain shapes within the space, every aspect of shapes and objects within a space is determined by the level of light it receives, this also adds aesthetics and space character attributes (Lam &Ripman, 1992).

Lighting comes in two forms, artificial lighting and natural daylight. Natural daylight is provided by the sun, artificial lighting is obtained through the use of electrically powered lamps and other types of lighting fixtures. During day time hours daylight is preferred, and is obtain in interior spaces through the use of openings such as windows, artificial light is mostly used when there is no access to daylight (Loe &Tregenza, 1998).

2.1.1 Natural Lighting

The presence of Sunlight is an important part of the biological need of humans, sunlight provides us with the needed visual information to perceive three dimensional forms within the environment it also provides us with clues about the condition of the weather, it effects every aspect of our lives, it determines our choice of clothing, our choices of building directions, shaping our physical environment both consciously/subconsciously. Some of the activities we take may be pleasant within sunlight such as relaxing on a beach, but sometimes being in direct sunlight could feel irritating, due to the heat factor and the glare from the sun, this could affect our comfortability within any type of environment (Lam, 1992).

Sunlight is welcomed into interiors only if the light does not directly interferes with our activities. For example direct sunlight on a work desk or work area could get very irritating, if the person could not control the amount of sunlight entering, this could lead to a very bothersome work area (Lam, 1992).

Small patches of natural sunlight fulfills our basic biological need of sunlight, small patches of sunlight could enhance a space and can spontaneously add to its dramatic liveliness and vitality of interior spaces. Artificial lighting in general is light that is man-made it is classed as any light source that is not produced by the sun.

> ‘’There are two kinds of light – the glow that illuminates, and the glare that obscures.’’(James Thurber.p5, Lam, 1992).

Light is one of the most significant catalysts with the interaction of biological systems. It determines the physical boundaries around us; it gives us the sense of our

environments, light is not always a good solution to illuminate spaces, therefore light needs to be designed by the use of decisive lighting fixture, lighting methods, hue, and brightness control. There are some problems that light could generate, such as light pollution, the pollution of light has some negative effects within the environment (Lam, 1992).

Natural light could be controlled in many ways, some of the methods used to control lighting within an interior, is by the use of blinds , curtains, and various shades, the type of glass used for the windows and the general shape and size of the window opening itself. The advancements in technology with glass have brought forward new types which filter the light that enters into an interior, these types of glass technology is called fritting. Various coating on glass create different light filters to entering into a space. in conjunction the positioning and design of the window openings can have a dramatic effect on the light quality within an interior (Grimley, & love, 2007).

Design when using lighting could fall into two categories, a designer can design by the use of dominant natural light or the use of artificial lighting, or the balance between the two. For an example if a room is more dominant of natural light that enters the space creating unwanted contrasts, then the use of carefully designed artificial light can diffuse this dominance and create a balance between the contrasts that exist within the interior (Grimley, & love, 2007).

2.1.2 Artificial Lighting

The setting of mood within an interior is strongly influenced by the usage of both natural and artificial lighting artificial light more is a more significant factor in the

creation of moods and atmosphere for reasons that it could be manipulated with more ease, this could be done by the different variations of lighting fixtures (Grimley, & love, 2007).

Artificial light is a more specific light source, meaning that different types of lighting fixtures and methods can be used for the specific function of the space. For example restaurant lighting needs to set a cosy, comfortable mood, where the effects of the light create the atmosphere for a more relaxing space with no unnecessary amounts of light pollution (Grimley, & love, 2007).

The function of the space also plays an important role in the selection of the lighting fixtures for restaurants; the light level does not need to be to excessive, due to the reasons that the customers are there to relax and dine. As for an office space, the level of light needs to be more illuminating, due to the fact that the tasks preformed in an office needs more concentration and clarity of light, for the employees to perform at maximum capacity the all over task lighting may be more suitable for this type of setting (Grimley, & love, 2007).

Illuminance

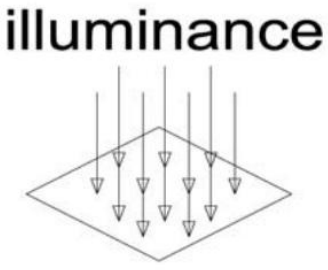


Figure 2 ilumminance (Mclean, P, 2004).

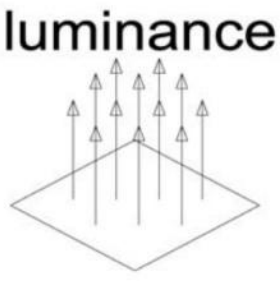


Figure 3 luminance (Mclean, P, 2004).

Luminance is rays of light which transmits from the material or reflects from the planar surface. Figure 2 is the term luminance; easy way of understanding this term is the result of the illuminance also the reflection of the planar surface divided by π. Human eye can see the luminance more than the illuminance. Therefore the change in surface reflection changes the luminance partly (Mclean, P, 2004).

Up-lighting

To achieve successful results with up lighting, the sufficient height of ceiling should be well considered to hide bright spot lights inside the suspended ceiling by than the interior space can lighten off the ceiling. As the luminary is hidden inside the ceiling, it is above the eye level there is no direct relation through eye. However in professional practice this may still cause glare problems (Mclean, P, 2004).

If the luminary does not designed delicately, a wall can become a glare source as well. If a luminary is designed to close the partitions or walls and if the back through the luminary is out of control may create shiny and bright patches on them. Moreover the lighting source is more effective on enlightening the ceiling and the upper parts of the walls; however it does not lighten the lower vertical planes effectively. Thus the interior space becomes dim (Mclean, P, 2004).

Up-lighting installations are essentially not economical. Since there is a lot of light absorption happening of the ceiling there is a big loss of energy and light. This more or less represents a 50% loss. To prevent this energy loss the opportunity of up lighting should be limited (Mclean, P, 2004).

Combination Up- lighting/ Down- lighting

These types of lightings are the luminaries which give a controlled downward distribution a wider upward distribution (Mclean, P, 2004). They have the benefit of supplying efficient direct light onto the task, as well as providing an upward element to boost the background luminance, which therefore lessens the glare and thus the space appears larger. Luminaries have various combinations of upward and downward components. Problems with a full up light installation remain when the upward component is too high.

Table 2.1: Human biological needs (or psychological) needs for visual information

Visual information for	**Examples and lighting conditions**
Physical orientation and location	1. Level horizontal lines of reference (e.g., moulding, wainscots, expansion joints) 2. Emphasis on dangerous edges in stairs and corridors 3. Clear definition of circulation intersections
Physical security	1. Light gradients to complement structure (e.g., scallops of light coordinated with wall panels) 2. Clearly visible edges routes with well- lighted exit signs
Relaxation	1. No uniform lighting layouts with control of glare 2. Emphasis on walls rather than overhead lighting 3. Interesting visual rest centres (e.g., illuminated sculpture, paintings, plants) as occupants periodically scan environments
Time orientation	Awareness of day-night cycle through clear windows and skylights
Contact with nature and people	1. Openings to allow daylight penetration (and distant views to relax eye muscles) 2. Avoidance of visual noise from solar-shading devices
Definition of personal territory	1. Task- ambient lighting such as trochees and furniture- integrated fixtures 2. Large ceiling coffers or columns in open plans

(Lam &Ripman. 1992).

2.2 Types of Lighting

Artificial lighting is more accurately examined in conjunction to the function it performs. The typical explanations of these functions are as follows, ambient lighting, accent lighting, focal lighting, and task lighting.

2.2.1 Ambient

(a) (b)

Figure 4: Ambient hotel lighting 1 (URL1) a

Figure 5: Ambient hotel lighting 2 (URL2) b

Ambient lighting is generally used as an all propose light within a space, the light source for ambient lighting comes from different light fixtures within a space, these fixtures can be individually controlled to set the light level within an interior, they can be dimmed accordingly at right levels depending on what time of day it is, and the amount of natural light that enters into a space (Grimley,& love 2007).

2.2.2 Accent

(a) (b)

Figure 6: Accent hotel lighting 1 (URL3) a

Figure 7: Accent hotel lighting 2 (URL4) b

Accent light is best described as spotlights, spotlights are used to illuminate significant pieces within a space such as artwork, design details, furniture etc. Accent lights are a low-voltage fixture that can be modified to be fixed on a certain object within a space giving the object importance and highlight its details (Grimley,& love 2007).

2.2.3 Focal

(a) (b)

Figure 8: Focal hotel lighting 1 (URL5) a

Figure 9: Focal hotel lighting 2 (URL6) b

Focal lighting takes forms of certain lighting fixtures such as chandeliers. wall scones, and lamps. These are stationary expressive light sources unlike ambient lighting and accent lighting; focal lighting are glowing objects that initially serve as a focal point within an interior, in terms they are referred to as the focal glow. Successful lighting design solutions are based on the idea of the balancing between ambient lighting and the focal glow (Grimley,& love 2007).

2.2.4 Task lighting

Figure 10: Task lighting hotel 1 (URL7)

Figure 11: Task lighting hotel 2 (URL8)

Task lighting as the title suggests, is a light source used to light up a certain activity. for example office spaces generally use ambient light in the form of fluorescent grids and is evenly lit, although every desktop is provided with a task light. The level of light used with task lighting can differ from each activity that is preformed in the space. Task can require different light levels, therefore allowing it to be executed with ease. Light levels are examined and measured in foot- candles, foot candles are calculated by how much light a lit candle is thrown on a surface that is a foot away, in the graph below we can see the required light levels that are needed for different functions of space (Grimley,& love 2007).

Table 2.2: Recommended light levels

Task area	**Foot-candles**	**Lux**
Kitchen	20	215
Reading or writing	25	270
Classroom	50	540
Demonstration lab	100	1076
Computer lab	30	323
Auditorium	10	108
Conference room	30-50	323-540
Enclosed office	50	540
Office landscape	75	807
Corridor and stairway	10	108

(Grimley,& love 2007)

2.3 Light Sources

The graph above explains how light is measured, by the use of foot candles and the termed luminance flux or in lux, this is measured by the luminance in a square meter. Artificial light is commonly referred to as a lamp. Lamps are in generally identified by their wattage, this does not correspond to the output of light they emit (Grimley, & love, 2007).

Light that is single point source, for example sunlight is strong enough to create contrasts and shadows within a space, diffused light on the other hand evenly lights the area and is not strong enough to create shadows, this can be exemplified by a cloudy day when there is no direct sunlight but is diffused creating an evenly lit environment. this example can be integrated into interiors by the balancing of direct light and diffused light to create the necessary illumination needed for the specific type of interior (Grimley, & love, 2007).

Lamps that are un-shaded tend to cause glares that are uncomfortable for the eye and could get irritating over time. This could also be the case of poorly positioned

lighting fixtures, they can sometimes lose in their output of light or create extreme levels of brightness from light sources, and this is referred to as glare. Glare from a light source is not something that could be measured but it is recognisable, due to the fact that it can impair our vision and our bodily functions such as squinting our eyes when we are exposed to the light source. Therefore the types of fixtures, lamps and the positioning of these luminaries is significant throughout the designing of interiors (Grimley, & love, 2007).

There are a variety of lamps that are available; each of the varieties has their own characteristics, output of light, colour rendition, size, energy consumption, and lamp life. The correct use of these lamps involves the designers knowledge on the efficacy rating of lamps (1= low/poor, 5= high/ excellent) this knowledge combined with the colour temperature and colour rendering it is easier to select the right lamp and position within a design process (Natural resources Canada, n.d).

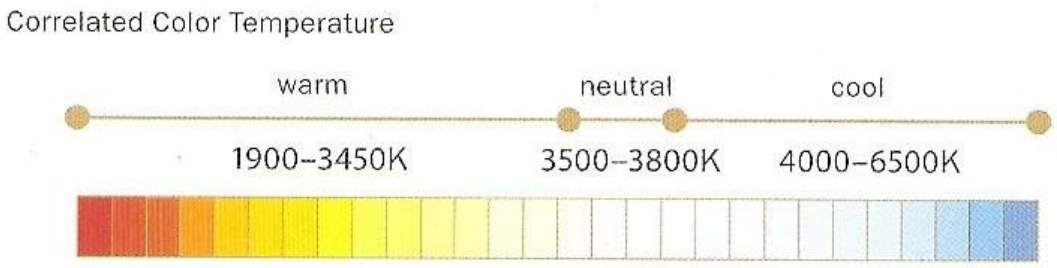


Figure 12: Correlated color temperature (Grimley,& love 2007)

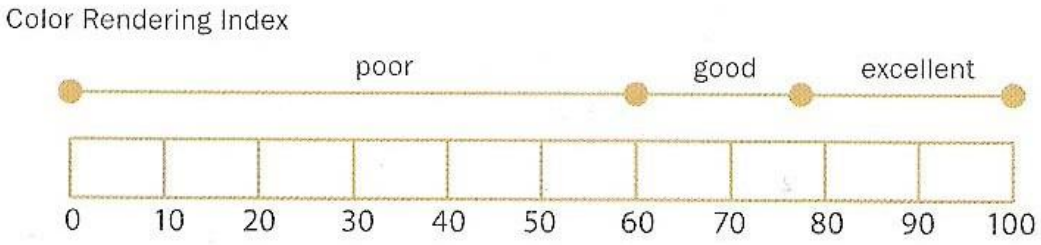
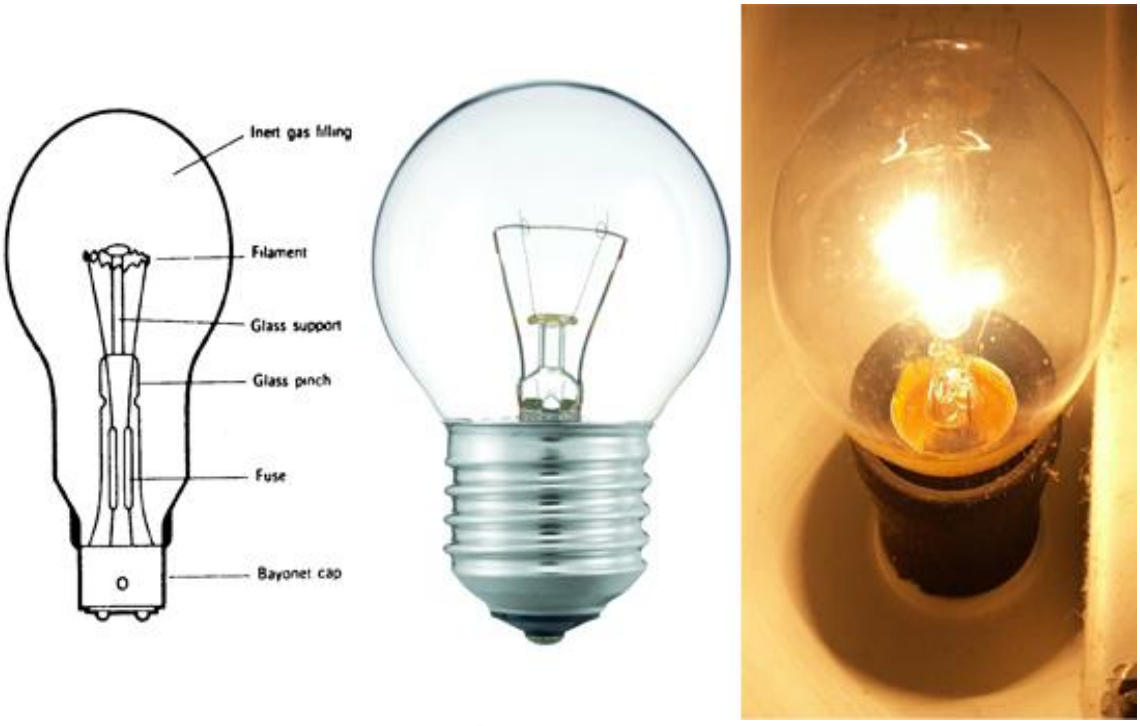


Figure 13: Color rendering index (Grimley,& love 2007)

The verities of lamps that exist are the incandescent, tungsten halogen, low-voltage halogen, fluorescent tube, compact fluorescent, metal halide, high pressure sodium. These lamps will be discussed in more detail. artificial light sources is on an everlasting development and from time to time there are major breakthroughs in artificial light, these breakthrough introduces either new types of light sources or a radical upgrade of existing light sources (Bean, R. 2004).

2.3.1 Incandescent Lamp



(a) (b) (c)

Figure 14: Incandescent lamp 1 (URL9) a

Figure 15: Incandescent lamp 2 (URL10) b

Figure 16: Incandescent lamp 3 (URL11) c

Figure 17: Efficacy Rating (Grimley,& love 2007)

As long as 1841, Paris was lit up by electric arc lamps, although the major breakthrough was introduced by Edison/Swan (1878) with the invention of incandescent filament lamp in 1878 (Bean, R. 2004).

Incandescent lamps in general are mostly used in home settings; they are mostly referred to as the general service lamp that we use today. The bulb of the lamp is composed of soda- lime silicate glass. The bulbs size is determined by the lamp cap temperature. early lamps of this type usually had a larger bulb to avoid the blackening that was caused by the evaporating tungsten from the filament. Through development a new type of inert gas filling was introduced to maintain the pressure upon the filament, therefore reducing the evaporation caused by the tungsten filament. Safety of these types of lamps were thought of, and the installation of a fuse in one of the supply leads, breaking the circuit if there was a power overload (Natural resources Canada n.d).

2.3.2 Tungsten Halogen

(a) (b) (c)

Figure 18:Tungsten halogen (URL12) a

Figure 19:Tungsten halogen (URL13) b

Figure 20 Tungsten halogen (URL14) c

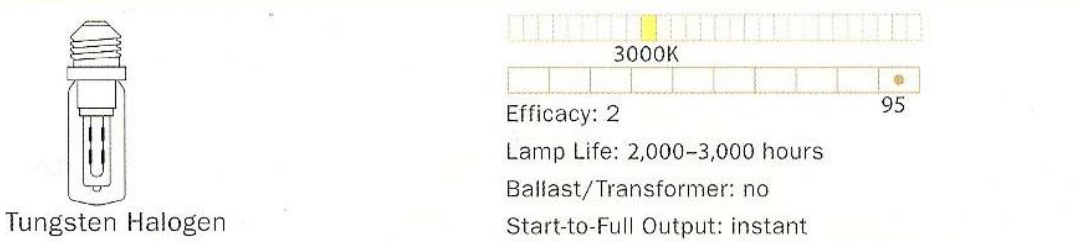
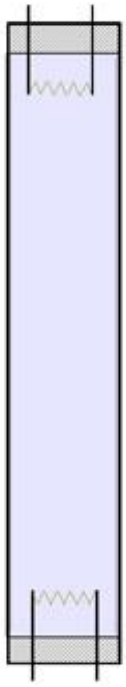


Figure 21: Efficacy rating (Grimley, & love 2007)

One of the most dramatic developments with incandescent lamp technology was introduced by the tungsten halogen lamp. The principle behind the tungsten cycle was existed for a long time; mass production of the tungsten halogen lamp was only administered when the technology of quartz tubing became a viable option (Bean, R. 2004).

The technology behind the tungsten halogen cycle eliminated the blackening caused by the lamp wall by the evaporation of the tungsten filament. Furthermore through the use of this technology the bulb sizes were reduced for this effect to take place. The use of quartz in its composition brought closer the lamp wall and the filament therefore allowing for a higher gas pressure and increased mechanical strength. The improvement gave lamp designers the flexibility to increase the lamp life and the output of light while sustaining the temperature (Bean, R. 2004).

2.3.3 Fluorescent



(a)

(b)

(c)

Figure 22: Fluorescent 1 (URL15) a

Figure 23: Fluorescent 2 (URL16) b

Figure 24: Fluorescent 3 (URL17) c

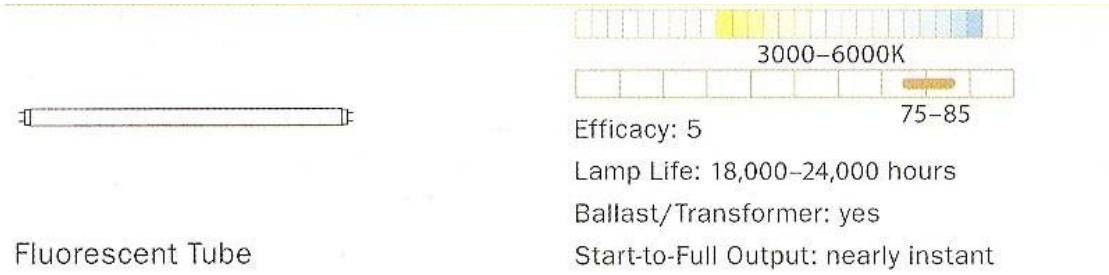


Figure 25: Efficacy rating (Grimley,& love 2007)

The fluorescent lamp is the most extensively used lamp within commercial buildings, educational building and industrial buildings. They are believed to have a variety of advantages compared to other light sources. One of the advantages that they have comparing is the low operating temperature; additionally they have a wide array of different colour spectrums and high efficiency. The operation of a fluorescent lamp is relies on the usage of mercury discharge that induces UV radiation from an efficient first energy level excitation (Bean, R. 2004).

2.3.4 Compact fluorescent

(a) (b)

Figure 26: Compact fluorescent 1 (URL18) a

Figure 27: Compact fluorescent 2 (URL19) b

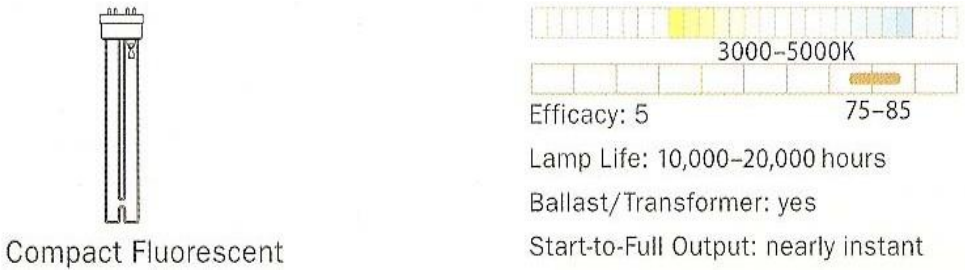
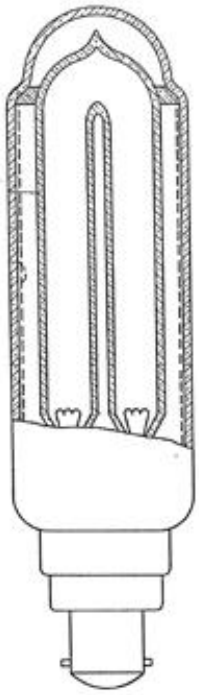


Figure 28: Efficacy rating compact fluorescent (Grimley,& love 2007)

Through the development of the fluorescent lamp; compact fluorescent lamps where processed. The introduction and composition of the compact fluorescent lamp, involves the tube diameter to be smaller in scale and high efficiency triphosphors allow for the tube to be folded to produce a more single ended lamp that is compact. Furthermore the inclusion of electronic control gear that is built into the lamps cap, allowed this product to gain more popularity in almost all situations thus being a replacement of the incandescent lamp (Bean, R. 2004).

2.3.5 Low and High Pressure Sodium Lamps



(a)

(b)

(c)

Figure 29: low/high pressure sodium 1(URL20) a

Figure 30: low/high pressure sodium 2 (URL21) b

Figure 31: low/high pressure sodium 3 (URL22) c

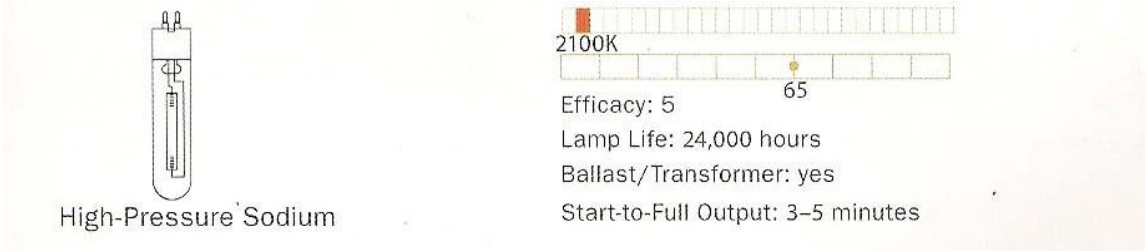


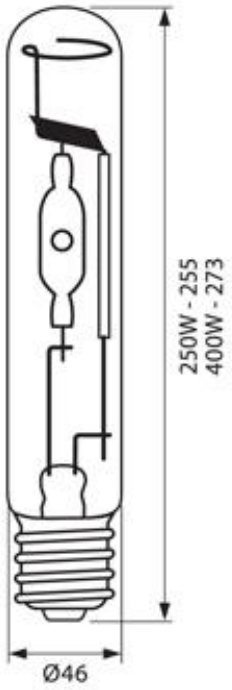
Figure 32: Efficacy rating low/high pressure sodium (Grimley, & love 2007)

The low pressure sodium lamp is seen to be the most ideal lamp, due to it being highest efficacy of all the lamps available. The reason for this is that the output is near the peak of the human eye response curve. On the other hand the high efficacy

is also the drawback, high efficacy means that its colour rendering index is effectively zero. Therefore the low pressure sodium lamps are mostly used as road lighting where the yellow light is tolerable, although they are mostly replaced by high pressure sodium lamps.

High pressure sodium lamps had many difficulties in its development the arc tube was the sole reason in its delay of advancements for decades. The eminent solution to these difficulties where resolved by the finding of an arc tube that can withstand the high pressure sodium vapour that consists within. The solution was to use a translucent ceramic tube of alumina oxide otherwise known as (PCA) (Bean, R. 2004).

2.3.6 Metal Halide Lamps



(a) (b) (c)

Figure 33: Metal halide 1 (URL23) a

Figure 34: Metal halide 2 (URL24) b

Figure 35: Metal halide 3 (URL25) c

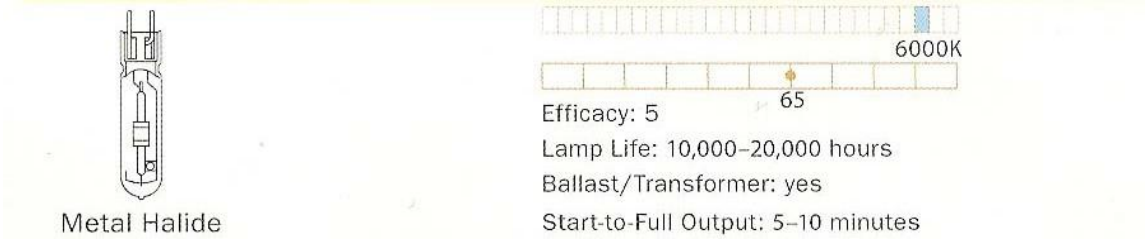
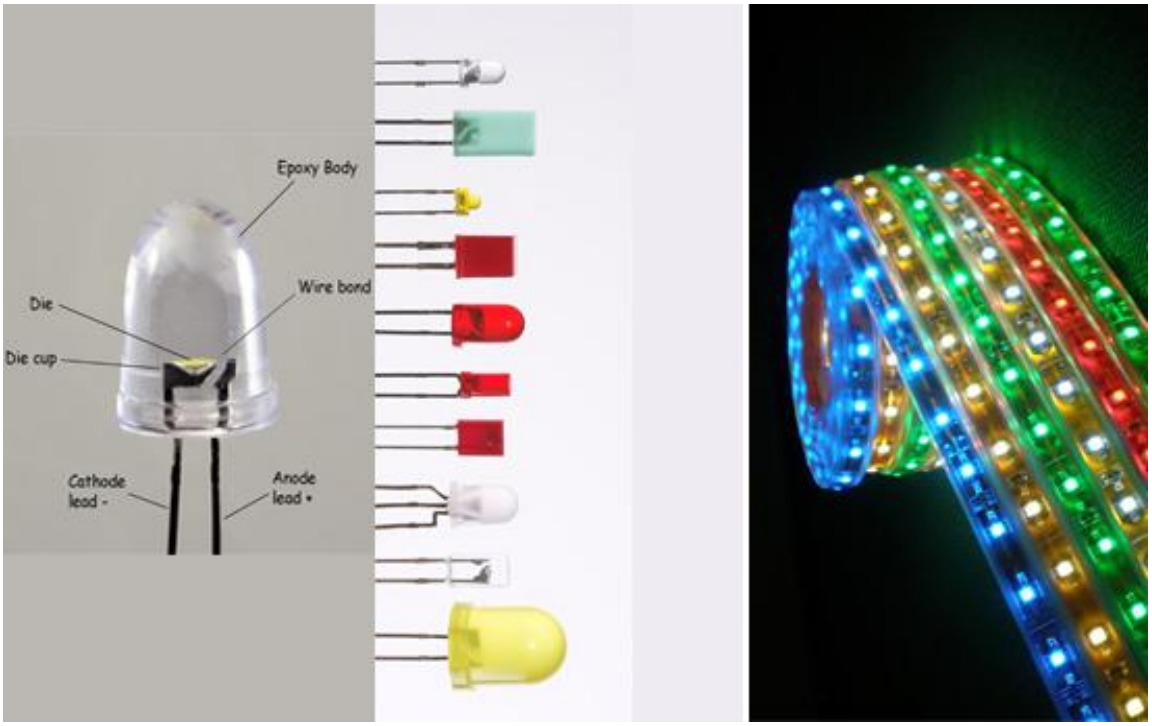


Figure 36: Efficacy rating metal halide (Grimley, & love 2007)

The high pressure mercury vapour are rarely used today, this due to the developments with the metal halide lamp the advancements came from the ordinary mercury vapour lamp. Mercury vapour lamps where dominantly used for street lighting , further more it found its place in factories when the colour corrected

versions were made , this light source was later on not so popular when the metal halide was introduced. There are a wide range of metal halide lamps that is now available; this is including reflector versions which have gain popularity due to the very good colour rendering achieved (Bean, R. 2004).

2.3.7 LED



(a) (b) (c)

Figure 37: LED 1 (URL26) a

Figure 38: LED 2 (URL27) b

Figure 39: LED 3 (URL28) c

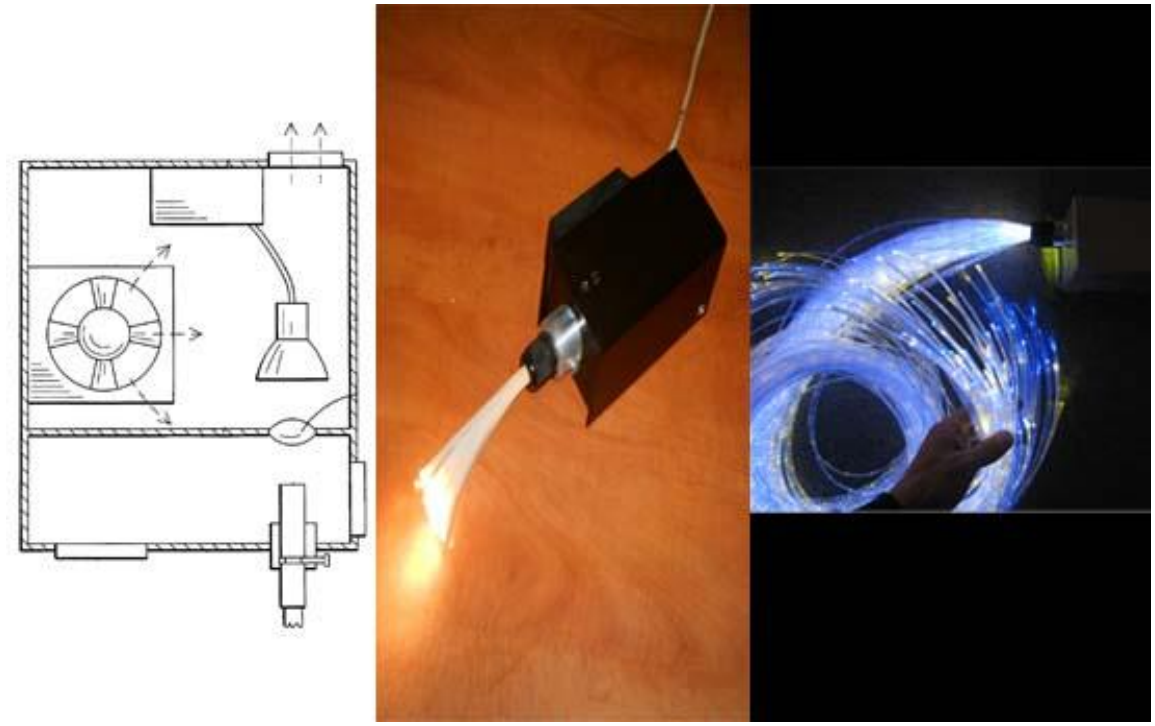
LED lighting otherwise known as light emitting diodes are known for their low consumption of electricity and last longer than normal fluorescent lamps. However LED costs are much higher when considering general lighting. LED lights come in a variety of colours red, green, blue and the combination of all their colours creates white, for this reason a full spectrum of colours is available with LED lighting.

Another advantage that LED lighting provides is that they produce no heat. LED is most dominantly used in interior designs due to the fact that designers can create desired effects with the light colour rendering of LED lights. With ongoing technological developments in LED lighting, suggests that over time it will replace other conventional lighting and be used as general lighting (Grimley, & love, 2007).

New lighting technologies

LED and fibber-optic lights have been around for a while; they have only recently becoming more readily available for use in design. The two lighting types are more energy efficient then the other light sources discussed above. Additionally they are more cost efficient (Grimley, & love, 2007).

2.3.8 Fiber-Optic Lighting



(a) (b) (c)

Figure 40: Fiber optic 1 (URL30) a

Figure 41: Fiber optic 2 (URL31) b

Figure 42: Fiber optic 3 (URL32) c

Fiber-optic lighting is based around the use of acrylic cables to transfer light from the light source; these are termed as the illuminator that is the ends of the cables. The lamp used for the illuminator consists of either the tungsten halogen lamp or a metal halide lamp, it's a simple box that composes these lamps to relay light through the acrylic cables. The most commonly used lamps for fiber-optics is the tungsten Halogen lamp. For larger instalments the metal halide lamp is used instead. With larger instalments heat ventilators are also used to cool the temperature that the lamps are giving off.

The lighting design of the interior when considering fibber-optics, vary in cable sizes although there is a rule that the cables must not exceed 50 feet (15 meters), this rule is placed so that the light transmitted through the cables will not be compromised. The single most appalling advanced of fibber optic lighting is that multiples of light can be applied, in hard to install locations throughout the interior (Grimley, & love, 2007), for example if a wall needed to be lighted instead of using multiple lamps one fiber-optic cable will be enough for the whole wall and is controlled by a single light source the illuminator.

2.4 Effects of Lighting and the Creation of Spatial Character

Lighting can have major impacts within the creation of the spatial character, for instance, how do you light a restaurant? , how do you light a bar? , how do you light a hotel lobby? There are many reasons why lighting can have many effects within the creation of the character it also encompasses psychological effects such as attractiveness, hospitality, relaxation, or in other cases irritation, disorientation, un attractiveness. Therefore lighting can change the initial perspective of an interior providing it with the necessary lamination and the effects that suit the interior type (Ginthner, D. 2012).

The implementation of successful lighting solutions the understanding and the knowledge base of lighting design must be investigated. There is an array of designers that can function as lighting designers, for example the architect, electrical engineer, facility manager, interior designer, landscape architect, or urban planner. Lighting designer is a relatively scarce profession. The main aims of a lighting designer is the understanding of the space and lighting design excellence or

sometimes may involve the lighting designer to make the vision of excellence a reality (Ginthner, D. 2012).

For a designer the aesthetics of a space is one of the major concerns, they also consider lighting to be a type of art rather than simple illumination, alongside lighting being a art form it also utilizes an enormous body of technical knowledge, this technical knowledge is also updated due to the ever evolving technology, this is the science of lighting. The most important factor of lighting is that it is design for people, therefore there must be an understanding of visual quality the users need for reasons such as health, safety, and enjoyment (Ginthner, D. 2012).

The creation of the appropriate impression of a space

In designed spaces there are a variety of design elements used to impact our subjective impressions, the initial process of a lighting designer must be to compliment and make an even dominant statement to the initial design, and this is done by having the lighting express the same impressions of the existing design elements within a designed space. There are many ways in which to create these types of impressions (Ginthner, D. 2012). This will be discussed.

Criteria to Evaluate Lighting

Some of the oldest and most renown researchers in the field of lighting design are researchers such as Gibson (1979), Dr. John Flynn (1973-1979), were investigating and trying to understand the effects of lighting and the possible implications of lighting on the sensations, feelings and perceptions of interior spaces. As purposed by Murdoch and Caughey (2004), Dr. John Flynn was a twentieth century lighting pioneer; Flynn was also one of the researchers who investigated on the psychological effects of lighting. The Hypothesis of Flynn (1973) on the impressions of lighting is

that there are occurring and consistent shared patterns of impressions between the users of a space, alongside this there is a occurring and consistent changes in the impressions of lighting within a space is varied (Flynn, 1973) .

Flynn (1979) also developed a criteria module for evaluating the illumination of spaces. His initial work was finished nearly forty years ago on this subject. Flynn's work has had empirical follow ups, where his initial work was progressed, although his initial work is referred to as seminal study to this day. The conceptual framework around the idea of evaluating lighting Flynn used some cues to understand the users, subjective response to the lighting of a space. The categorisation of these cues would be

- uniform/non-uniform distribution of light
- bright/dim levels of illumination
- overhead/peripheral/vertical surface lighting Using a semantic deferential scale

Flynn (1979) also used certain terms to determine the reactions and attitudes/opinions; he concluded the responses and set fixed responses and words that users would use to describe the lighting within a space (Flynn, 1979).

- Pleasant - versus - unpleasant
- Public- versus- private
- Spacious- versus- confined
- Relaxed- versus- tense

- visually clear- versus- hazy

Pleasant: The use of wall lighting, the major light distributors are wall lit, rather than lighting coming directly down from the ceiling. This is a non- uniform distribution of brightness within the space, the level of light is fixated on how dependent the visual task is within the given space (Flynn, 1979).

Public: Public illumination requires higher levels of lighting, with a more uniform distribution of light form preferably overhead lighting sources (Flynn, 1979).

Spacious: For a spacious space the supplements of high levels of illumination with even distribution of light is required, wall lighting and uniform lighting on all surfaces (Flynn, 1979).

Relaxed: For a relaxed feel the use of non- uniform distribution such as wall lighting, at lower levels are proffered (Flynn, 1979).

Visually Clear: The supplement of higher luminance's within the activity area/ task surfaces, with general peripheral luminance is typical (Flynn, 1979).

The opposites of the explanations above will be the negatives of the response criteria's of the users, these are a sufficient enough source for evaluating the light levels within interiors and giving them if not a approximately accurate response to the lighting of interior spaces.

2.4.1 Aesthetics, Materials, Textures, Color

Aesthetics

Aesthetics is most commonly referred to as the nature of art, beauty, and taste; it also deals with the creation and appreciation of beauty. The scientific definition of aesthetics is defined as the study of sensory or sensory-emotional values, in other words translated as judgments of sentiment and taste. Scholars within the field of aesthetics; make note of aesthetics as critical reflection on art, culture and nature. Aesthetics is induced by many different aspects of a space, such as material usage, shape and form of the space, color, lighting etc (Riedel, 1998).

Aesthetics could be created by any type of physical material within a space it is mostly comprised by furnishings, colors, forms & objects, layout and lighting. Lighting elements could provide different types of aesthetical values within interior spaces, the lighting fixture itself could be used as an aesthetical object or vice versa as an accent light to focus on aesthetical objects within an interior space. Lighting can also be manipulated to serve an aesthetical object form or layout, alongside being aesthetical itself (WBDG Aesthetics Subcommittee, 2012).

Materials

The definition of material or otherwise known as materiality within interior design is a concept of physical matter that gives us signs and informs us about our surroundings. An experience of a space is enhanced ultimately by the material usage within interior environments; whether they are inhabiting or occupying a certain area (Oxford English Dictionary, 1889).

The interior design proffesion must entail the designer to have a significant amount of knowledge on meterials and their use due to the reason that interior designers are tasked in choosing materials, finishes, colors for interior environments. There are many different aspects to choosing mterials for the type of interior that is to be designed as an example the meterial usage of a concert hall differs from the material usage of a hotel lobby. Some of the specific issues that are regarded in this sense could be maximised by choosing the right material for the right occation, in addition taking into consideration the general aesthetics of the material and its impact on the charecter of the space. Since there are specific issues the selection of material must be thought of in the sense of durabilitym longitivity, and the public use of the interior space. It is preferable that the interior designer be licensed and have specific knowledge of this building type (Libris Design, 2004).

There are many different types of finishes a interior designer could access, floor finishings are one of the single most immportant interior finish material to be selected due to the large surface area, flooring include, carpet, stone, ceramic tile, wood and resilient flooring, linoleum and cork. Wall finish depend on the function of the space itself, these factors can be sound isolation, heat/cold isolation, acoustics, aesthetics. The materials that are mainly used on wall finishes are paint, wood paneling, acoustic wall panels, wall papers (Libris Design, 2004).

> ‘All material in nature, the mountains and the streams and the air and we, are made of Light which has been spent, and this crumpled mass called material casts a shadow and the shadow belongs to Light’ (Kahn, 2011)

Material usage can also create different effects with the use of lighting; the material properties could be enhanced by the use of lighting as an example shiny floor surfaces could reflect light back from the ground, where as mat surfaces could absorb or block reflections of light. Therefore lighting could be used to enhance the material type to bring out the optimum solution to the aesthetics of interior spaces. Every material has a different surface and response to light, using the right materials and lighting could increase the visual appearance of environments (Libris Design, 2004).

Color

According to Kaufman (1999), color creates physical and psychological effects within interior environments; it adds the essence and an aesthetical value to the space. The response of our visual system to color applies an aesthetical association with colors, due to this reason color effects us psychologically and physiologically (Kaufman, 1999).

Colors within a space can create many different effects; it can create a warm and relaxing atmosphere or reverse a chaotic stressful atmosphere, this is dependent on the color selection and the quantity of colors that are used within a space, in addition the color palate that the colors are chosen from. One of the main techniques that are used within color selection is the rule of 60-30-10 percentages. This rule is in explanation is the most dominant color of the space uses up 60% of the wall surfaces, furniture or singular objects within the space, 30% is the secondary complimentary color that aids the dominant color and an accent color to sustain the visual aesthetic which is a 10%. This rule is mainly used to soften the stress level related with the color orientation of interior environments (Ayana, 2012).

Lighting overall is mostly used to enhance a designed interior space; lighting can affect an interiors colour in many different ways. The actual colour temperature of a lamp could affect the way in which wall paints or any object that contains a certain colour is perceived. It could be used to enhance the colours or the change the hue of the colours through the use of lighting (Fielding, 2006).

Texture

All types of materials carry with them a certain and significant texture, textures are usually perceived on the surface of an object or the surrounding environment. Textures come in mainly two forms these can be natural textures/ natural textures or manmade textures that are manufactured. A textures surface is subconsciously known to humans due to our exposure to natural environments, these natural environments could be categorized into material types such as wood, water, sand, stone, gravel, vegetation, trees, leaves, and many other types of natural textures (Thiel, 1980).

We are subconsciously aware of the natural textures; however we have a sense and awareness for manufactured texture surfaces also. These comes in the form of manmade materials; materials that we come into contact in our daily lives such as asphalt, carpet bricks, concrete, brick, hard wood, cut stone, planks, terrazzo, tile, wood decking, linoleum, lawn, marble, etc. Every type of texture carries with them a significant identity that separates its qualities from other textures; this identity also adds to its aesthetical values when applied to designing of an interior space, texture also adds to the compositional values and components of an environment. It is a tool to express verity of surface qualities (Thiel, 1980).

> ‘Any designer who does not appreciate or know about good food is not a very good designer. The planning of a meal and its presentation- the texture, the colour, the taste, the hot and cold temperatures – are the same concerns that affect an environment.’(Kime, 2013)

Texture and lighting create a good combination if it is implemented correctly; the relation of lighting and textures is the medium of light and shadow of the textures. Different types of textures can create different types of shadow effects this also depends on the material type of the texture. As discussed above different materials could have different responses to light. Therefore texture depends on the material type and lighting direction in the creation of aesthetical affects with the use of shadows (Sawalich, 2012)**.**

Chapter 3

INVESTIGATING LIGHTING IN HOTEL ENVIRONMENTS

Hotels can be described as establishments that offer temporary accommodation on payment. Where in the past, services and facilities offered by the hotels used to consist of rooms containing a bed, a small table and a washstand nowadays, hotel rooms are equipped with facilities such as en-suite bedrooms and air conditioners.

What is more, today, hotel rooms contain various features such as a television, a telephone, a safe, a mini-bar containing food and drinks, and equipments for coffee and tea making. Additionally, more luxurious features offered by the hotel rooms range from bathrobes and slippers to Jacuzzi bathtubs. Even more luxurious facilities such as swimming pools, fitness and childcare centres, business and conference rooms and other facilities that offer social function services are also provided by larger hotels.

Guests identify their rooms by the numbers or names the rooms are given. In some hotels, according to the board arrangements, meals can be offered to the visitors. Interestingly, the services provided by the hotels also differ from culture to culture. The hotels in the United Kingdom are obliged to offer food and drinks to all guests,

whereas in Japan, by capsule hotels, minimized space and even shared facilities are provided to the guests (Lundberg, D. E. 1994).

Other fields such as instructional food services that serve schools, colleges, hospitals and other industries and club and country management industries are similar to hotels in terms of the service provided to the public (Lundberg, D. E. 1994).

1.6 million People (including full and part time) are employed by the hotel industry in the United States, which leads to sales approaching $65 million every year. Over a million of the 1.6 million people employed in this industry are female and half of them are under 30 years old. Total amount of money earned annually approach $250 billion (Lundberg, D. E. 1994).

Generally, the two main services offered by the hotels are (I) accommodation an (ii) dining services. In fact, according to the quality and extent of the services offered to the guests, the place where the hotel is located at, bedrooms, reception, food & beverages offered, staff and the service provided by them, and additional special facilities, (such as business center, limousine service, transportation service) the hotels are categorized as Deluxe, First Class, Standard, and Economy. In addition to the rooms equipped by a telephone, TV, and bathroom, other customer services such as laundry, cleaning, and valet services can also be offered. What is more, other facilities including business & meeting rooms, ball rooms, clubs & discos, souvenir shops, massage rooms, and centres where conferences can be held are also present in many hotels (Edralin, & Castillo, 2001)

3.1 Hotel Environments

3.1.1 Hotel Typology

It should be stated that the quality of hotels has evolved significantly over time. The changing climate of the earth is one of the factors that play a role and impact the entire hotel industries (Collins, 2001).

High quality demands of the customers also play a significant role in new design trends and the progress of various hotel types. Based on the wants and needs of the target customers, the hotels have various aims, and in order to achieve these aims, every hotel needs to be designed accordingly taking factors like the location of the hotel, the general size that it will reside in, and the circulation it will provide both interior and exterior (Rutes, Penner, & Adams, 2001).

Boutique Hotels

In the mid-1980s by Ian Schrager & Steve Rubell developed the concept of boutique hotels (Rutes, Penner, & Adams, 2001; Vanderbilt, 2000). Schrager's design strategy was to signify emotionally compelling environment into empty spaces. Schrage's design strategy was believed to be unusual, mainly as a result o how the design elements were used aiming to create a theatre, which was his attitude beginning with the introduction to Morgan's in New York (Klumbis, 2002).

Usually, in order to build boutique hotels, urban properties are re-used (Miller, 2001). As boutique hotels do not, boutique hotels are generally considered to be less expensive compared to luxurious hotels due to the reason that boutique hotels do not need to invest in property purchase (Miller, 2001).

Boutique hotels thrive in the importance of an intimate physical environment; nonetheless, according to the research conducted by Vanderbilt, because of the omission of an area with strong attention to design and facilities, there is no consensus on the features which classify a boutique hotel (Noble and Thomson 2001).

Airport Hotels

In the past, the usual airport hotels were not as multi-dimensional as they are now. Traditional airport hotels used to provide lesser facilities and had the capacities to accommodate fewer guests. At first, these airport hotels were designed to basically offer travellers a place to eat and sleep. The airport hotels however, have now evolved to a hotel type which today offers the facilities as other hotels, and has become the kind of hotel which offers couples to meet, and offers a suitable environment to hold seminars and lodge airline crews (Gonzalez & Gonzalez, 1989). As they are located on a rather low-priced land, in the construction of airport hotels, extreme construction costs are avoided (Gonzalez & Gonzalez, 1989). As a result, because of this gain by inexpensive land, airport hotels have the opportunity to provide lower rates for guest rooms and still maintain a profit by the use of this process. Facilities such as Ballrooms, business rooms equipped with high-tech devices, Spas, suites, and dining rooms are offered within modern airport hotels.

Convention Hotels

Hotels that are aimed to host conventions in addition to hold national and international meetings are classified as convention hotels. Convention hotels have variety of rooms that can host meetings for 500 to 1,500 people. The Marriott River enter in San Antonio, Texas is one of the well-known convention hotels.

Resort

Resorts are the type of hotels where the guests prefer to stay at on their holidays (Elliot & Johns, 1993). According to Elliot and Johns, one main characteristic of the resort hotels is the fact that they offer lodging as well as natural leisure facilities for the guests to enjoy their holidays. Edwards (1988) state that being surrounded by natural beauty, and possessing natural spa conditions, give classic resorts the opportunity playing a significant role in offering a healthy environment for the customers. Reutes, Penner, &Adams(2001)described the ten basic categories of resorts; some of which are: Spa Resorts, Ecotourism Resorts, Ski Resorts, and Resort Theme parks.

Spa markets are developing more and more everyday because of the facilities they offer to the guests such as massages that reduces tension, hydrotherapy for infusing beauty and fashion consultation. According to the research conducted, 70 percent of people feel more peaceful after a spa therapy. Furthermore, the hotel type does not matter in regards to the first impressions of the majority of guests are based on the lobby design and arrangement (Julie, 1995 &Andorka, 1998). In fact, it is these first impressions that can affect how customers judge the quality of the hotel.

3.1.2 Classification of Hotels

There are a variety of different classification systems for hotels, this variety changes according to the regions that the hotel is situated in. Additionally the type of the hotel also contributes to the classification system that will be used for evaluation. The following is some of the mainstream classification systems that are used to differentiate hotels.

Popular Classification Systems

The most popular classification systems used for official hotel and resort guide or otherwise referred to as the (OHRG) are off ten quality levels which is categories. These categories were derived from the travel industries classification system ratings these ratings are comparable around the world making it easier to compose a classification system. The following is extracted from the Research Department of the Caribbean Tourism Organization. (2002):

Super Deluxe

Super deluxe hotels are usually expensive luxurious hotels. It is quite common to see the highest standards within their services and relations with customers. The super deluxe hotels are if the world's top range hotels, they are of elegant design and focus on luxury within their public rooms (OHRG, 2002).

Deluxe

The deluxe type hotels offer some features that are related to the superior deluxe only discriminating some hotels within Europe. The only differences of deluxe hotels are that they are less luxurious/grand, and they offer lower room rates then super deluxe hotels. The recommendation for client type is classed as the most discriminating guests (OHRG, 2002).

Moderate Deluxe

The difference between a deluxe hotel and a moderate deluxe hotel is the establishment’s reputation among other hotels; generally this class of hotel has famous names and depends on it heavily. The general design of the hotel would not be of luxurious standards as deluxe hotels. This class of hotel is commonly targeted at business clients, with accommodations that provide comfort and deluxe standards within guest rooms, what it lacks within the general atmosphere and concept is

reversed with its standards of guest rooms. They are generally overpriced and are targeted to non fussy clients that expect deluxe standards (OHRG, 2002).

Superior First Class

The superior first class hotels are above average standards, they are commonly older hotels that have been well maintained. With a first class service and superior modern design targeted at first class clients. The hotel is marketed to average clients with comfortable public areas and aesthetical furnishings, overall of good value (OHRG, 2002).

First Class

First class hotels are average, comfortable with guest rooms that fulfill standards, nothing of special design, but may accommodate superior executive spaces. These classes of hotels are generally targeted at average customers that do not need/want deluxe facilities or services, however must be of satisfactory to sophisticated guests (OHRG, 2002).

Limited Service First Class

The main differences between the first class and limited service first class is that the quality of the guest rooms are of first class standard, however there are limited public areas, food services, and other facilities within the hotels. These hotels are of moderate size, and take on the form of residential scale/type architecture. May offer limited food services, however may provide breakfast meals. The recommended client types for these classes of hotels are individual business or pleasure travelers (OHRG, 2002).

Moderate First class

Moderate first class is an establishment that is below average first class, they take on a form of simplicity within their guest rooms providing comfort but not always kept

up to standards. These types of hotels may lack in facilities and features such as restaurants and other public areas. The spaces within these class hotels are small and functional. Generally targeted at cost conscious customers that do not expect too much (OHRG, 2002).

Superior tourist class

Superior tourist class hotels are mainly cost friendly and are monthly well maintained and functional guest rooms with some that resemble first class standards. Public areas are nearly too nonexistent within this class type, however it makes up for the lack of public areas with the intimate nature of the design and furnishings. Generally preferred as the last place to stay. It is satisfactory to clients that are on a budget. Targeted customers are groups/ students (OHRG, 2002).

Tourist class

The main differences and similarities between the superior tourist class and the tourist class is that, the tourist class also adapts the budget theme where it is of lowest and affordable prices, with strictly needed facilities, and some features that are adapted from superior tourist class, however there are no first class accommodations present within this class of hotel (OHRG, 2002).

Moderate tourist class

Moderate tourist class is operations with a low budget, which are usually not new and may not also be in good conditions. These should only be preferred when there are not any other options, and the clients should be warned about what they may encounter (OHRG, 2002).

These are the official classification systems of OHRG that are used for hotels another classification system that is used is the star grading system that ranges from one star

to five stars, one being the least appealing and five being the most sophisticated out of all hotels. In this part the star grading system will be investigated to understand what qualifications that hotels need for each star grade.

One Star Hotels

Hotels within the classification of one star are generally small and are owned independently. They also adapt a family atmosphere within the interior. The services within this class of hotels are provided by the owner him/her self or by a family that is presented in an informal manner. The food service is basic and simple; the facilities may be fairly limited. For an example lunch or later meals may not be served, other than breakfast, the rooms may be fairly small and may not contain en suite shower/bath rooms. However the maintenance, hygiene and comfort should be at an acceptable standard (Research Department of the Caribbean Tourism Organization. 2002).

Two Star Hotels

Two star hotels are in general of small to medium size, offering more variety in facilities then a one star hotel. The two star classes of hotels sometimes fall in the category of business, where their guests can expect an acceptable comfort, well equipped and overnight accommodation. As opposed to one star hotel; two star hotels may provide an en-suite bath/shower room. The presentation of the staff will be more at a professional/ formal level then the one star hotel. The variety of their food &beverage service will incorporate a wider range of choice (Research Department of the Caribbean Tourism Organization. 2002).

Three Star Hotels

Three star hotels support higher staffing levels, hotels of this class is generally bigger in size compared to one star and two star hotels. They also house a significant

increase in greater quality and range of facilities, then their former classes. This class of hotel is more spacious within the reception and their guest rooms; in addition their food service/restaurant serves not only the residents but other customers that do not stay at the hotel. Bedrooms will consist of en-suite bath and shower room; in addition they are necessarily equipped and comfortable, equipments such as hair dryer, direct dial telephone, toiletries and other equipment alike. Room services can be expected in three star hotels, along with provisions for business travelers (Research Department of the Caribbean Tourism Organization. 2002).

Four Star Hotels

Within four star hotels a degree of luxury is introduced, quality in the type of furniture that is used is more focused, decorative elements and equipment is available in every area of the hotel. Bedrooms are also more spacious then than the lower star hotels, the rooms also have a level of design in furniture and decorative elements. The rooms will have en-suite functions, the bathrooms will have baths and fixed shower. The hotel will have higher ratios of staff to provide significant service to rooms and other purposes, such as porter age, 24 hour room services, dry cleaner, laundry and other services alike. The restaurant will offer more variety of dishes having a serious mindset towards their cuisine (Research Department of the Caribbean Tourism Organization. 2002).

Five Star Hotels

Within five star hotels every aspect that has been talked about is amped up, therefore guests will experience spacious and luxurious accommodation throughout the general public areas of the hotel, significantly matching the highest standards internationally. The hotels generally are a piece of art where there is a conceptual idea or theme. The interior design is of quality and the significance to detail, comfort and elegance is

given. The furnishings should be chosen to be of excellence/immaculate. All services throughout the hotel should be formal, where the attention to the guest must be flawless, supervised, with the illumination of intrusive behavior. The restaurant of the hotel will execute the highest level of technical and preventative skill, in producing dishes of the top international standards. Customer care is of significance, meaning that the staff should be efficient, polite, well versed, knowledgeable and helpful (Research Department of the Caribbean Tourism Organization. 2002).

3.1.3 Five Star Hotel and their Design

Five star hotels that are integrated with conference halls and seminar development will often require highly sophisticated lighting control. Mainly covering the requirements of the spaces within the hotel such as (Futronix. 2006):

- Reception, lobby, business centres
- Restaurants, lounges, bars, poolside
- Guest accommodations, corridors and lobbies
- Function / conference / seminar (including ballrooms), and
- Interior and exterior architectural, landscape, parking and security lighting.

Althoug there are other spaces that are mainly built within premium hotels such as indoor/outdoor pools, gymnasiums, with fitness and strength equipments, and recently the additions of fully featuerd spa's, te lighting of these types of spaces also need significant design that contributes to the general quality of lighting within the hotel(Futronix. 2006).

The most integral role of the overall hotel experience lies with the lighting and lighting design. Due to 90% of our information is recieved through visual communication, the overall design and the lighting design indicates the difference between baorder line quality and the ‘wow’ factor customers expect. There have been dramatic changes within the hotel industry within recent years. There have been a major increase in occupance and globilization of hotels, this has not only increased the number of hotel projects that are undertaken but also transformed the environmental spaces within hotels. İt also had many social aspects implications such as gatherings, entertainment, work spaces. The hotel industry modern trends are as follows (Ilumin intelligent control, n.d.):

• Additional focus on the guest experience
• Creation of the social gathering place in bars and restaurants
• Inclusion of spas and business traveler features

Architectural lighting controls within five star hotels are considered this type of lighting can allow for the owner/maneger to create the desired effect in enhancing the overall space preformance and experience, in addition to providing maintenence and energy costs(Ilumin intelligent control, n.d.):

• Enhance visual effects by highlightingarchitecture or finishes
• Create different moods in different spacesduring different times of day
• Manage energy costs better with real-timeenergy metering
• Extend lamp life by dimming to reduce expenses
• Dim or turn lights off with timeclock/sensors innon-crucial spaces

• Integrate with BMS, A/V, Security, orEmergency Systems

These are some of the benefits that architectural lighting controls provide within five star hotels to give the neccesary preformance needed within the mainframe of energy savings and costs.

3.1.4 Conceptual Characters of Hotels

The expanding hospitality industry has an immense variety of hotels within contemporary times; most of these hotels consist of having an image or general concept that underlines the visual aesthetics and design composition of the hotels (reference 29). There are an increasing number of hotels that adapt different residential concepts (home – like design approaches) that accomplish this task (Suguaw& Enz, 1999).

A memorable stay for a guest is one of the most important factors within a hotel, it is not only to do with its conceptual idea, but rather the uniqueness the conceptual idea springs upon the guests (reference 29). Guests that have an pleasent experience are subject to stay more at an hotel and have often more visits (Pine & Gilmore, 2002).To have loyal customers hotels need to have/ develope a strong brand, strong brang suggests the success and is mostly what the customers prefer (Brown, 2002).

The conceptual hotels can be categorised into definite groups. The differentiating line between these groups are very thin, the differences are generally hard to distinguish. Table () below shows the different types of variations of conceptual hotels, the unique concepts and definitions will be discussed (reference 29).

Table 3.3: Examples of selected Hotels and Respondents

Hotel	Location	Size	Concept	Atmosphere	Hi-tech	Entertainment
Elite plaza Hotel,Gbg	City Centre	143 rooms	Business oriented	Personal and comfortable-e atmosphere	Yes	Restaurant, bar, wine cellar, conference/ meetings
Nordic light Hotel, sthlm	City Center	175 rooms	Exception-al visual experience	Unique interactive work of art with lights	Yes	Restaurant, wine cellar, light bed experience, light bar experience
StoraHotellet, Fjallbacka	West coast of Sweden	23 rooms	Around the world in 23 rooms	Personnel, unique design	No	Restaurant, bar, wine cellar, conference/meetings
Icehotel, jukkasjarvi	North of Sweden	66 rooms made of ice	Everything made out of ice and snow	'cool' design	Yes	Ice bar. Theatre, ice- restaurant and ice/snow events
Lydmar Hotel, Sthlm	City Centre	62 rooms	Music & art	Creative ambience in lobby &restaurants	Yes	Bar & restaurants mixed in the lobby & art exhibitions all around
Hasseludden K&Y, sthlm	Saltsjo-boo 20 min. from city centre	163 rooms	Japanese spa and conference centre	Peaceful and Asian	Yes	Different Japanese restaurant, meditation, spa treatments
Park Inn Varnamo	City Centre	120 rooms	Easy to use and affordable	Fresh and energetic	Yes	Restaurant conference, relaxation- sauna
Hotel J, Sthlm	NackaStrand 15 min. from city centre	45 rooms	Marine style, New England	Lobby-living room feeling	no	Restaurant conference/meetings

Forsgren, S. (2004)

This table shows an example of hotels with concepts that was researched by Forsgren (2004) in his research into hotels with concepts in Sweden. Table 3.3 shows the different types of conceptual hotels and the variety of types they come within.

Themed Hotels

A themed hotel is generally described as a hotel that has an underlying concept, these types of hotels turn service into customer experience. The leading brands within

these types of hotels are the Walt Disney Hotel & Resorts. Walt disney allready has a theme, the theme in return automatically transforms the hotel into a unique experience (Pine and Gilmore, 2002).

Design Hotels

Within an international consortium with designed hotels, have concluded that customers are not just after service, but are primarily searching for an escape from there reality, they seek personal answers, beauty, miracles and secrets (Design Hotels TM). Customers in contemporary times, desire to escape their own daily lives to experience pre-conceived pleasures, hotels are not homes from home. The main objective of a designed hotel is to create lifestyle brands that match like-minded people (Forsgren, S. 2004).

Boutique Hotels

Boutique hotels operate as independent without any chain affiliations but they offer their own luxuries and first class hotel segments. The significance of boutique hotels is that they have their own modern characteristics and unique identities, the average rooms per hotel being 86. Their guest rooms are designed with high tech solutions and contemporary design compositions, there shining point is the way they service guest, they have unique service, and often serve frequent personal costumer, and contain guest relations (Forsgren, S. 2004).

Lifestyle Hotels

There is variety of ways to define world lifestyle/ lifestyle hotels. Lifestyle hotels are commonly designed to match the emotional needs of a guest. They also in co-operate themes of independence and privacy, and are sometimes referred to as design hotels and boutique hotels (Forsgren, S. 2004).

Co-Branded Hotels

Co- branded hotels are quite a new trend of hotels to enter the industry along with cross- brand hotels. These types of hotels are hotels that are attached or share a brand. Fashion products influenced these types of hotels were the trend was started in the hotel industry, the first of these types of hotels is the Palazzo Versace hotel, Gold Coast, Australia (Forsgren, S. 2004).

Service Quality Hotels

The most common description of a service quality hotel is almost everything a unique hotel is not, but in a way is expected to have. The rooms are spacious and comfortable, elegant and furnished to desirably high standards. Business rooms are all equipped in having air conditioning, mini-bar, service facilities for beverages, internet connection, work desk and other utilities alike (Forsgren, S. 2004).

3.1.5 Hotel Lobby Design

The ever changing hotel industry has evolved the lobby scene alongside these changes. According to (Rutes, Penner, & Adams, 2001) the introduction of the passenger elevators in 1859 has effected efficiency significantly. A century later American hotels in particular participated significantly in social aspects, polical and economical. It was only during this time that hotel design trends focused on more spacious lobbies (Berens, 1997). The modern technologies and social changes in contemporary times resulted older hotels built in 1950- 1970s to redesign thier lobbies to adapt to modern standards, such as the designing of high standard lighting aplications, sculptural furnishings, aesthetic wall colors, and finishes (Thapa, D. 2007).

Functional architecture and interior design decor, facility aesthetics, contributes to the visual aesthetics and attractiveness of the phisical environment (Wakefield & Blodgett, 1999).The most imposing elements within hotel lobbies such as the lighting, textures, colors, quality furnishings/material usage, conceptual style, preccence of certain focal pointsm and interior scaping, can have positive affects on the guests, client satisfaction may come throught the commonly desired feateres that play an important role within the interiors of lobbies (Thapa, D. 2007). The conceptual uniqueness of a lobby may divert a large amount of attention that makes the first impressions of the guests memorable if designed well (Miller, 1995). The changes in the design of buildings change is affected, and transformed by the new era of political, social, anddemographic transitions. The continual change in technology will be the main factore in the desgn of hotel buildings (Rutes, Penner, & Adams, 2001).

3.1.5.1 Lighting Design in Hotels and creation of Spatial Charecter via Lighting

Within this part the main usage areas of a five star hotel will be investigated, the main types of lighting that is needed for these spaces ill be explained in a systimatical manner explaining briefly the space its function and the nesecary lighting that is commonly used within these types of five star hotel spaces.

Lobby

The lobby is one of the most important spaces within a hotel due to the reason that the lobby has the first impressions upon the guests; the receptionist plays the role of the hotels business card. The lobby space is the first space that customers enter within a hotel, this is generally where the guests are greeted and primarily find their own way throughout the hotel. The initial sight of good lighting and a friendly welcome, allow for the guest with their communicative processes within the space.

The lighting not only makes the visual communication, it is also the definer of the main architectural concept of the hotel design, which can account for the differentiation line of brand and quality clear. Besides the visual aesthetics lights provide, the service personnel are in need of functional task lighting to illuminate their work area such as the reception. The lights within the lobby also sets the atmospheric tone for the arriving guests, lighting also significantly enhances the overall effect and impact of the lobby. Lighting Highlights of the main architectural components of the hotel create a warm welcome (Zumtobel, 2012).

The lobby of a hotel also serves as the initial representation of the overall hotel experience that guest will experience. The achievement of the 'Wow' factor is crucial through the use of significant design and finishes, the lighting helps in enhancing these features and presents them in a clear fashion (Ilumin intelligent control. n.d.):

- Sets the mood for the hotel experience
- Used for reception and social areas
- Welcomes the guests

The lobby is by far one of the most important spaces within a hotel environment there the lighting needs to be considered and designed as carefully as possible to create the desired first impressions of guests that arrive at the hotel.

Restaurant

The most important aspects within a resturant of a five star hotel is that it must have a distinctive concept and design, for dining and entertainment areas, it must be fresh and stylish change is invetable. Authenticity must be emphasised through lighting

within the dining area, accordingly with the catering concept wether they follow traditional concepts, fine dining, cool or exotic. These types of themes could only be achieved through the right type of lighting fixtures and effects (Zumtobel, 2012).

Social gatherings, chatiing, celebrations in relaxed atmospheres could only be achieved through approprait lighting to support the type of mood that the activity presents, lighting creates the ambience for such pleasures to take place. The lighting also highlights the architectural theme, concept, style within the restuarant it could offer intimicy or cool elegant settings. Color renderings of light fixtures contributes to the importance of the right excellence within the restuarant areas. İn addition the food and beverages must also be a feast for the eyes, presented in the same level of aesthetics of the general restuarant design (Zumtobel, 2012).

The main revenue generator of a hotel have become restuarants in the contemporary hotel environment. Most five star hotels alligne themselves to bring in top chefs and brands to bring in additional customers outside of the hotel guests. Consentrative lighting design and lighting control within these type of environments is crucial in the presentation of the overall dining experience (Ilumin intelligent control. n.d):

• Top revenue provider for the property
• Dining and social experience
• Extension of hotel personality

Some of the most common used lighting controls within restuarants is manual controls, or through the use of touchscreen controls, these type of controls are the

most apropriat restuarant aplications. With these type of lighting controls resturants can prefix the shcedual in witch lights fade, dim or provide more light levels. Touchshcreens allow for the minipulation of each lighting unit offering an personalized light level for each area and match the individual guests needs and preference (Ilumin intelligent control. n.d).

Bar

Within modern hotels bars can include different array of activities depending on the hotel, these activities can range from dj's, band, concerts, or nightclub style entertainment, or otherwise contain all within the same area. This type of entertainment could cater to business travelers, leisure travelers, and or local patrons(Ilumin intelligent control. n.d).

• Social gathering for patrons and local community

• Cutting edge interior designs and finishes

• Flexibility to cater to live music, DJ's,

Lighting obviously plays an important role within bars creating the neccesary mood/scene to cater to its audience, entertainment venues most commonly use lighting controls such as timeclock based scene changes, LED lights, RGB color, with a revio interface controlling each light indipendently (Ilumin intelligent control. n.d).

Guest Room

Guest rooms are an integral part of an hotel it is where guests reside and stay within the hotel guest rooms are best defined as rooms that make guest feel at home. Guest often want to navigate easily in unacusstomed spaces, functionally and horminic

interior designes coupled with right lighting solutions allow for guests to retain fond memories of thier stay (Zumtobel, 2012).

• Each guest desires different lighting levels for reading, writing, and watching TV similar to home.

• Guests expect at least as many features as they have in their home by providing control of lighting, integrated with shades, audio visual components, and temperature.

• Room must serve as a place to work, sleep, relax, and meet.

Hotel guest rooms in contemporary times need to meet the ever increasing expectaitions of the customer, wether it be business purposes or leisure travelers. Original traditional style rooms, require more design in contemporary modern hotels, with thier finishes, mattresses, lighting, electronics, and linens to meet the satifaction levels of thier guests(Ilumin intelligent control. n.d).

Spa&wellness

Most hotel now days are offering spa or wellness services. Their are a veriety of guest types that utilize spa facilities, trends show that these range from business travelers or normal leisure guests. Most high end hotels have partnered with certain brand names within the spa business and effer them exclusivvely within thier hotels. Some hotels that adopt the spa fecilities have intergrated thier spa's into suits where they include soaking tubs, private in- room massages and special body lotion and oils (Ilumin intelligent control. n.d).

• Guests expect more for their investment

• The ultimate in relaxation

The stresses of day the relaxation after a long say in harmony with ones self. Bathing and other facilities in private spaces are becoming of significant importance, it is intamacy and individualism combined in a perfect setting. These types of interiors require unconventional rooms and lighting concepts. The need for a luxurious and unique feelings, dyanamic lighting sequences allow for relaxation which is felt on a concious level (Zumtobel, 2012).

Hand- held lighting controls is often prefferend in these types of spaces the control of the ambience, allow guest to experience specific lighting levels without any interruptions, or other light inteferences.

New technologies and design

Hand held media devices, the opportunity of bieng reachable 24/7 is taken for granted. This is the reason why hotels must innovate and adapt to the new changes in technology such as optional integrations of ipod/ipad generation, WLAN internet acces points, have commonly become a standard facility that is utilized within premium hotel segments. Alongside this lighting management systems and dynamic LED lighting solutions are more commonly seen (Zumtobel, 2012).

Globalisation

Within our globalised world a cosmopolitan atmospheres must be considered to provide business travellers with a familiar theme to them, but with the regional charecteristics that the hotel resides within. The fusion of typical national stylistic elemets are in a ever greater combination with internationalisation. More so the asia-

pacific region hotels, where we could experience themed guest rooms, themed resturants and designed spa areas (Zumtobel, 2012).

Responsibility

Regenerative energy sources and environmentally benign operating methods are being considered when it comes to dealing with resource responsibility, where the differencing guest demands and expectationsconstantly rising. In correlation to the emphesis on value through the use of lighting must be considered. As talked about before control systems save around 30% energy and pontentially more, with improved operating convenience (Zumtobel, 2012).0

3.2 Hospitality Lighting

The concept of hospitality lighting is a method of using light for hospitality purposes this method of lighting is mostly used within more public spaces but has its fair share within private spaces. Hospitality lighting is mostly used within spaces such as, restaurants, hotels, cinemas, and other spaces alike. This type of lighting method is mainly used when customers are of priority and their comfort ability and relaxation is of utmost importance. Within this part hospitality lighting of hotels will be more dominant.

First impressions

The first impression of any type of designed space is integral part of effecting people's perception of a newly presented space. Hotels in general need a significant first impression for their customers, to feel the general level of visual aesthetics/ the character and theme of the hotel, it is vitally important that the hotel stands out, there should be distinct differences from one hotel to another, this is to give guests a memorial sensation of the experiences that are felt within the hotel, this serves both for revisiting and spreading of recommendations for the hotels (Thapa, D. 2007)

The first entrance of a guest in a hotel requires them to take a good look around. Good lighting design helps with their recollection of first impressions being positive. The focus of lighting elements to pin point certain areas of importance such as the reception desk/ interesting objects around the hotel entrance, helps with the hospitality and making customers feel welcome. Lighting of hotels also acts as a guide it is a virtual but silent guide to where important parts of hotels are brought to light. It is of importance to make the guests feel like they are being guided throughout the hotel whether it is along corridors to their rooms, the restaurant, the bar, the lift, the lobby and other places of importance alike (Philips Electronics N.V. 2010).

Personalizing guest experiences

The significance of lighting is that it plays an important role in personalizing guest experience, every guest within a hotel differentiates and their wants vary, therefore wants a customized experience during their stay within the hotel. The wants may be categorized by business, leisure, luxury or functionality. Most guests wants to personalize the given atmosphere and control lighting to suit their individual needs within their personal hotel rooms. With the right type of lighting, lighting controls enables the guests to set their own ambience and control of light levels within their rooms, this could be achieved by the HVAC lighting, blinds or other accessories such as the TV or bedside lamps. With meaningful lighting solutions can contribute to providing the guests with ultimate ambient hospitality experience (Philips Electronics N.V. 2010).

Some of the guest's experiences that long corridors disorientate them and make them feel claustrophobic. Good lighting solutions help to eliminate this and reverse this

effect, with the illumination of walls, ceilings, pieces of furniture, helps to break the monotone aspect of corridors. Another way to break this effect is have glare-free lighting methods, this reduces the chance of accidents happening due to low brightness levels, glare- free lighting and the right shadow effects contribute to spaces like stairwells and makes them safer. Sustainability of the lighting fixtures is another important issue within hotels there are different methods to save energy consumptions. One of the methods used is the occuswitch where luminaries and lamps switch off when there is no one around. This in itself provides 30% energy saving, also without the compromising of any guests during their stay (Philips Electronics N.V. 2010).

Chapter 4

CASE STUDIES: INVESTIGATING LIGHTING IN HOTEL ENVIRONMENTS

4.1 Introduction to Case Studies

Seven case studies of hotels were chosen a design company called Idea design, the hotels chosen for the case studies, differentiate according to the hotel type, however all seven hotels are five star hotels. The main reason behind the hotels being from the same design company is to evaluate how different hotel projects are approached and designed according to concept or the context of the hotel. The factors that will be examined within these hotels are as follows:

- The hotels that are selected is from Turkey, mainly from Antalya, some of the most prestigious hotels are on the coasts of Antalya.

- The lobbies of the hotels will be examined according to thier lighting design approach.

- The created effects of the lighting design will be examined and also the lighting methods/fixtures.

- The consistancy of the lighting design, from the lobby to other spaces of the hotel will be evaluated to determine the quality and thought that is considered for the lighting.

These are the main factors that are observed within the five star hotels, taken that all of the case studies are from the same design company, the differences and similarities between each case are more simplified.

4.1.1 Method of Evaluation for the Case Studies

The methodology that will be used for the analysis contains tables and discussions determining the observations of the seven hotels, the table analyzes certain aspects of lighting elements, fixtures effects, and methods that are examined in each case study. The table analysis for the case studies will be the lobby area of the hotel that will be the main focus of the thesis and its relation to the spatial character. the lobbies will have separate tables examining the criteria factors that will conclude the differences or similarities that the areas have between them. the structure for the methodology will be,

1. Introduction to the Hotel.
2. Visual examples of Hotel.
3. Analysis Tables of lobby.
4. Discussions on the design approuch towards lighting and conceptual charecter.

The tables will evaluate factors such as the light sources that are used within the lobby and guest room areas of the hotels, lighting elements, and lighting techniques. Furthermore other aspects of the case studies will be discussed, such as the general concept of the hotels, and Idea design companies general design approach considering the character of the hotels and the lighting design.

4.1.2 Idea Mimarlik Company

The company Idea Mimarlik is an Architectural design group, which focuses the designing of places and products, additionally manages multi disciplinaries within the processes (Idea Mimarlik).

The main aims of the Idea Mimarlik group is to match user needs with contemporary day design solutions and finalizing the projects on preplanned times and budgets weaver they are home projects, shops, social places and fair stand designs and solutions (Idea Mimarlik).

Their visions for the projects are summarized as,

> ‘‘Functionality, plastic, modern forming, corresponding the needs of end user and imposing the corporate identity to place" (Idea Mimarlik)

This is the vision they hold to integrate processes of building places in every levels. Idea Mimarlik designs places as a showcase of modern design with a modern identity shaped by the relations of place components individually which is open for improvement and change (Idea Mimarlik).

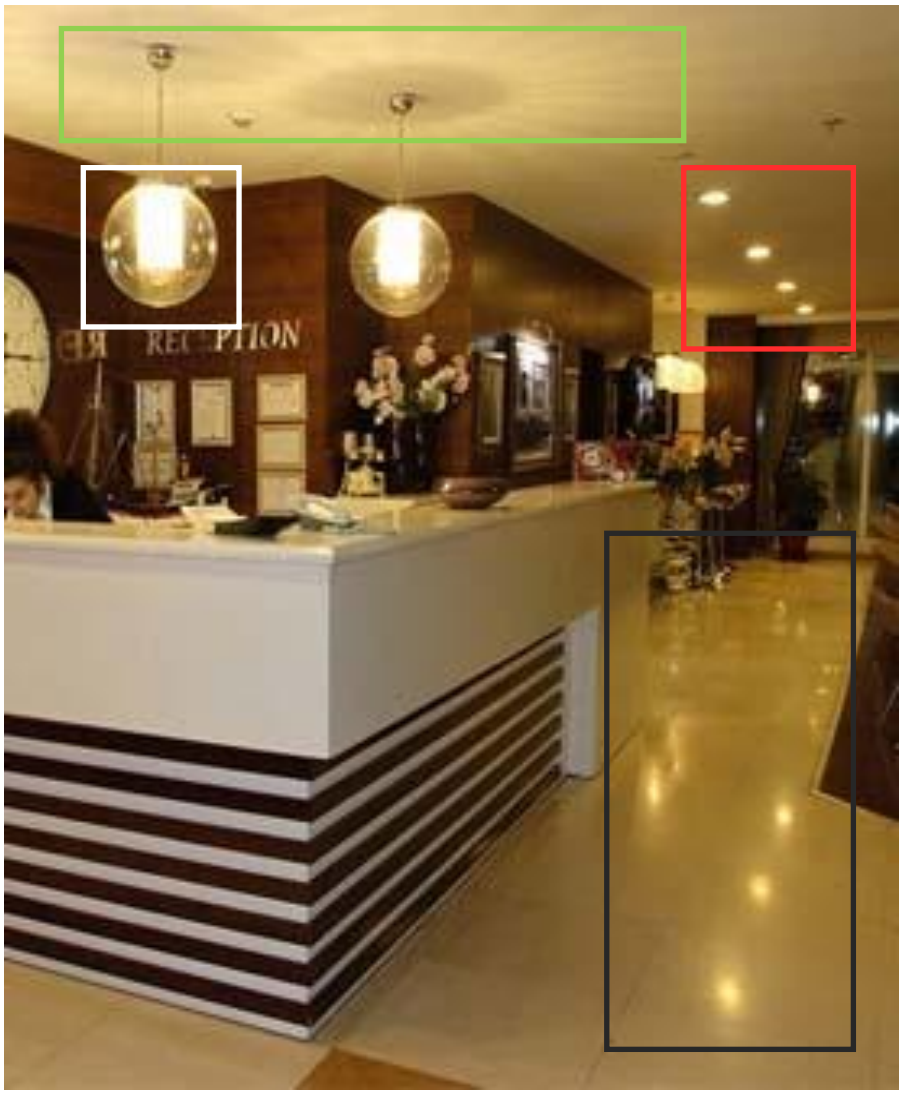
The seven case studies that are chosen for this thesis is the designs of a company called Idea Mimarlik. Discussions will be made on the design approaches and conceptual attitudes upon the hotels that were chosen.

4.1.2.1 Alba Ankara Hotel

Table 4.4: Case study 1 Alba Ankara hotel

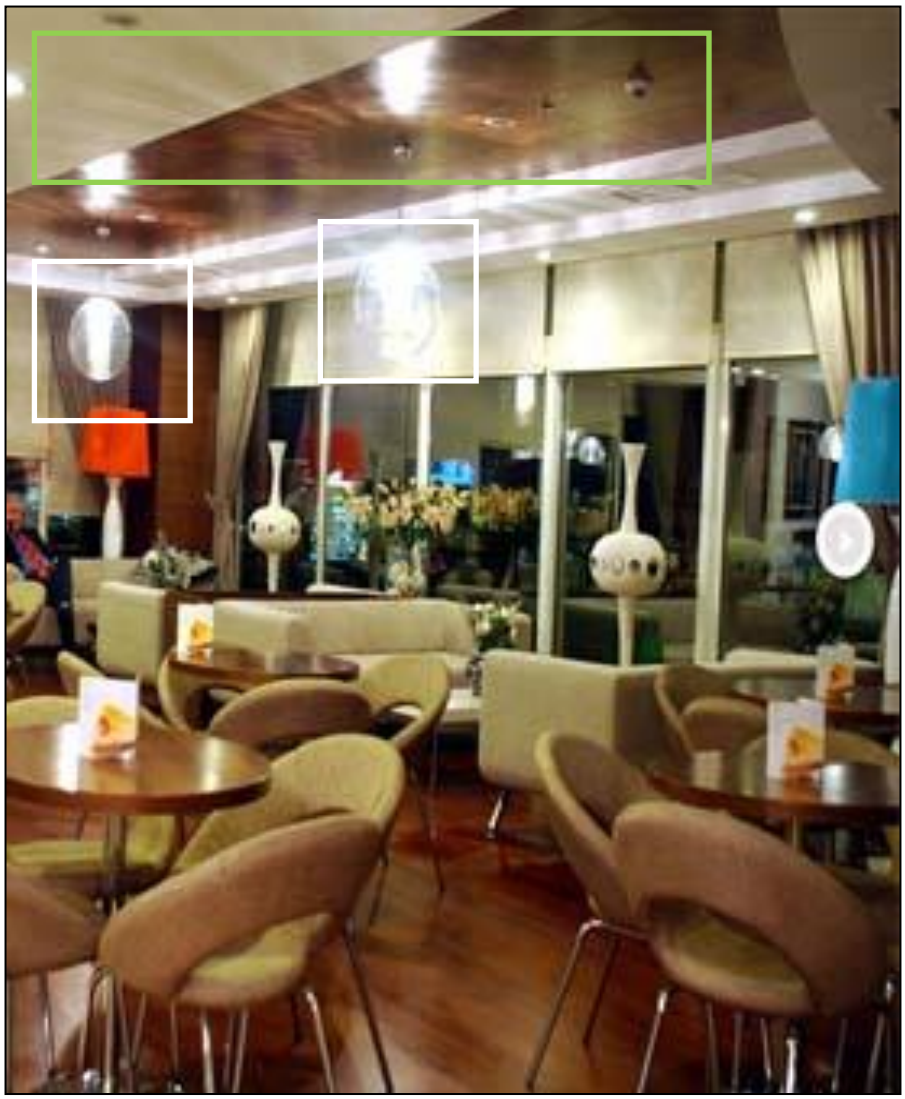
CASE STUDY 1
NAME OF HOTEL: ALBA ANKARA HOTEL
LOCATION: CITY CENTRE ANKARA TURKEY
   
BRIEF EXPLANATION OF HOTEL
There are many Hotel chains of the Alba Hotel family, The Alba Ankara Hotel is at the centre of Ankara. The design behind the Alba Ankara Hotel is that it adapts attention with its modern architecture, its location being close to prestigious historical places, its quality and institutional service intellect.

Table 4.5: Case study 1 Hotel lobby

CASE STUDY 1	
ALBA ANKARA HOTEL LOBBY	
	
COLOR KEY	Up lighting Down lighting Accent Wall mounted lighting Direct lighting Indirect lighting Cieling lighting

CASE STUDY 1

ALBA ANKARA HOTEL LOBBY



COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

Table 4.6: Case study 1 Lighting evaluation

CASE STUDY 1: ALBA ANKARA HOTEL LOBBY			
HOTEL LOBBY LIGHTING EVALUATION			
LIGHTING METHOD		YES	NO
	AMBIENT LIGHTING	X	
	FOCAL LIGHTING		X
	TASK LIGHTING	X	
	ACCENT LIGHTING		X
LIGHTING TECHNIQUES			
	UP LIGHTING	X	
	DOWN LIGHTING	X	
	TABLE LAMP LIGHTING	X	
	WALL MOUNTED LIGHTING		X
	DIRECT LIGHTING	X	
	INDIRECT LIGHTING	X	
LIGHTING EFFECTS			
	SPACIOUS		X
	WELL LIT	X	
	DIM		X
	RELAXING		X
	INTENSIVE	X	

Evaluation of the lighting design

The Alba Ankara hotels lighting design is at a level of quality it is a five star hotel, the figures show the hotel lobby and waiting area of the hotel, judging by the observations done within these areas and the evaluation table. The lobby of the Alba hotel has a mixture of lighting methods and techniques. The most striking features of the lighting seen within the lobby of this hotel, is the general lighting output the lobby and waiting areas are well lit and visually clear there are different arrays of lighting techniques that were used, the mixture of free standing lamps, ceiling lighting and spot lighting, are the suppliers of the general lighting for the lobby and waiting area. The circulation of these areas are clear due to the lighting planning as seen in figure() with the spots defining the path with the added effect of the shiny floor surface emphasizing the circulation.

Table 4.7: Evaluation of findings

	FINDINGS	BRIEF COMMENTS
TYPES OF LAMPS	Compact fluorescents, incandescent lamps, spot Lighting.	Mixture of different lamp types and color renditions, with the use of high and low color brightness renditions.
METHOD OF LIGHTING	Ambient and task lighting	The use of a variety of lighting fixtures, the general lighting is well lit creating ambience and specific task light.
EFFECTS OF LIGHTING	Up-lighting, reflective surfaces, down-lighting, table lamps, direct and indirect lighting	The reflective floor surfaces adds to the lighting effects that are used within the lobby area
LIGHTING TEQNIQUES	Intensive, well lit	General lighting, creates a intensive and well lit lobby space

4.1.2.2 Baia bursa Hotel

Table 4.8: Case study 2 Baia Bursa Hotel

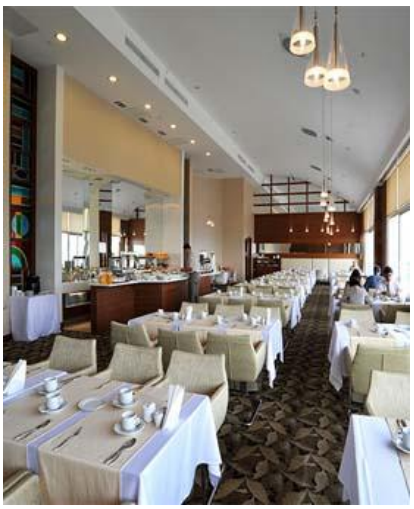
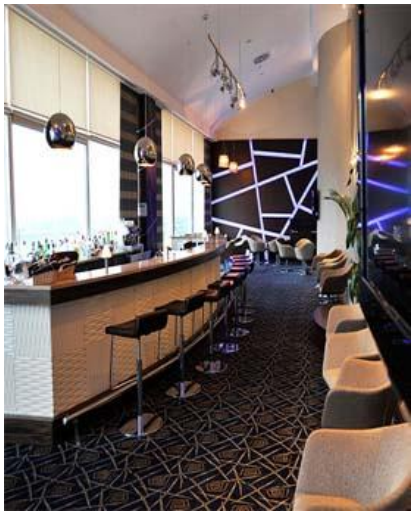
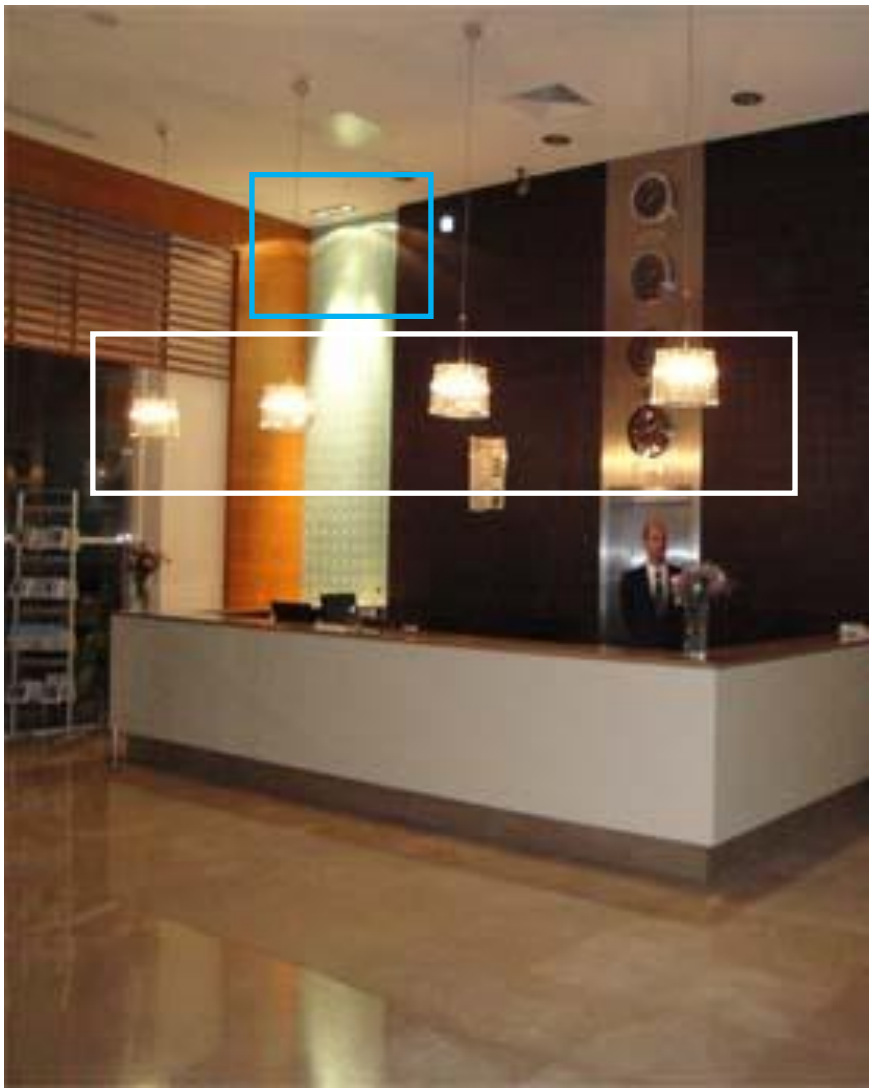
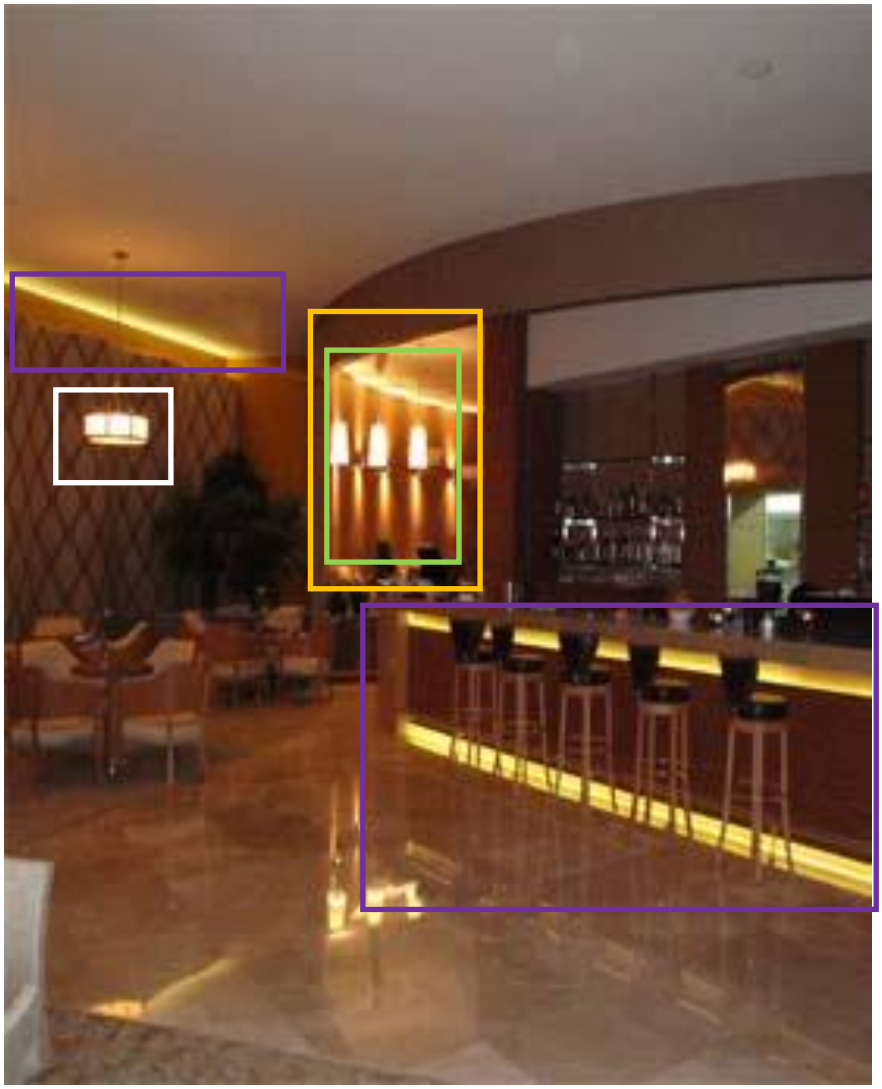
CASE STUDY 2
NAME OF HOTEL: BAIA BURSA HOTEL
LOCATION: CITY CENTRE BURSA TURKEY
   
BRIEF EXPLANATION OF THE HOTEL
The Baia Bursa Hotel is one of the establishments of the Sönmez Industry holding A.Ş it is located in the city centre of Bursa. The interior adapts a calm and relaxing atmosphere with a modern approach to the design.

Table 4.9: Case study 2: Hotel lobby

CASE STUDY 2	
BAIA BURSA HOTEL LOBBY	
	
COLOR KEY	Up lighting Down lighting Accent Wall mounted lighting Direct lighting Indirect lighting Cieling lighting

CASE STUDY 2

BAIA BURSA HOTEL LOBBY

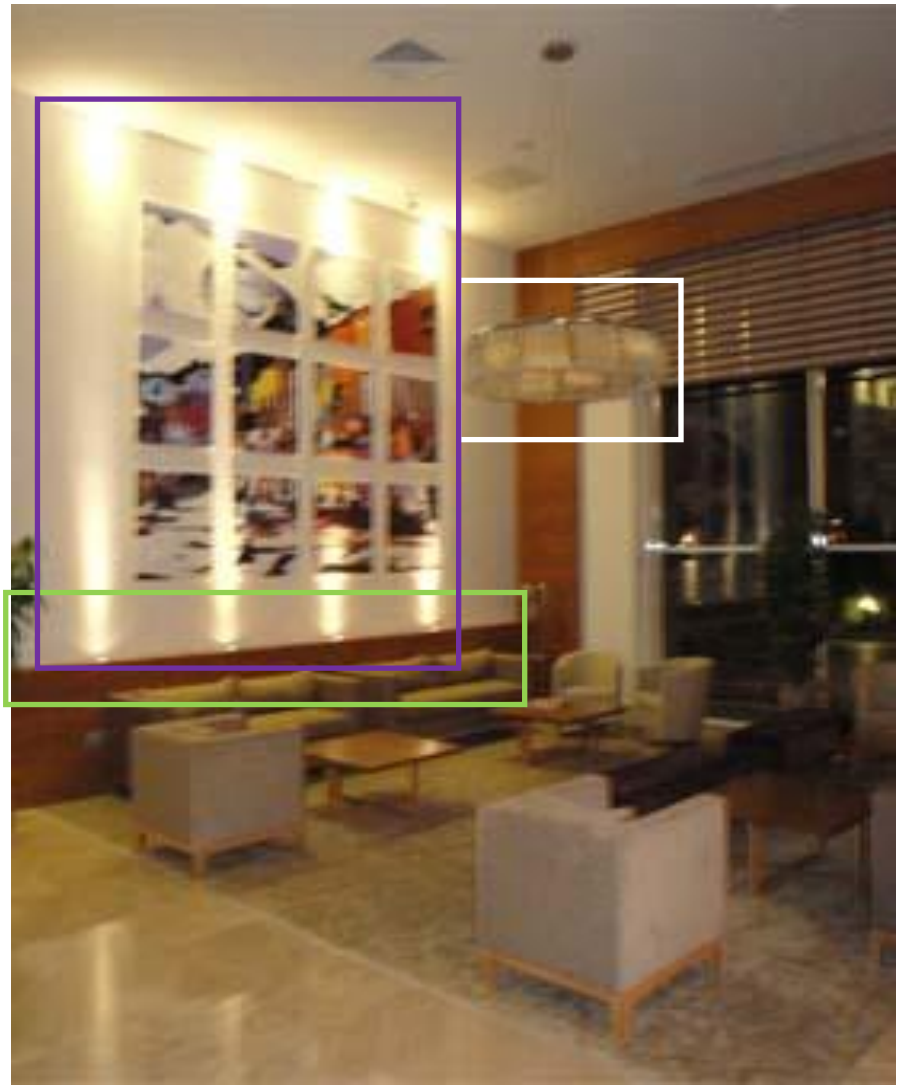


COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

CASE STUDY 2

BAIA BURSA HOTEL LOBBY

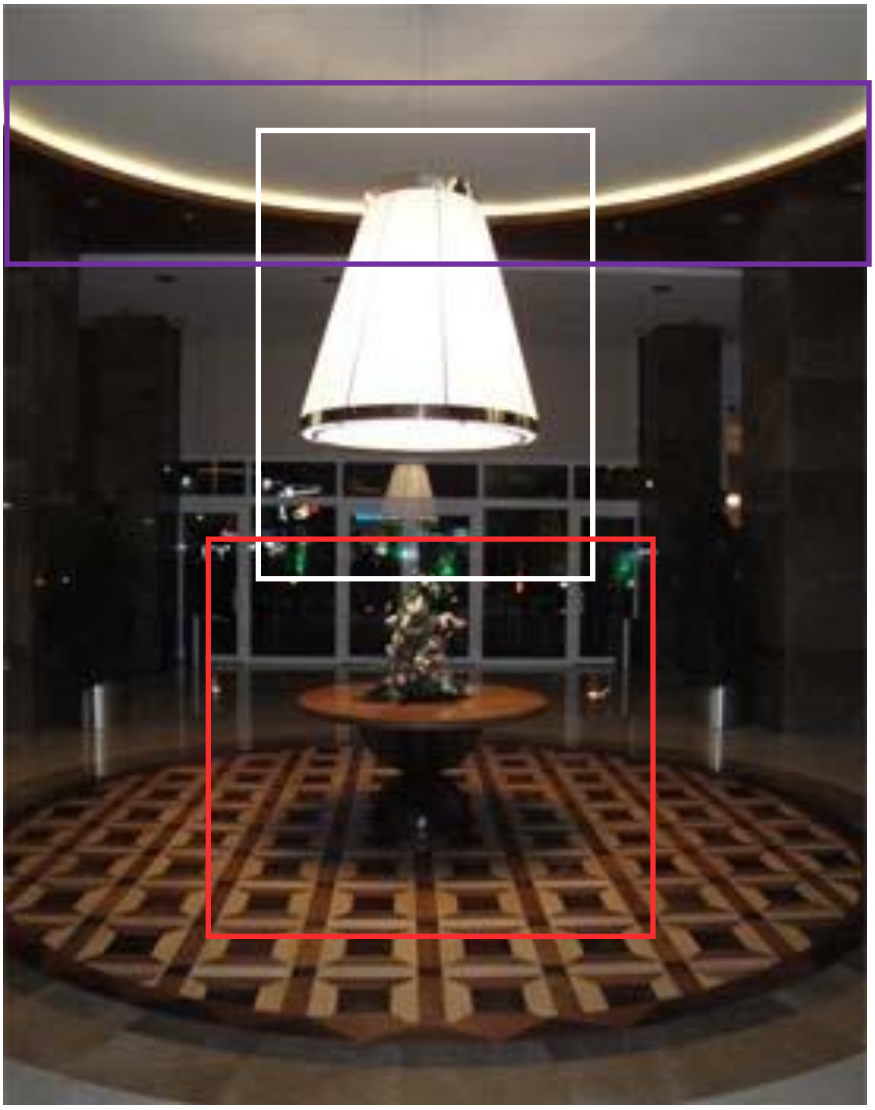


COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

CASE STUDY 2

BAIA BURSA HOTEL LOBBY



COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

Table 4.10: Case study 2 Lighting Evaluation

CASE STUDY 2: BAIA BURSA HOTEL LOBBY			
HOTEL LOBBY LIGHTING EVALUATION			
LIGHTING METHOD		YES	NO
	AMBIENT LIGHTING	X	
	FOCAL LIGHTING	X	
	TASK LIGHTING	X	
	ACCENT LIGHTING	X	
LIGHTING TECHNIQUES			
	UP LIGHTING	X	
	DOWN LIGHTING	X	
	TABLE LAMP LIGHTING		X
	WALL MOUNTED LIGHTING	X	
	DIRECT LIGHTING	X	
	INDIRECT LIGHTING	X	
LIGHTING EFFECTS			
	SPACIOUS	X	
	WELL LIT		X
	DIM	X	
	RELAXING	X	
	INTENSIVE		X

The evaluation of the lighting in the lobby

The Baia Bursa hotel has a dimmer brightness level within the lobby; however it makes up for it with a relaxing feel to the general space. There is a focal lighting element within the lobby accent lighting a piece of furniture, it is the major lighting fixture within the space and adds to the aesthetics of the lobby, there are also task lighting elements above the reception area. Accent lighting methods are used to wall wash and light up pieces of artwork. The wall colors and color renderings of the lighting elements create a harmony between the design and the general lighting of the space. The circulation of this lobby may be undefined; however the main areas within the lobby are accented as a point of interest. Overall the consideration of lighting design has been focused on at a certain level.

Table 4.11 Evaluation of findings

	FINDINGS	BRIEF COMMENTS
TYPES OF LAMPS	Compact fluorescents, fiber-optic lamps, spot Lighting.	The lamp types and color renditions are of low color brightness renditions. With points of high brightness.
METHOD OF LIGHTING	Ambient, task, focal and accent lighting.	There is a use of different lighting methods that are all in harmony of each other.
EFFECTS OF LIGHTING	Up-lighting, reflective surfaces, down-lighting, wall mounted fixtures, direct and indirect lighting	Accented main areas of the lobby, with a dim ambient style general lighting
LIGHTING TECHNIQUES	Dim lights, accent light interest points	General lighting creates a relaxed dim lobby area.

4.1.2.3 Baia Lara Hotel

Table 4.12: Case study 3 Baia Lara Hotel

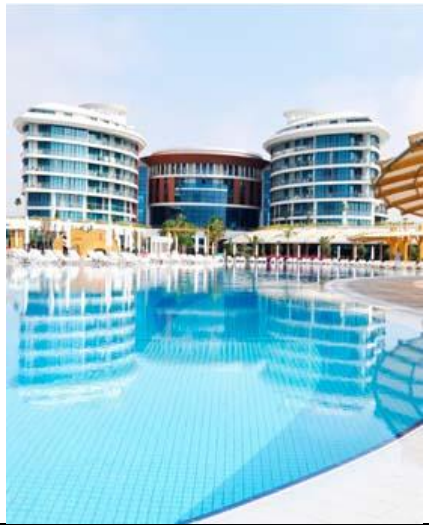
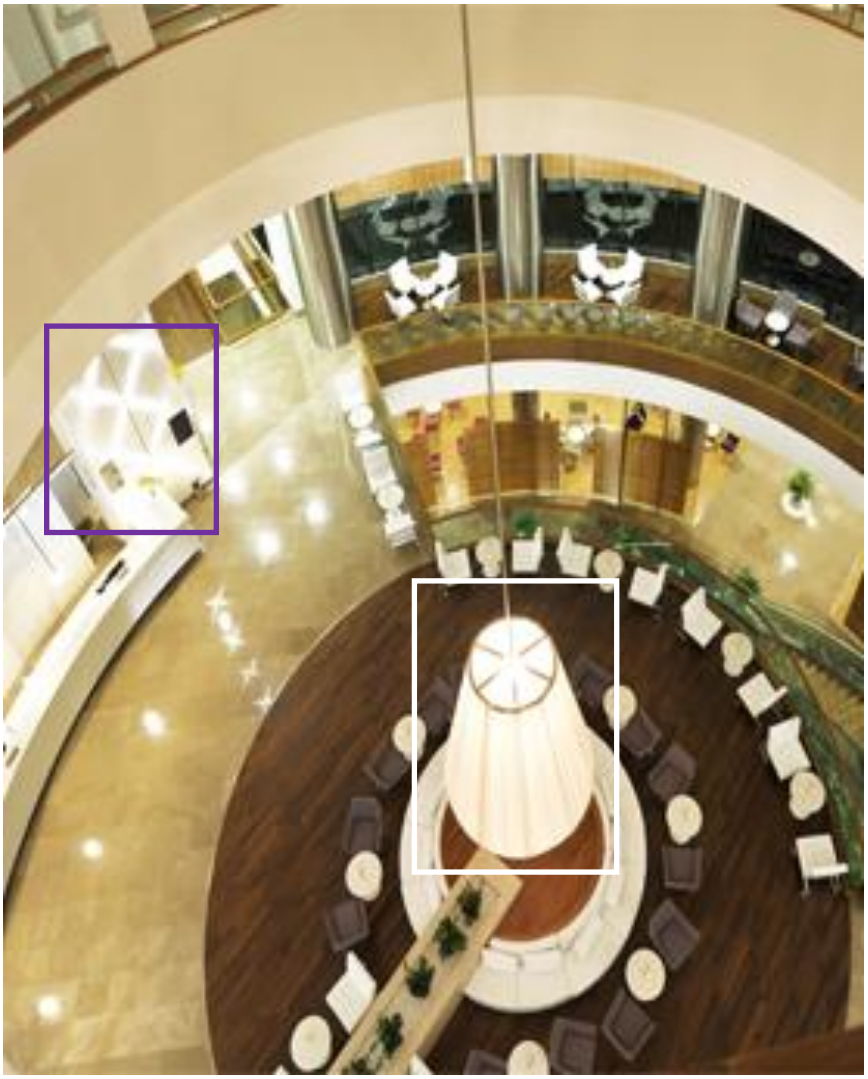
CASE STUDY 3
NAME OF HOTEL: BAIA LARA HOTEL
LOCATION: LARA REGION SHORE LINE HOTEL TURKEY
   
BRIEF EXPLANATION OF THE HOTEL
The Baia Lara Hotel is one of the last chains of establishment of the sönmez industries, built in the year 2009. The hotel is located on a shore of the Mediterranean sea within the Lara region. The main conceptual idea of the Hotel Baia Lara is that is stands out for its minimalist design, and for the high quality services. The total territory of the hotel is 57.000 m². Its distance to the sea is 0mt, with its distance to the Antalya city centre 17 km.

Table 4.13: Case study 3: Hotel lobby

CASE STUDY 3	
BAIA LARA HOTEL LOBBY	
	
COLOR KEY	Up lighting Down lighting Accent Wall mounted lighting Direct lighting Indirect lighting Cieling lighting

CASE STUDY 3

BAIA LARA HOTEL LOBBY



COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

CASE STUDY 3

BAIA LARA HOTEL LOBBY

COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

CASE STUDY 3

BAIA LARA HOTEL LOBBY

COLOR KEY

- Up lighting
- Down lighting
- Table Lamps
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

Table 4.14: Case study 3 Lighting evaluation

CASE STUDY 3: BAIA LARA HOTEL LOBBY			
HOTEL LOBBY LIGHTING EVALUATION			
LIGHTING METHOD		YES	NO
	AMBIENT LIGHTING		X
	FOCAL LIGHTING	X	
	TASK LIGHTING	X	
	ACCENT LIGHTING	X	
LIGHTING TECHNIQUES			
	UP LIGHTING	X	
	DOWN LIGHTING	X	
	TABLE LAMP LIGHTING		X
	WALL MOUNTED LIGHTING	X	
	DIRECT LIGHTING	X	
	INDIRECT LIGHTING		X
LIGHTING EFFECTS			
	SPACIOUS	X	
	WELL LIT	X	
	DIM		X
	RELAXING	X	
	INTENSIVE	X	

The evaluation of the lighting in the lobby

The lighting in the Baia Lara hotel is of exceptional quality, there is almost a showcase of all lighting types, methods and techniques, the lobby hall is very spacious and designed with quality materials and lighting solutions, the hotel lobby adapts a focal lighting positioning with a large chandelier that provides aesthetics and general lighting, in addition providing a complimentary essence to the general design of the hotel. The lighting elements are part of the design rather than being singular elements within the composition. In this lobby the light is not only used as an illumination source, the wall mounted lighting elements serve as an aesthetical decorative element with given function of general lobby lighting.

Table 4.15: Evaluation of findings

	FINDINGS	BRIEF COMMENTS
TYPES OF LAMPS	Compact fluorescents, fiber-optic lamps, spot Lighting.	The lamp types and color renditions are of high color brightness renditions. With points of low brightness.
METHOD OF LIGHTING	task, focal and accent lighting.	There is a use of different lighting methods that are all in harmony of each other.
EFFECTS OF LIGHTING	Up-lighting, reflective surfaces, down-lighting, wall mounted fixtures, direct and indirect lighting	Accented main areas of the lobby, with a well lit ambient style general lighting
LIGHTING TECHNIQUES	intensive lights, accent light interest points, focal lighting	General lighting creates a uplifting intensive feel, visually clear.

4.1.2.4 Commodore Hotel

Table 4.16: Case study 4 Commodore Hotel

CASE STUDY 4
NAME OF HOTEL: COMMODORE HOTEL
LOCATION: EVRENSEKI SHORE LINE TURKEY
   
BRIEF EXPLANATION OF HOTEL LOBBY
The Commodore Hotel is also located on a shore line in Evrenseki, it is a five star hotel built in 2012 to the owner Sağ- Tur A.Ş. the concepts of luxury is present within the hotels design with the use of modern colors and ambient spaces.

Table 4.17: Case study 4: Hotel lobby

CASE STUDY 4	
COMMODORE HOTEL LOBBY	
	
COLOR KEY	Up lighting Down lighting Accent Wall mounted lighting Direct lighting Indirect lighting Cieling lighting

CASE STUDY 4

COMODORE HOTEL LOBBY

COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

CASE STUDY 4

COMODORE HOTEL LOBBY

COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

CASE STUDY 4

COMMODORE HOTEL LOBBY

COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

Table 4.18: Case study 4 Lighting evaluation

CASE STUDY 4: COMMODORE HOTEL LOBBY			
HOTEL LOBBY LIGHTING EVALUATION			
LIGHTING METHOD		YES	NO
	AMBIENT LIGHTING	X	
	FOCAL LIGHTING	X	
	TASK LIGHTING	X	
	ACCENT LIGHTING	X	
LIGHTING TECHNIQUES			
	UP LIGHTING		X
	DOWN LIGHTING	X	
	TABLE LAMP LIGHTING		X
	WALL MOUNTED LIGHTING		X
	DIRECT LIGHTING		X
	INDIRECT LIGHTING	X	
LIGHTING EFFECTS			
	SPACIOUS	X	
	WELL LIT	X	
	DIM		X
	RELAXING	X	
	INTENSIVE		X

Evaluation of the lighting in the lobby

Similarly to the previous case studies, the use of a major focal lighting element is a commonly used design theme. The ceiling plan of the commodore hotel is designed with the use of lighting elements, accent lights are used to bring light to the formations that a extended from the ceiling, the lighting is also used to accent certain design elements within the space. The main focal lighting is accented with fiber-optic lights around the ceiling edges to bring forward the initial interior form of the building. The spaces between the lobby and the waiting differentiate in the color renditions of the lighting elements some of the lights are warmer tones then the more brightly lit cold color lamps. over all it is well lit and is not so intensive.

Table 4.19: Evaluation of findings

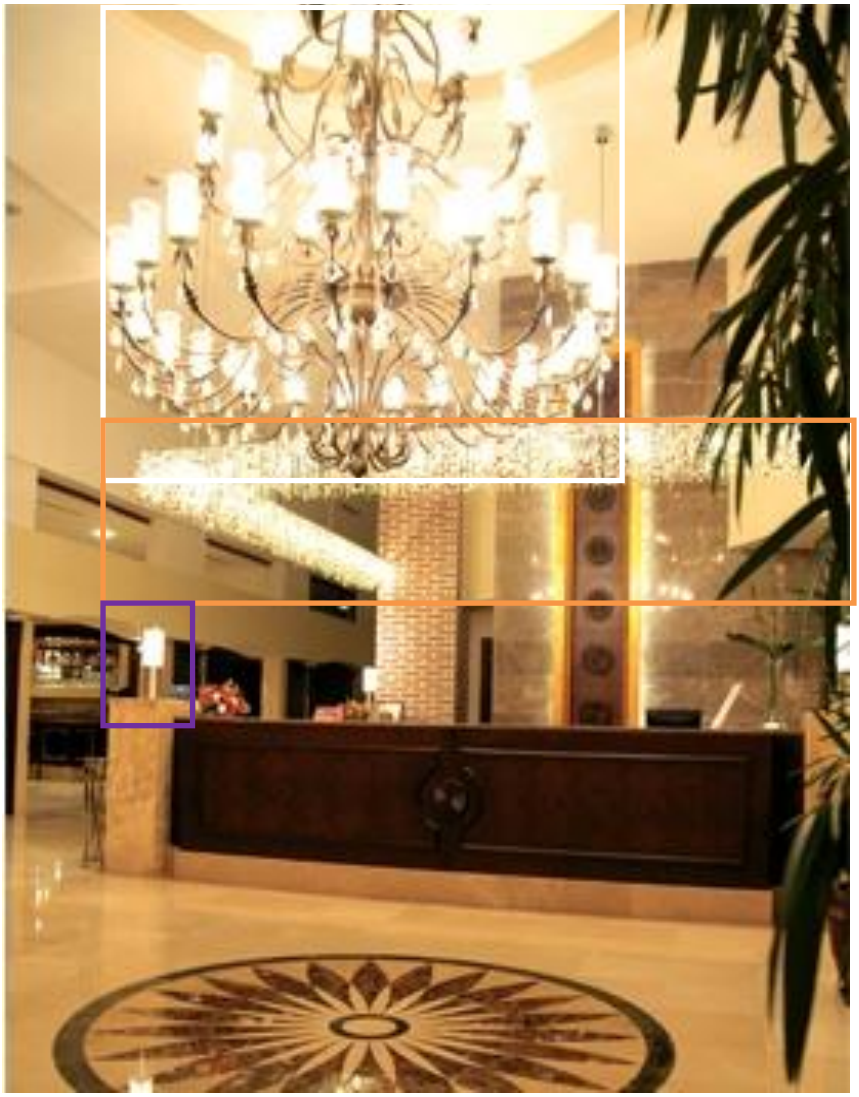
	FINDINGS	BRIEF COMMENTS
TYPES OF LAMPS	Compact fluorescents, fiber-optic lamps, spot Lighting.	The lamp types and color renditions are of low color brightness renditions. With points of high brightness.
METHOD OF LIGHTING	Ambient, task, focal and accent lighting.	There is a use of different lighting methods that are all in harmony of each other.
EFFECTS OF LIGHTING	Up-lighting, reflective surfaces, down-lighting, direct and indirect lighting	Accented main areas of the lobby, with a dim ambient style general lighting
LIGHTING TECHNIQUES	Well lit, accent light interest points, relaxing nature	General lighting creates a relaxed dim lobby area.

4.1.2.5 Oleander Hotel

Table 4.20: Case study 5 Oleander Hotel

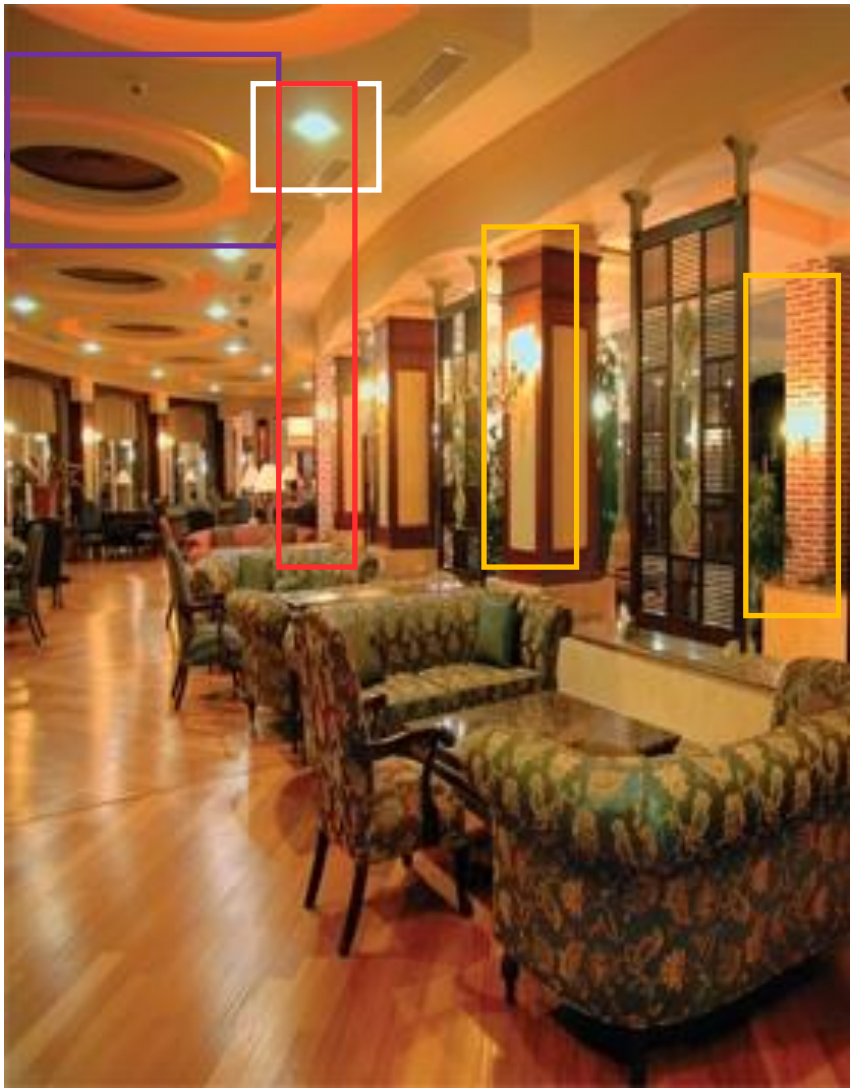
CASE STUDY 5
NAME OF HOTEL: OLEANDER HOTEL
LOCATION: SIDE REGION ANTALYA SHOREE LINE TURKEY
   
BRIEF EXPLANATION OF HOTEL LOBBY
The Oleander Hotel is also a shore line hotel with sandy beaches, with its location being in Side Antalya. A classy, bright and radial concept to the interior layout and design of the hotel, with brightly lit corridors and characteristic spaces.

Table 4.21: Case study 5 Hotel lobby

CASE STUDY 5	
OLEANDER HOTEL LOBBY	
	
COLOR KEY	Up lighting Down lighting Table Lamps Accent Direct lighting Indirect lighting Cieling lighting

CASE STUDY 5

OLEANDER HOTEL LOBBY



COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

CASE STUDY 5

OLEANDER HOTEL LOBBY

COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

CASE STUDY 5

OLEANDER HOTEL LOBBY

COLOR KEY

- Up lighting
- Down lighting
- Table Lamps
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

Table 4.22: Case study 5 Lighting evaluation

CASE STUDY 5: OLEANDER HOTEL LOBBY			
HOTEL LOBBY LIGHTING EVALUATION			
LIGHTING METHOD		YES	NO
	AMBIENT LIGHTING	X	
	FOCAL LIGHTING	X	
	TASK LIGHTING	X	
	ACCENT LIGHTING	X	
LIGHTING TECHNIQUES			
	UP LIGHTING		X
	DOWN LIGHTING	X	
	TABLE LAMP LIGHTING		X
	WALL MOUNTED LIGHTING	X	
	DIRECT LIGHTING	X	
	INDIRECT LIGHTING	X	
LIGHTING EFFECTS			
	SPACIOUS	X	
	WELL LIT	X	
	DIM	X	
	RELAXING	X	
	INTENSIVE		X

Evaluation of the lighting in the lobby

It can be noted that in the Oleander hotel the lighting design is at a significant level of uniqueness and conceptual form the lobby is connected to a series of corridor like spaces that are the waiting areas for the lobby these areas have design lighting elements on the ceiling. The circular elements provide both general lighting and can be controlled to create dim or well lit effects, the entrance lobby has more brightness when compared to the waiting areas another similarity between the hotels is the focal chandelier or other types of focal lighting. The circulation is definable with corridors reaching out from the lobby reception, the corridors also contain mini bars and lead to different areas of the hotel the lighting follows a pattern within the designed ceiling plan which spans out in a circle corridor.

Table 4.23: Evaluation of findings

	FINDINGS	BRIEF COMMENTS
TYPES OF LAMPS	Compact fluorescents, LED, spot Lighting, fiber - optics.	The lamp types and color renditions are of low color brightness renditions. With points of high brightness.
METHOD OF LIGHTING	Ambient, task, focal and accent lighting.	There is a use of different lighting methods that are all in harmony of each other.
EFFECTS OF LIGHTING	Up-lighting, reflective surfaces, down-lighting, direct and indirect lighting	Accented main areas of the lobby, with a dim ambient style general lighting
LIGHTING TECHNIQUES	Well lit, accent light interest points, relaxing nature	General lighting creates a relaxed dim lobby area.

4.1.2.6 Sungwing East Hotel

Table 4.24: Case study 6 Sunwing East Hotel

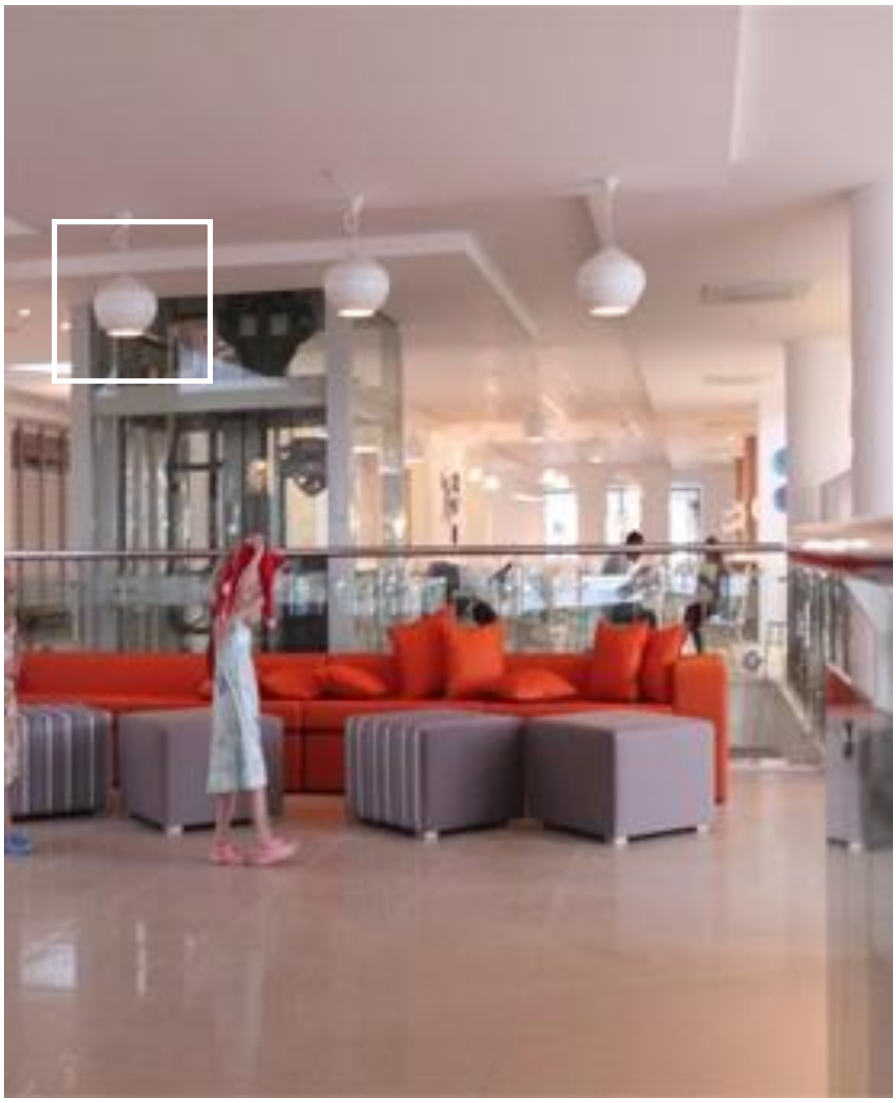
CASE STUDY 6
NAME OF HOTEL: SUNWING EAST HOTEL
LOCATION: SIDE REGION ANTALYA SHORE LINE TURKEY
   
BRIEF EXPLANATION OF HOTEL
The Family Company was established by Mr. Ali Barut in 1971 with Cennet Hotel in Side. Sunwing Resort & SPA were added into the hotel-chain in 2007. Modern concept with rodubst use of colors but also elegant within the space and layout of the hotel.

Table 4.25: Case study 6: Hotel lobby

CASE STUDY 6	
SUNWING EAST HOTEL LOBBY	
	
COLOR KEY	Up lighting Down lighting Accent Wall mounted lighting Direct lighting Indirect lighting Cieling lighting

CASE STUDY 6

SUNWING EAST HOTEL LOBBY

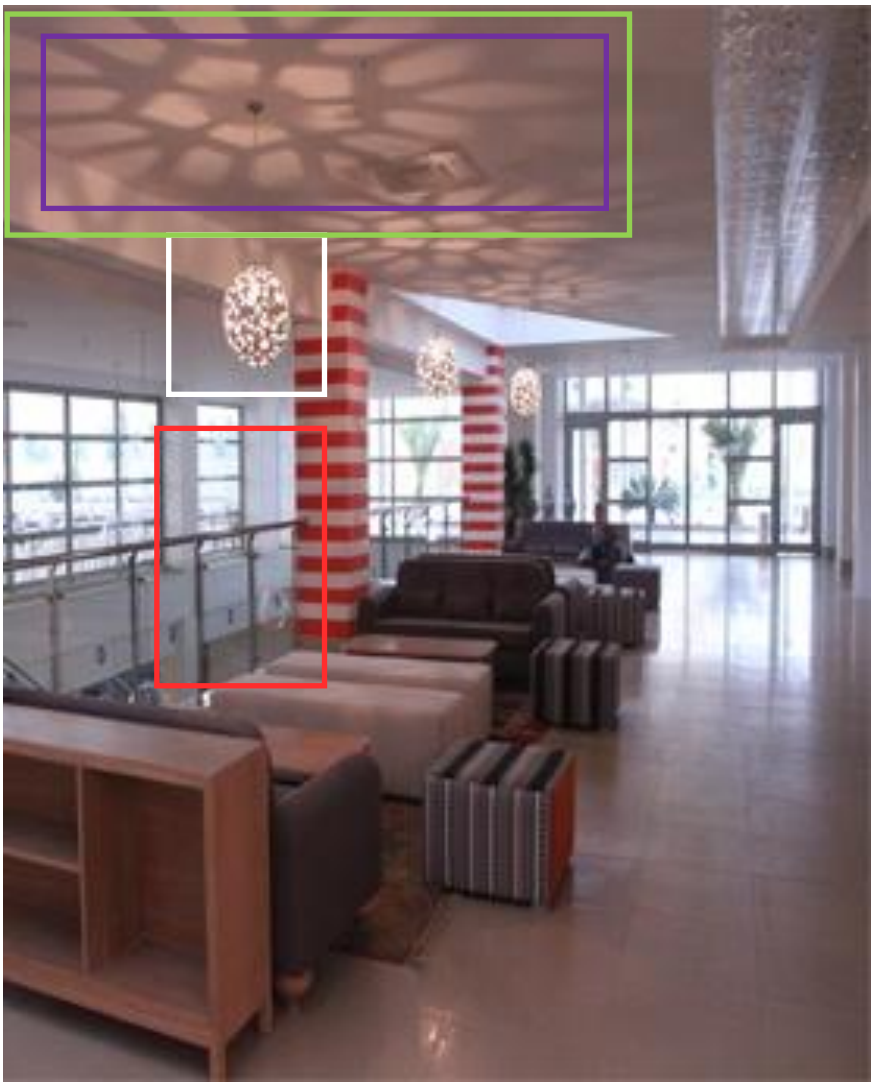


COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

CASE STUDY 6

SUNWING EAST HOTEL LOBBY



COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

CASE STUDY 6

SUNWING EAST HOTEL LOBBY

COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

Table 4.26: Case study 6 Lighting evaluation

CASE STUDY 6: SUNWING EAST HOTEL LOBBY			
HOTEL LOBBY LIGHTING EVALUATION			
LIGHTING METHOD		YES	NO
	AMBIENT LIGHTING	X	
	FOCAL LIGHTING	X	
	TASK LIGHTING	X	
	ACCENT LIGHTING	X	
LIGHTING TECHNIQUES			
	UP LIGHTING	X	
	DOWN LIGHTING	X	
	TABLE LAMP LIGHTING		X
	WALL MOUNTED LIGHTING		X
	DIRECT LIGHTING	X	
	INDIRECT LIGHTING	X	
LIGHTING EFFECTS			
	SPACIOUS	X	
	WELL LIT		X
	DIM	X	
	RELAXING	X	
	INTENSIVE		X

Evaluation of the lighting in the lobby

The Sunwing East hotel has a very smooth adjacent lighting design; none of the lobby areas were extensively lit. There is a combination of dim lights that creates a relaxing and ambient feel within the lobby, the lighting elements and fixtures also serve as a design composition, been aesthetical in nature and providing diverse lighting patterns. Moreover the wall colors and materials used within the lobby are sided with the visually clear but dim interior lighting creating a harmonious and relaxing feel. The circulation of the hotel is clear due to the wide window openings providing natural light and the design of ceiling lighting. In addition the floor surfaces act as circulation definers with the gradients of light that they emit from the reflective surface.

Table 4.27: Evaluation of findings

	FINDINGS	BRIEF COMMENTS
TYPES OF LAMPS	Compact fluorescents, fluorescents, spots Lighting, incandescent lamps.	The lamp types and color renditions are of low color brightness renditions. With points of high brightness.
METHOD OF LIGHTING	Ambient, task, focal and accent lighting.	In general ambient and visually clear spaces
EFFECTS OF LIGHTING	Up-lighting, reflective surfaces, down-lighting, direct and indirect lighting	Singular designed lamps hanging from ceiling. is the proffered lighting style
LIGHTING TECHNIQUES	Well lit, accent light interest points, relaxing nature	General lighting creates a relaxed well lit lobby area.

4.1.2.7 Trendy Verbana Hotel

Table 4.28: Case study 7 Trendy Verbana Hotel

CASE STUDY 7
NAME OF HOTEL: TRENDY VERBANA HOTEL
LOCATION: EVRENSEKI REGION ANTALYA SHORE LINE TURKEY
   
BRIEF EXPLANATION OF HOTEL
Trendy Verbena Beach Hotel invites you to a unique vacation with modern architecture and Trendy Verbana Hotel's principle that the quality policy since 1994. Trendy Verbana Beach is built on a beach which reflects the character of the most beautiful way in Evrenseki. There is an essence of an ottoman style and concept behind the main features of the hotel.

Table 4.29: Case study 7 Hotel lobby

CASE STUDY 7	
TRENDY VERBANA HOTEL LOBBY	
	
COLOR KEY	Up lighting Down lighting Table Lamps Wall mounted lighting Direct lighting Indirect lighting Cieling lighting

CASE STUDY 7

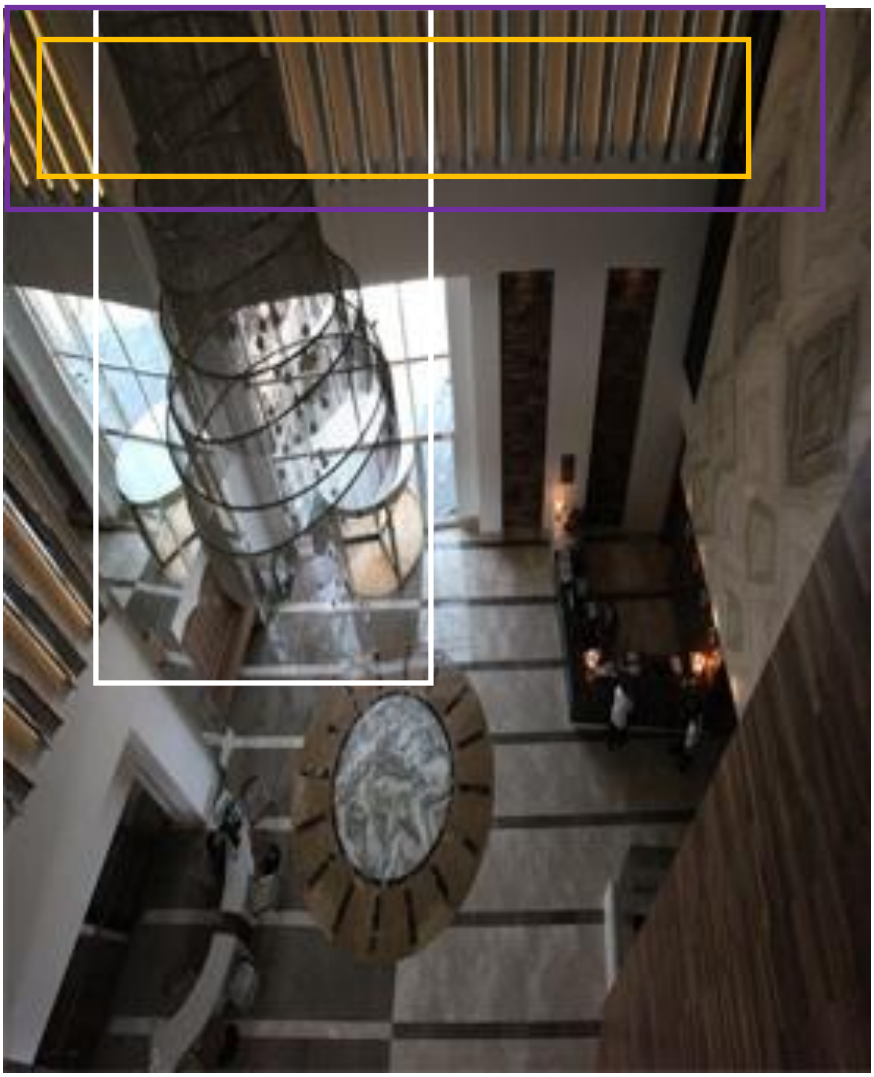
TRENDY VERBANA HOTEL LOBBY

COLOR KEY

- Up lighting
- Down lighting
- Table Lamps
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

CASE STUDY 7

TRENDY VERBANA HOTEL LOBBY

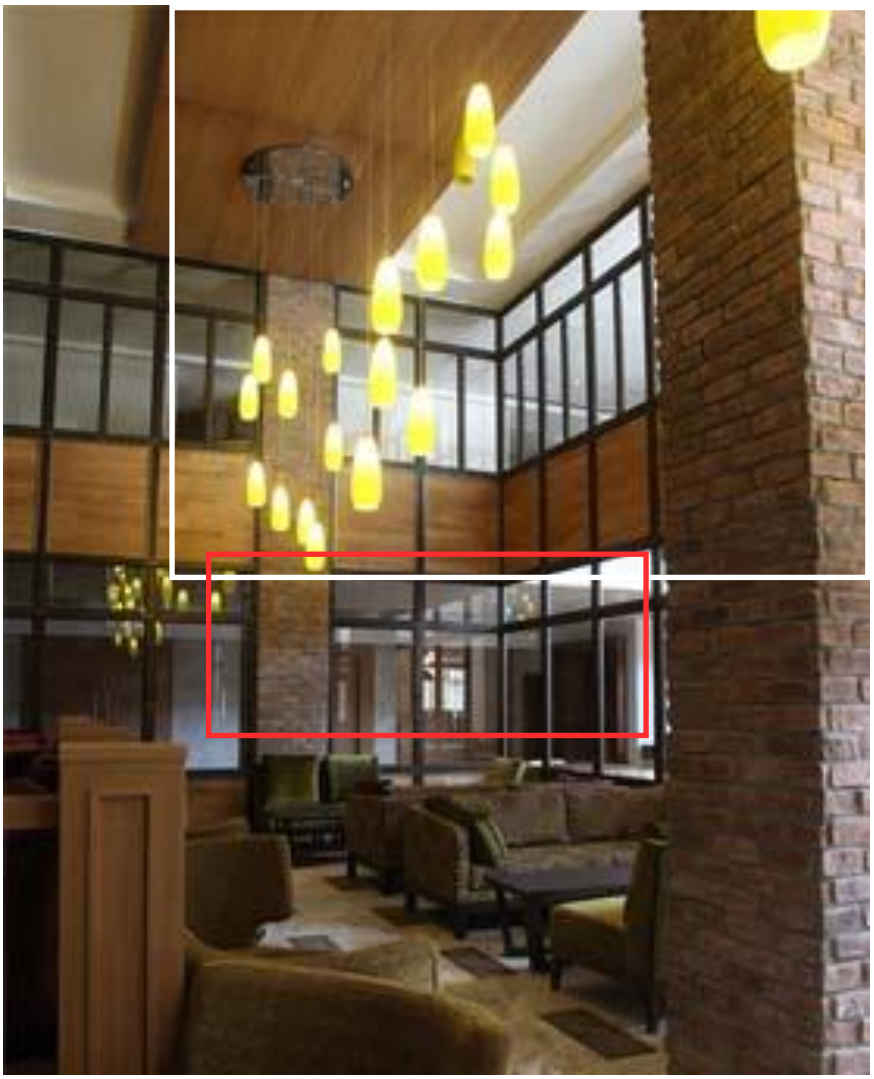


COLOR KEY

- Up lighting
- Down lighting
- Accent
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

CASE STUDY 7

TRENDY VERBANA HOTEL LOBBY



COLOR KEY

- Up lighting
- Down lighting
- Table Lamps
- Wall mounted lighting
- Direct lighting
- Indirect lighting
- Cieling lighting

Table 4.30: Case study 7 Lighting evaluation

CASE STUDY 7: TRENDY VERBANA HOTEL LOBBY			
HOTEL LOBBY LIGHTING EVALUATION			
LIGHTING METHOD		YES	NO
	AMBIENT LIGHTING		X
	FOCAL LIGHTING	X	
	TASK LIGHTING	X	
	ACCENT LIGHTING	X	
LIGHTING TECHNIQUES			
	UP LIGHTING	X	
	DOWN LIGHTING	X	
	TABLE LAMP LIGHTING	X	
	WALL MOUNTED LIGHTING	X	
	DIRECT LIGHTING	X	
	INDIRECT LIGHTING	X	
LIGHTING EFFECTS			
	SPACIOUS	X	
	WELL LIT		X
	DIM	X	
	RELAXING	X	
	INTENSIVE		X

Evaluation of the lighting in the lobby

The lobby for the Trendy Verbana hotel is very spacious, and there are not many lighting elements that light the space other than a very effective focal lighting element that is hung from the ceiling. The chandelier is the main lighting element used from the lobby the other smaller lighting elements that surround the spaces are task lighting elements that are used for the reception and show general points of interest in the large space of the lobby. The flooring also compliments the design and positioning of the chandelier by reflecting its pattern on the floor. The waiting area of the lobby is lit by more warmer color rendition lights, to make the space a relaxing area. Furthermore the entrance to the hotel has very large window openings that are designed to let a large amount of daylight enter into the lobby area.

Table 4.31: Evaluation of findings

	FINDINGS	BRIEF COMMENTS
TYPES OF LAMPS	Compact fluorescents, tungsten halogen, spot Lighting.	High power lamps to light lobby with focal lighting element.
METHOD OF LIGHTING	Ambient, task, focal and accent lighting.	Fewer lighting elements, but placed in necessary places.
EFFECTS OF LIGHTING	Up-lighting, reflective surfaces, down-lighting, direct and indirect lighting.	Accented interest points with large general lighting fixture.
LIGHTING TECHNIQUES	Well lit, accent light interest points, relaxing nature.	Creation of a very spacious lobby with only the application of needed lights.

Table: 4 32: Case study compilation of evaluations

		CASE STUDIES						
		1	**2**	**3**	**4**	**5**	**6**	**7**
LIGHTING METHOD	Ambient	X	X		X	X	X	
	Focal		X	X	X	X	X	X
	Task	X	X	X	X	X	X	X
	Accent		X	X	X	X	X	X
LIGHTING TECHNIQUE	Up Lighting	X	X	X			X	X
	Down Lighting	X	X	X	X	X	X	X
	Table Lamp Lighting	X						X
	Wall Mounted Lighting		X	X		X		X
	Direct	X	X	X		X	X	X
	Indirect	X	X		X	X	X	X
LIGHTING EFFECTS	Spacious		X	X	X	X	X	X
	Well Lit	X		X	X	X		
	Dim		X			X	X	X
	Relaxing		X	X	X	X	X	X
	Intensive	X		X		X		

4.2 Reflection of the General Design Concept and Lighting Design within the Chosen Hotels.

With the given descriptions of hotels in concepts in part 2 of the thesis hotel concepts within the case studies could be discussed under the basis of the literature review although there are no definable concepts; the main idea behind the concepts of the case studies could be discussed within a frame of design, material usage and the role of the lighting within the conceptual compositions of the chosen case studies also the design companies approach towards the designing and lighting of these hotels can be noted within the description.

Case study 1

The Alba Ankara hotel has certain design and conceptual approaches the main points of the conceptual ideas behind the Alba Ankara hotel is that there is a harmony between the color coordination in the material usage and lighting fixtures, color renditions that is used. One of the main issues with the design could be the lack of the main space definers within the hotel lobby but this is averted by the lighting fixtures that give the main areas an interest point indicator. There is an identifiable modern interior space within the hotel with the material usage and the style of space compositions. The spot lights give down lighting that is reflected of the surface of the lobby giving identifiable directional circulative aspects of the lobby area. Additionally the material variation on the ceilings adds the aesthetics and creates space quality and also defines the space. overall the Alba Ankara hotel is of modern contemporary design standards.

Case study 2

The Baia Bursa hotel has a modern approach to its design composition the spaces within the hotel are well defined with the addition of lighting that supports the space definitions, the use of accent lighting to pin point areas of certain appeal, as with most of the case studies the entrance hall companies a focal feature with a large lighting element which serves as an important space definer and is an aesthetics giver to a piece of furniture by highlighting the object. There is a variety of different materials that are used within the entrance lobby and waiting areas, the striking feature of the materials is that they feature different textures and makes the space fresher. The use of metallic colors within the window details are of futuristic nature. Lastly this hotel takes on a calmer approach to its style of design with ambient and relaxing spaces.

Case study 3

The general design of the Baia Lara hotel is of modern nature, with very well defined spaces within the lobby area and the hotel in general. The bar within the lobby is well defined with its form and lighting selection. The flooring materials are also a striking feature of the hotel with varieties such as carpets, marble flooring, and wood flooring. It is important to note that the most significant and well designed space of the hotel is the lobby area serving as a multi functional space, with the lobby being of importance the design is more focused and aesthetical, as with similarities to the other case studies the most focal point of the lobby is highlighted with a circular form with a major focal lighting element the other functions within this space is distributed in a radial manner. One of the conceptual ideas that might be adapted with this hotel might be the concept of unique hospitality, this could be supported with the use of the red carpet on the floor which creates a warm and inviting feel to

the lobby; achieving guest to feel comfortable such as an home environment. The concept of using different materials on the floor and defining spaces with the help of suspended ceiling and the special lighting creates a very successful space quality. Very modern and sophisticated design features.

Case study 4

The commodore hotel conceptual idea encompasses an homogenous spaces with suspended ceilings and accent lighting that highlight the design aesthetic. The concept of using breaking lines as a visual accent of lighting carries on through the hotel detailing the conceptual idea. Minimalist design is quite an opposite within the lobby of the hotel the material usage and flooring within the lobby is complex with a variety of materials which makes it modern but may not be so modest and minimalist. The partition and the use of natural stones on columns have division effects within the space. Overall the hotel design and conceptual idea is based around the breaking lines and highlights using accent lighting and different variations of forms.

Case study 5

The oleander hotel has a well designed lobby with fluid open plan spaces, but achieves very pure direction and circulation methods; the circular form is the basic form that is used within the hotel. The form allows pure direction through designed space composition, form and lighting. The lobby is brightly lit with ambient waiting areas the circular form is a repetitive feature within the waiting areas with suspended ceilings reflecting the main idea through the circular in direct lighting elements that are used for the ceilings of the waiting area. The general design is contemporary and up to date, the flooring and lighting defines the spaces within the hotel. The space resembles colonnaded archade type formation. With the use of modern partition

panels and use of natural materials wood and marble gives a fresh atmosphere to the general spaces. Overall it's a modern type hotel.

Case study 6

The general design and conceptual idea of the Sunwing hotel that it has a minimalist approach, with the furnishing and general design features the calm minimalist approach is livened up with the energetic and dynamic colors that are used in various places throughout the hotel. The pure minimalist comfort feels like home textures, with light wooden materials. The color coordination of this hotel adds aesthetics to the minimalist approach of the hotel, harmony of cold and hot colors, with the occasional eccentric colors. Also the light texture on the suspended ceiling gives a warm feeling to the general spaces of the hotel. The conceptual idea of this hotel is that it has a minimalist design.

Case study 7

The trendy verbena hotel is inspired from the Islamic ottoman architecture and interior design, the lobby spaces and the general interior design of the hotel is elegant and modern the type of material and positioning that the hotel adapts gives the feel of the ottoman inspiration, along with the ottoman inspiration the design takes the characteristics of ottoman interiors and manipulates it to suit contemporary design. Therefore it is not a simulation but rather a essence in regards to the spaces. The main features that resemble ottoman style architecture are the marble columns, carpets, the lighting colors and the material selection. On the other hand the lobby is designed in a modern way with very sophisticated and elite essence. The concept underlining the general design of the hotel could be the coloration of old features in new settings with the material selection.

The main features that are similar and common within the case studies are the use of a major focal point a centre with a large lighting element and the space is arranges according to the focal point. Other than the focal point each hotel has its own type of lighting design and aesthetical compositions.

Chapter 4

CONCLUSION

The findings and evaluations of the case studies, additionally the general aim of the thesis, points to the necessary lighting solutions of five star hotels. The main aim of the thesis was to investigate lighting effects and its correspondence to the general spatial character relationship within 5 star hotels. The hotels lobbies were the main focus as the type of space that gives the initial idea about the general spatial character throughout the hotel. With the assessment of the case studies the similarities and differences, along with the spatial character and what the lighting provides within the lobby spaces were definable with each hotel having their own lighting methods, techniques, effects and concepts. The conclusion of the findings assesses the lighting type's fixtures and the desired effects within the design of the hotels, the tables show detailed information on how the lighting methods, techniques and fixtures are used within each hotel.

Moreover the literature reviews composition was to provide both the scientific background and general information on lighting theory, fixtures, lamps, techniques, methods and effects. The information provided in the literature chapters were used to evaluate and create a certain criteria that follows the evaluation tables within the case study section. Alongside the scientific background and information on lighting, classifications and typology of hotels were analyzed to determine the level and standard of lighting design within five star hotels. The research into hotels provided a

ground for evaluation for the hotels within the case study; furthermore the Idea Mimarlik Companies, visions and aims were brought to light to make more accurate discussions on the lighting design and concepts for the case studies.

Overall the topics of the thesis were discussed through the perspective of lighting design and the commonality of lighting designs within five star hotels. The evaluations and analysis of the case studies concluded that lighting design of five star hotels, are design to play an integral role within the spatial composition of the spaces within the hotel. In addition the lighting fixtures are integrated into the initial design of the hotel indicating that the lighting design needs to be considered during the design process to achieve desired standards within five star hotel spaces. The case studies that were analyzed corresponded to the conclusive findings, the design and layout of five star hotels directly relate to how the lighting design is implemented into the initial layout, rather than the application of lighting fixtures being thought of after the process. It is also apparent that the lighting also plays a role in the visual aesthetics of the spaces, the example for this conclusive statement is that almost all of the case studies that were analyzed had a common design element which focused around a lighting fixture; the focal point within the spaces of the hotels exhibited a large and dominant lighting element which signifies the importance of the space and the general layout and style of the hotels. In conclusion the lighting elements of a hotel space, is complimentary to the general design and layout of the hotels, by providing focal points, aesthetics, accents, atmosphere and ambience, it also sets the mood of the hotel by ether being intense or relaxing, further more the significant point in the analysis brought to light the importance of the consideration of lighting design within the design process of hotel spaces.

Future recommendation

This thesis could provide an interior designer or researcher that is interested in the subject of hotels as a reference for further studies. Furthermore the analysis and evaluation of the case studies could serve future researchers as an criteria basis for evaluating projects that deal with lighting design.

REFERENCES

Andorka, F. (1995). Lobbying efforts. *Hotel and motel management*, *210* (19), 134-135.

Atkinson, R. & Hilgard, E. (2000). *Hilgard\'s introduction to psychology*. Wadsworth Publishing Co Inc; 13th revised edition.

Ayana, A. A. (2012, April 18). *The interior design contractor*. Retrieved from http://www.essencearticles.com/interior-design-and-decorating/the-interior-design-contractor

Bean, R. (2004). *Lighting interior and exterior*. UK: Elsevier Ltd. (Bean, 2004)

Berens, C. (1996). *Hotels, bars, and lobbies*. New York: McGraw-Hill.

Brown, M. (2001). Keeping up appearances. Financial Management, CIMA.

Caughey, C., Murdoch, J. (2004, March). *The psychological aspects of lighting: The work of John Flynn*. Presented at the meeting of the Interior Design Educators Council, Pittsburgh, PA.

Collins, D. (2001). *New hotel: architecture and design*. London: Conran octopus limited.

Design Hotels TM 10th anniversary, (2003). Lebensart global networks AB.

Edralin, D., & Castillo, P. (2001). Retrieved from http://dirp4.pids.gov.ph/ris/taps/tapspp0105.pdf

Elliot, J., & Johns, N. (1993). The influence of international tourism trends on the hotel design. *International journal of contemporary hospitality management*.

Fielding, R. (2006). *Designshare.com*. Retrieved from http://www.designshare.com/articles/1/133/fielding_light-learn-color.pdf

Flynn, J. E., Hendrick, C., Spencer, T., & Martyniuk, O. (1979). *A guide to methodology procedures for measuring subjective impressions in lighting*. Journal of the Illuminating Engineering Society.

Flynn, J. E., Spencer, T. J., Martyniuk, O., & Hendrick, C. (1973). *Interim study of procedures for investigating the effect of light on impression and behaviour*. Journal of the Illuminating Engineering Society, 3, 87-94.

Forsgren, S. (2004). *The marketing role of unique concepts for hotels in Sweden sofie forsgren*. Retrieved from https://gupea.ub.gu.se/bitstream/2077/2261/1/gbs_thesis_53.pdf

Futronix. (2006). *hotel lighting the smart way*. Retrieved from http://www.futronix.com/pdf/intelligent_lighting_for_hotels.pdf

Gibson, J. J. (1979). The ecological approach to visual perception. Boston: Houghton Mifflin.

Ginthner, D. (2012). *Implications*. Retrieved from http://www.informedesign.org/_news/feb_v02-p.pdf

Goldstein.E.B (2009), *Sensation and perception*, Cengage Learning, 2009

Gonzalez, A & Gonzalez, M. (1989). Meetings: So why not an airport hotel? Sales and Marketing Management, 141(13), 60.

Gordon, G., & , (2003). *Interior lighting for designers*. Hoboken, Canada: John Wiley & Sons. (Gordon & , 2003)

Gore, J. (1995) "Hotel managers' decision making: can psychology help?", International Journal of Contemporary Hospitality Management.

Grimley, C., & love, M. (2007). *Color, space, and style all the interior designers need to know but can never find*. Beverly, massachusetts: Quayside publishing. (Grimley & love, 2007)

Ilumin intelligent control. (n.d.). *lighting control for hotels*. Retrieved from http://www.cooperindustries.com/content/dam/public/lighting/controls/resources/library/literature/ilumin/iLumin Hotels MS Brochure.pdf

Kahn, L. (2011). *Architecture students corner*. Retrieved from http://arkistudentscorner.blogspot.com/2011/05/louis-kahn-quotes.html

Klumbis, D. Freund de (2002), 'Seeking the ultimate hotel experience', paper originally presented at the XIIe International Leisure and Tourism Symposium, Barcelona.

Kime , R. (2013). *Color*. Retrieved from http://www.interiordesignquotes.com/color.html

Lam, W. M. C. L., & Ripman, C. H. R. (1992). *Perception and lighting as formgivers for architecture*. Van Nostrand Reinhold.

Libris Design. (2004). *Library interior finish materials*. Retrieved from http://www.librisdesign.org/docs/LibraryIntFinMat.pdf

Loe, D. L., & Tregenza, P. T. (1998). *The design of lighting*. New York: Taylor & Francis; 1st ed edition

Lundberg, D. E. (1994). *The hotel and restaurant business*. New York, NY: Van Nostrand Reinhold.

Mclean, P, (2004). *Best Practices In Lighting Program 2004.* Retrieved from http://www.iesanz.org/_dyn/media/r105/system/attrib/file/807/4_electric_lighting_design_techniques.pdf

Miller, J (1995). First impression. *Hotel and Motel Management, 210*(1), 31. Duluth

Miller, J (2001). Personality equals popularity--and profits--at boutiques. *National Real Estate Investor*. *43*(10), 90-91. Atlanta.

Natural resources Canada. (n.d.). *Lighting reference guide*. Retrieved from http://oee.nrcan.gc.ca/sites/oee.nrcan.gc.ca/files/pdf/publications/equipment/lighting/doc/LightningReferenceGuide-NRCAN-E.pdf

Oxford English Dictionary, 1889. Second Edition, John Simpson, Edmund Weiner, Oxford University Press

Philips Electronics N.V. (2010).*Hospitality feel what light can do for your guests*. Retrieved from http://www.lighting.philips.com/pwc_li/main/shared/assets/images/applications/hospitality/Hospitality segment brochure_FINAL_INT.pdf

Pine, J. B. & Gilmore, J.H. (2002). Differentiating Hospitality Operations via Experiences, why selling services is not enough. Cornell Hotel and restaurant Administration Quarterly.

Riedel, T. (1998). Aesthetics. In Oxford University Press. Retrieved from http://www.arlisna.org/artdoc/vol18/iss2/01.pdf

Research Department of the Caribbean Tourism Organization. (2002). Retrieved from http://www.onecaribbean.org/content/files/hotelcalssification(1).pdf

Rutes, A., Penner, R., & Adams, L. (2001). *Hotel planning and design*. Whitney library of design: New York. service settings. *The journal of service marketing, 8* (3), 66-76.

Sawalich, W. (2012, December 31). *Lighting for texture two keys to create light that will enhance texture (or hide it)*. Retrieved from http://www.dpmag.com/how-to/tip-of-the-week/lighting-for-texture-12-31-12.html

Stoppard, T. (2006). *Lighting quotations*. Retrieved from http://people.virginia.edu/~rlk3p/desource/quotes.html

Siguaw, J. A. & Enz C. A. (1999). Best Practices in Hotel Architecture. Cornell Hotel and Restaurant Administration Quarterly.

Thapa, D. (2007). *Hotel lobby design: Study of parameters of attraction*. Retrieved from http://repositories.tdl.org/ttu-ir/bitstream/handle/2346/9110/Thapa_Dhiraj_Thesis.pdf?sequence=1

Thiel, P. T. (1980). *Visual awareness and design: An introductory program in perceptual sensitivity, conceptual awareness, and basic design skills*. Washington: Univ of Washington P

WBDG Aesthetics Subcommittee. (2012). *Aesthetics*. Retrieved from http://www.wbdg.org/design/aesthetics.php
(WBDG Aesthetics Subcommittee, 2012)

Wakefield, K. R., & Blodget, J. G. (1994). The importance of services capes in leisure

Zumtobel. (2012). *Light for hotel and wellness*. Retrieved from http://www.zumtobel.com/PDB/teaser/en/AWB_Hotel_Wellness.pdf

Websites

URL1: http://www.designshuffle.com/blog/tag/luxurious/

URL2: http://www.designshuffle.com/blog/tag/luxurious/
URL3: http://www.enlightermagazine.com/projects/cooper-square-hotel-focus-lighting

URL4: http://www.enlightermagazine.com/projects/cooper-square-hotel-focus-lighting

URL5: http://www.enlightermagazine.com/projects/dolder-grand-hotel-speirs-major

URL6:http://www.oyster.com/las-vegas/hotels/caesars-palace-hotel-and-casino/photos/lobby-caesars-palace-hotel-casino-v220206/#

URL7: http://www.oyster.com/new-york-city/hotels/ace-hotel-ny/photos/deluxe-room-ace-hotel-ny-v270079

URL8: http://www.archiexpo.com/prod/marka-industria-mobili/double-beds-for-hotel-rooms-61206-221859.html

URL9: http://personal.cityu.edu.hk/~bsapplec/lamps.htm

URL10: http://images.icecat.biz/img/norm/high/3994403-5264.jpg

URL11: http://english.turkcebilgi.com/Incandescent+light+bulb

URL12: http://www.freepatentsonline.com/6611102.html

URL13: https://fjwestcott.com

URL14: http://www.aliexpress.com/price/tungsten-halogen-bulb-price/2.html

URL15: http://www.theofficedealer.com/SLT30534-SLI-Lighting-30534-48-Energy-Saver-Fluorescent-Tube.html

URL16:http://commons.wikimedia.org/wiki/File:Wiring_of_fluorescent_lamp.gif?useFormat=mobile

URL17:http://houseconstructionindia.blogspot.com

URL18: http://www.candelacorp.com/products/lighting/

URL19:http://www.made-in-china.com/showroom/osgood/product-detailCezEmYpDaKhl/China-Spiral-Compact-Fluorescent-Bulb.html

URL20: http://www.google.com/patents/EP0011346A1?cl=en

URL21: http://images.devilfinder.com/go.php?q=site%3Aelightbulbs.com

URL22: http://palomarskies.blogspot.com/2009/12/outdoor-lighting-at-night.html

URL23:http://www.made-in-china.com/showroom/klts135/product-detaillenJYipUqWhq/China-400W-Self-Ballast-Metal-Halide-Lamp.html

URL24: http://www.viva.bg/lighting-sources

URL25:http://commons.wikimedia.org/wiki/File:Metal_halide_light_bulb_in_Tunisia.jp

URL26: http://www.mrdccu.com/curriculum/Lighting/LED.htm

URL27: http://www.lanshack.com/LED-technology.aspx

URL28: http://www.freepatentsonline.com/7062129.html

URL29: http://www.hedefelektrik.com/detail.php?url=4&pid=14001&lang=eng

URL30:http://www.china-telecommunications.com/products-search/engergy_saving_cree_10w_led_fiber_optic_lighting_kits_calbe_dia_3_0mm_for_decoration-pz540af98-z57e7d20.html

URL31: http://www.freepatentsonline.com/7062129.html

URL32: http://www.hedefelektrik.com/detail.php?url=4&pid=14001&lang=eng

Case study references

Alba Ankara Hotel

http://www.albaankara.com.tr/default.asp?islem=galeri&kategoriid=1&category=foto+galeri

Baia Bursa Hotel

http://www.baiahotels.com/baiabursa/foto.aspx

Baia Lara Hotel

http://www.baiahotels.com/baialara/foto.aspx

Commodore Hotel

http://www.commodoreelite.com/commodore-foto.aspx

Oleander Hotel

http://www.oleanderhotel.com/galeri.html

Sunwing East Beach Hotel

http://www.ideamimarlik.com.tr/projeler.html#

Trendy Verbena Hotel

http://www.ideamimarlik.com.tr/projeler.html#