

## Effect of aesthetic and functional values of lighting on interior design elements

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### **Abstract:**

The perception is the process that takes place in our eyes when we try to define a certain image of things that are different in their colors and their composition by the reflected light from these things and their surroundings. The determination of the dimensions of these objects is formed on the physics principle of their formation. The mind struggles as much as it can and interacts with these principles To determine the formations as our minds unify the effects of light until the completion of a specific image; For example as a room which light make everything visible and this what make our sense of the materials and its forms. Because of the reflected rays upon our eyes. Lighting is no longer limited to illumination, it is more than this it joins development and creativity trend. The diversity of its forms and sources makes it a unique piece of art in the world of decoration, it searches for the place which fits its formation, to be a part of the spaces, which reflect warmth and ambiguity of modern touch that matches the spirit of the old age. In the game of light and shadow, it creates visual effects, and more luxury in all around, satisfy the practical, aesthetic and artistic needs of interior design world.

Whether the design is traditional or modern, lighting adds a magic touch to the vacuum, as the lighting is the most effective element in design, it changes the features of the place and creates a new atmosphere Through different lighting techniques, playing with shadow and light, lighting can also be used to emphasize the functional difference in an area (passage area – waiting area - show area)

Lighting direct our vision for the vacuum and specific details and avoid others. And also can divide the vacuum by using lighting through intensity, color, direction

### **Types of lighting**

(Natural Lighting – Artificial Lighting)

### **Lighting methods**

A good lighting for the spaces requires the use of certain methods to use the above mentioned lamps. Also the different types and forms of lamps can be collected in lighting devices in order to improve the lighting conditions by raising the light intensity on the work surfaces, or reducing the light intensity or improving the overall appearance to perform its decorative role, taking into account the human psychological and physiological aspects.

We can distinguish five methods; each one is determined by the method of directing light at the level where work is performed. This level is in most cases horizontally and is located at an altitude of 80 cm above the level of the floor of the room (table or office height). However,

there may be special cases, such as the workshops of the foundries. The floor is the level at which the work is done, Also at book stores at public libraries, work level is where we read the books titles, which is about 30 cm beside the wall. In our next approach for the different lighting methods, we will be satisfied with the level at which the work is done horizontally.

### **It is divided into:**

Direct lighting – semi-direct lighting - double or mixed lighting – semi-indirect lighting - indirect lighting.

### **Light Psychological and physiological effects**

- Sight Sharpness, sight intensity, contrast, light spectral composition, speed of perception, speed of compatibility, eye conditioning, dazzle.

### **Conditions of good lighting**

- Sufficient intensity
- Remove the intense shadows resulting from the concentrated light sources
- Avoid extreme contrasts to shadow and light
- Avoid dazzle
- Avoid high reflections
- An effective distribution of light with the best choice that suitable for dimensions of the space and purpose of use
- Access to lighting devices

### **The lighting, its requirements and its various usages**

Life is based on two main axes that counter and complete each other - light and darkness, which are completely, control the course of events on the earth. In order to prove this, we refer back to the earliest historical periods of the existence of man on the surface of the earth till the discovery of sources of light, whether it was the first flashlights or modern electric lamps, passing through gas, oil stoves, and candles ... Note that the day was divided into two parts which are away from human interference, Light – Dark - Day - Night - The first part means work, activity and movement and the second means sleep, rest and relaxation

### **What is good lighting**

Good lighting enables the eyes to work comfortably and perfect. Eyes need different quantities and types of lighting, to do different jobs. As a result, lighting that is enough to do something might not be enough to do another job.

### **The amount of light**

The amount of lighting required to do different work depends on four main factors:

- The size of the things we want to see
- The time period of vision
- The contrast between objects and their backgrounds,

- Our sight ability. A clockmaker, who usually works in tiny parts, needs more lighting than a tinsmith who works to connect large pipes. A person driving a high speed car needs more lighting to read signs on the side of the road than he would need if he was walking.

There are three factors that determine the amount of light focused on an object:

- Light intensity
- Distance between the object and the light source
- Distribution of light.

### **Interactive Lighting**

Devices used in interactive design

There are many devices used in interactive design, the most popular are as follow:

- Sensors
- Detectors
- Actuators
- Transducers

### **Examples of interactive lighting in interior design elements (ceilings, floors, walls) and furniture**

- Interactive lighting in exterior interfaces
- Advanced lighting in the facades of historical and artistic buildings
- Advanced and changing lighting on the sculpture arts in squares.
- Pressure sensitive interactive floor
- Magic carpet
- Mysterious Snow Path
- Interactive sensor cells
- Seat of mood interaction
- Lighting the inner space by fiber optic

### **Fiber optic in interior design and Furniture:**

It can be used to connect light to hard-to-reach locations. Fiberglass can be inlayed with Erbium make a high light amplifiers known as Erbium fiber magnifiers. The laser can also be used for lighting connectivity through fibers in a fast and powerful manner in all ways of communication.

- Increase the optical transmission capacity of the optical fiber to reach far distances.
- Use high-power amplifiers and lighting magnifiers.
- Send multiple TV channels via one optical fiber with DWDM technic.
- In the lighting of water surfaces and interior and exterior fountains in public and private places.
- In the distinctive and expressive lighting of the different interior and exterior spaces.
- Make acting effects in theater and television decorations.
- Lighting colors can be changed and controlled according to design

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