



## **FACTORS INFLUENCING DAYLIGHTING PERFORMANCE IN LIBRARY AND LITERACY CENTRE.**

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**ABSTRACT:** Natural lighting was the primary light source in buildings prior to the invention of the electrical lighting in 1879. Day lighting thought improves the structure proficiency as far as vitality. In private structures common light arrangement upgrade space quality and client prosperity. The primary motivation behind this research is to structure an office that joins the open library with a proficiency focus of factors influencing day lighting in library and literacy centres. The library and capability center assistance grown-up understudies and youths achieve training and freedom by giving instruction classes, similarly as information, resources and referrals and a wide extent of organizations (instructional, proficient, recreational) that will empower them to end up being dynamically capable in the overall population.

### **INTRODUCTION**

Libraries today are an engineering stamp for instructive foundations just as an adaptable showplace for networks and studying. They are so one of a kind in structure that they have turned into the plan for the character of the network. We are altogether attracted to the library for various reasons and it has turned into a focal center for social occasion, picking up, investigating, imagining, illuminating, rousing and examining. Likewise, present day development has obliged the joining of electronic devices everywhere

and as such, has changed the sort of yesterday's library into another unique current condition. The combination of education focuses in open libraries can bolster improvement in perusing cognizance, language, social, and composing advancement.

## **MATERIALS AND METHODS:**

A review of literature was done to document and analyses the well-being in terms of user's

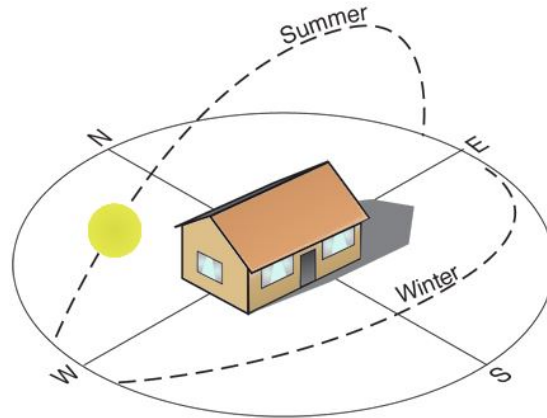
Daylight comfort in the Library and Literacy Centre buildings. The methodology includes a four stage cycle of identify, collect, classify and analyze. The first step was the identification of the key words. This research targeted to study and analyzes the indoor environment quality impact on health and Library and Literacy Centre occupant well-being. Keywords used for collecting relevant studies are indoor environment quality, well-being, and occupant Well-being, residential buildings and occupant comfort. Literatures are searched in Google scholar and science direct. After completion of articles based on keywords bibliographic are scrutinized for identification of relevant articles those are missed in results of first search. Final and third step adopts classification of articles based on three criteria in to consideration such as window system, daylight availability analysis and measuring the performance of light energy.

## **FACTORS INFLUENCING DAYLIGHTING PERFORMANCE IN LIBRARY AND LITERACY CENTRE.**

### **A. ORIENTATION OF BUILDING:**

Orientation of the building is considered as key factor which affects the performance of daylight specifically for interior spaces. A correctly orientated building can save a lot of money in no longer required heating and cooling costs expenditure - in effect the building itself maintains a comfortable environment for you with little additional costs. The fact the Sun is lower in the sky in Winter than in Summer allows us to plan and construct buildings that capture that free heat in Winter and reject the unneeded heat in Summer. The solar orientation of the whole building plays an important part in ensuring such a 'passive' process works consistently. Please refer to the diagram below for an explanation. The 'trick' with Passive Solar is in Summer to use shade to block the Sun heating up the interior of the

property, but do so that is just enough to stop it; then when the Sun goes lower in the Winter that shade is no longer enough to prevent the Sun coming into the property and you get free heat just when you need it. The importance of building orientation (2017)



**Figure 1: Orientate your building to use the Sun to your advantage**

## **B. TYPE OF GLASS**

Window glasses allow light and vision within the building. Different glasses exhibit distinct energy-performance characteristics which is ability to heat transfer resistance (U-value; UV), through glazing active controlling of solar heat gain (Solar Heat Gain Coefficient; SHGC) and light

Amount passing through the glazing material (visible transmittance; VT). Depending on the UV, SHGC and VT amount on the windows, users can able to select appropriate window for improving effectiveness of daylight at maximum level. In residential buildings typical glazing windows uses glass type such as tinted glass, obscure glass and clear glass. Among those glasses glazing with clear single glass daylights are transmitted at highest level and permits heat gain or heat loss depend on climatic condition (Husin & Harith, 2012).

## **C. POSITION OF THE SUN**

The position of sun in sky always subjected to certain changes throughout seasonally and affects the daylight availability. Based on identification of geographic locations sun position is identified. Geometric location is calculated based on consideration of true altitude and azimuth angle. Usually, when sun is higher day will be brighter. The significant orientation of buildings is identified

through consideration of sun angle. Amount of daylight penetration within the building is affected by the movement of sun from east to west and its corresponding angle

(Husin&Harith, 2012).

#### **D.Types of Windows**

Daylight penetration is determined by window type. In Nigeria Casement and louver windows are commonly used for residential building applications. To offers excellent ventilation casement type window is used and this windows able to seal tightly while closing but still this type of windows allows natural light penetration. These windows composites contains glass as main material. Louver windows have slats in horizontal or vertical direction with certain angle to permits air and light through the interior space. Slats angles in the louver windows can be adjusted. This type of windows is widely used in many houses since it improves the daylight penetration in indoor environment and limits the glare or redirect the light diffused.

#### **CONCLUSIONS**

Daylight plays a significant role to provide illumination in the libraryand Literacy Centrebased on window opening sizes. The purpose of the daylighting is to minimize energy use and maximize human comfort. From the above review, a majority of the researchers analyzed the daylight using simulation software and concluded that the daylight depends on the factors such as location, windows size, weather condition, environmental built, building interior design, etc. Of them, factors such as location, weather condition and environmental built are directly dependent on the natural climatic and geographic conditions. Hence, the interior structure of residential building and window sizes are important for a daylight efficient design. Also, the building design, window openings and the surface finishes determine the interior day lighting. The following are suggested for daylight

Efficient design: the choice of daylight methods or techniques should be specific to the building design. For overall computation of time, daylight coefficient with sky patches is to be estimated for best performance. Parameters such as timing, spectrum, intensity, duration and past history of light exposure are to be taken into the account.

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