

EFFECTS OF NATURAL LIGHT ON INTERIOR

A Dissertation

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Lovely Profession University



In Partial Fulfilment

Of the Requirements for the Degree of

M. Des. Interior AndFurniture

BY

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Effect Of Natural Lights On Interior

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CERTIFICATE

This is to certify that Mr. Deno John K bearing Registration Number 11614606 has completed his Dissertation Project titled, “Effect of Natural Lights on Interior” under my guidance and supervision.

To the best of my knowledge, the present work is the result of the original investigation and study. No part of the project has ever been submitted for any other degree at any university.

This paper is fit for submission and the partial fulfilment of the conditions for the award of the degree of Masters of Interior and Furniture Design.

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DECLARATION

This is to certify that the work is entirely my own and not of any other person, unless explicitly acknowledged (including citation and referencing of published and unpublished sources). I, the student of Masters of Interior and Furniture Design under Lovely School of Architecture and Design, Lovely Professional University, Punjab, hereby declare that all the information furnished in this report is based on our own intensive research and is genuine.

Mr. Deno John K

Date:

Name and signature of the student

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First of all, I would like to thank God for keeping me in good health throughout the project development and for giving me strength to be able to complete the work.

I would like to show our gratitude and special thanks to Mr. Ningthoujam Tondonsana my mentor, for his guidance, support and understanding throughout the research compilation, and also for his useful suggestion and remarks to my research paper and I also wish to express my gratitude to the officials and other staff members of Lovely School of Architecture & Design who rendered their help during the period of my research work.

Then I would like to thank my classmates and friends, who have helped me with their valuable suggestions in various phases of the compilation of the project.

DISSERTATION TOPIC –EFFECTS OF NATURAL LIGHT ON INTERIOR

- **AIM**- Natural light effects material, human health and productivity. It helps to diffuse the negativity, if any, due to insufficient air circulation. A space will lit by natural light can change the ambiance. It helps to improve the health of human being and It provides a positivity in life.

- **OBJECTIVES**- Elements that affect natural lights
 - What materials are suite for nature lights
 - Any existing building change to renovated
 - Proper ventilation can change the atmosphere inside room natural light effect Human health and productivity.

- **SCOPE**- Natural light is a great resource for interiors.
 - Use of different types of materials according to the climate.
 - A properly ventilated space ensures human health.
 - Colours and ambiance is brought at well with proper lighting.

- **LIMITATIONS**-
 - Climate Change will effect the balance.
 - Construction of wrong building and orientation of window.

- **NEEDS**-Lesser use of final lights. Ensure proper health and a better life. Absence of proper ventilation and lighting leads to suffocation in humans.

Abstract

Effect of natural lights in space of interior. Natural light can create positive energy in interior and it provides effective indoor lighting. The source of day light is sun. Efficiency of day light affects materials, human health and productivity. It changes human beings psychological and physical strength. The increase in natural lights also increases the air circulation indoor. Any space or area in the absence of natural lights, affect human health and productivity. The ambiance of colour and day light fade when natural lights can't reach indoor. Openings provided for natural lighting indirectly ensures the air circulation inside the space which affect productivity. Humans suffer the problem of mental stress and diseases, there should be natural light involved to decrease these problems. So the effect of natural lights on interior are categorised into three stages. Elements of natural lights, effect on materials and design renovation in an existing office. This process should be analysing the efficiency of natural lights and how the new environmental design affect in interior.

Key words: natural light, human health, productivity, material, orientation, Colour.

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CHAPTER I-INTRODUCTION

1.1 Statement

Characteristic lights in insides? As it is most essential piece of green plan. As daylight is merry, warm and welcoming for the duration of the day and basic piece of our reality. Furthermore, have part in inside planning by giving characteristic lighting in structures, more common lights give in structures more we spare vitality utilization. As it likewise assumes an aesthetical part in insides as it changed the shade of spaces by its belongings and give magnificence in our inside spaces. And in addition we t is valuable for our wellbeing additionally as individuals now daily's take less measure of direct daylight along these lines, we can make normal light in our insides .in this way, we can make insides with characteristic lighting impacts.

1.2 Problems of the statement

Regular lighting in inside isn't seen wherever now days as a result of congested structures, limits provinces homes, wrong introduction of windows, wrong points of building composed, wrong introduction of room, as now daily's concerning more on roof lights for the more tasteful use in insides. Individuals are not all the more concerning spaces with common lighting. This bring about utilizing power utilizations and power bills. So our primary concern is to give more regular lighting part in the spaces so we can take profit of our characteristic asset daylight and spare more vitality as we can. As we can make our spaces with solid living by getting advantages of the daylight.

As inadequacy of Vitamin D, established in individuals because of less measure of daylight they take. In this way, by getting characteristic lighting in our insides spaces we get sound living.

Common lighting in insides likewise vital for our solid living condition. And also it make issues when abundance measure of warmth goes into in rooms in radiant days. So we can discover diverse components for this issue to control the warmth through various shading gadgets. With the goal that we can utilize our regular lighting in insides productively. As more regular light we can use in daytime we can spare our power and also we can charge our invertors for quite a while by lessening daytime lights as amid the days when greater power shorts. It will be helpful for us just to spare greater power as we can.

1.3 Purpose of the Study

The principle reason for the examination is to depend on common lighting in insides as much as it conceivable to get the utilization of regular lighting in our structures. We are additionally worried for the wellbeing components of the general population as it is discovered that lack of vitamin D is found in the general population as a result of less measure of daylight we take. With the goal that this likewise turns into our gainful factors in insides for having normal lighting space. So we can use our spaces more with the utilization of common as it changes its impact of light normally from morning to night and gives its delightful impacts in insides. And to control the overabundance measure of warmth enters in radiant days to utilize proper shading gadgets which can control abundance measure of warmth.

1.4 Review

The concentration of day lighting configuration is the solace and joy of clients. Individuals react from multiple points of view to light, and experience it regarding what is perceived and felt, not as photometric esteems. So great outline is unpretentious and numerous faceted. It is a worry for human body's reliance of light, for what gives euphoria and enthusiasm, for the formation of 'places'. For a building's impact on its environment. An attention on individuals is fundamental to the formation of structures which are feasible inside the characteristic world.

As the investigations demonstrates that legitimate use of day lighting diminishes the incident of migraines, eye fatigue. These ailments are lessened once the lighting level is improved by utilize legitimate outrageous light. Eye strain is recognized with the choice of light current in a work space and the capability of the judgment to centre. As quantity of eye fatigue issue happens because of this issue and this is issue happens because of despicable regular lighting in structures like workplaces. As individuals need to labour for an extend periods of time constantly as though we get uncalled for characteristic lighting in workplaces where we need to work consistently we require appropriate common lighting for our legitimate solid living.

As despicable day lighting in structures are not an agreeable and solid living plan for client. It makes diverse medical issues of not getting normal lighting in insides. So we need to make solid living as we can give.

2. TERMINOLOGY

1. **Natural light** – The light which we get from the sun in natural which is existence in nature and is a part of renewable resource.

2. **Orientation**– It refers to the location or direction of building or spaces or windows towards the sun or in the relevant direction of space.

3. **Solar shades**- It is the devices to control the excess amount of heat of sunlight. Different solar shadings devices are used such as binds, curtains, louvers etc .

4. **Windows**- Windows are used in the spaces of building to provide natural lighting, fresh air inside the rooms.

5. **Proper ventilation**- proper ventilation in rooms, we get fresh air in spaces which is also part of healthy living with natural lighting.

6. **Bright room**- As we get natural lighting in rooms, we get bright colour rooms with different shades of colours naturally from morning to evening.

7. **Aesthetics**- Natural lighting also enhance the natural beautification of the space.

8. **Healthy living**-As natural light provides us healthy living life and prevents us from deficiency of Vitamin D, Eyestrains or other problem we get from lack of natural lighting in interiors.

CHAPTER -2-LITERATURE REVIEW AND CASE STUDY

(John McNeil 2001)-describe that the objective of the mending condition is to give non-institutional environment and a feeling of serenity for patients, staff, and guests. Regular light is one of numerous thoughts used to make these situations. With a wide range of thoughts for making a recuperating domain, recognizing normal light as impact sly affecting patients is hard to achieve. Making a recuperating domain was a concentration of the North Hawaii Community Hospital plan. The little, country clinic was worked in the mid-1990s and incorporates many highlights that a customary healing center does not. Passages utilize bay windows and expansive windows to give an open feeling and normal light. Understanding rooms have sliding glass entryways that open up to ahonor winning yard plant or the border of the healing facility. Full-range fluorescent lighting is likewise utilized all through the healing center to enhance the earth.

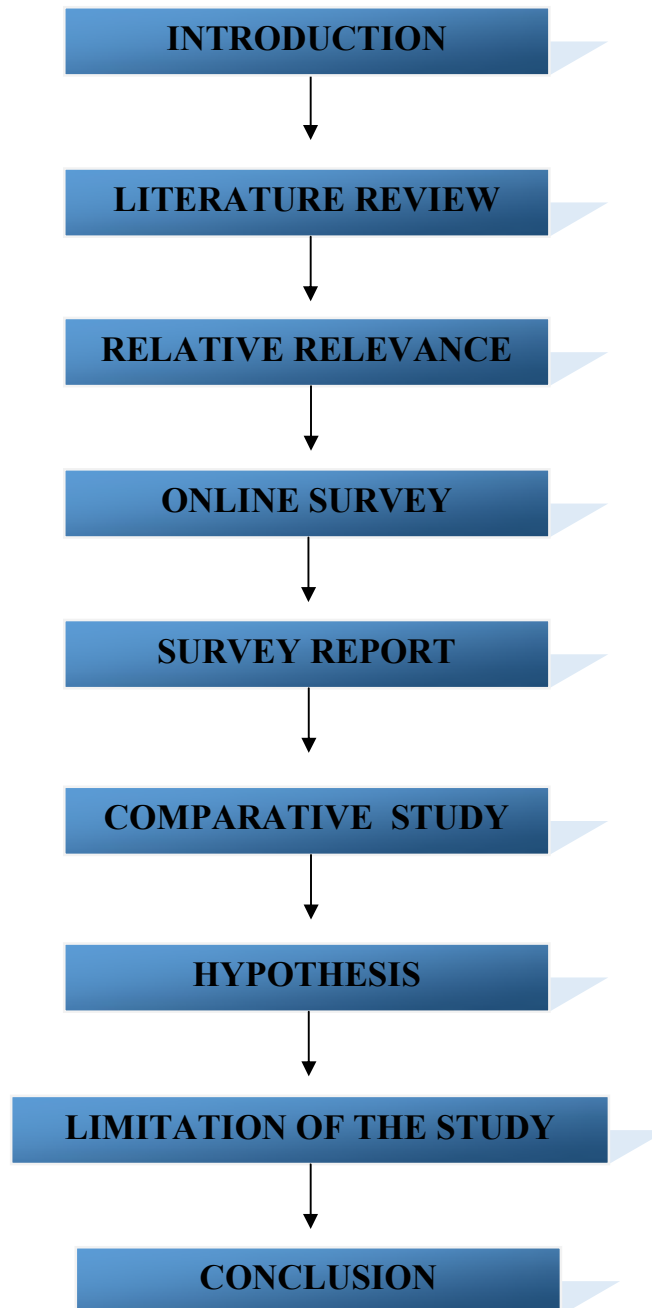
(Plant 1970, Collins 1975)- Says that Russian and Czechoslovakian examinations demonstrate that labourer in severe plants containextra cerebral pains, faintness, and affliction contrasted with specialists in industrial facilities with windows .The cost of the items being delivered will build on account of lost occasion from worker comfort. An examination from Thuringia, Germany, inferred that austere industrial facilities should just be utilized when fundamental.

(Collins 1975)- define that contemplated the blood of specialist in an underground, serious production line to make out if there was a relation between medical issues and absence of bright energy from the sun. The investigation presumed that the serious assembly line labourers experienced expanded penetrability of skin vessels, diminish white cell interest group, and long-drawn-out catarrhal contaminations and colds compared to specialist in industrial facilities with windows. Concentrates by Trysin in Swedish underground production lines found that lighting levels, ventilation, and improper shading plans influenced the representatives adversely. The investigation exhorted that specialists should take longer rest periods in light rooms or outer surface.

(Collins 1975)- Describe that An enquiry of blood test for 100 underground laborers more than eight years demonstrated no change in the typical blood condition however established that the mental strength of these specialists was delicate In different discoveries on the mental prosperity of austere laborers, F.D. Hollister establish that underground environment were so impeding to the brain science of the assembly line laborers that they created their own answer for their need contact with the outside world.

(F. D. Hollister)-assumed that representatives broke such a significant number of dividing wall boards that it wound up plainly important to furnish some visual contact with the outside world. After taking a gander at the impact of austere manufacturing plants on workers' wellbeing and the state of mind toward them, these processing plant sorts should just be utilize if vital for a cleaner domain.

2.1 METHODOLOGY



2.2 CASE STUDY-1

1. Bloom Design Studio / Bloom Design

- Architects: BloomDesign
- Location: Shenzhen, China
- Area: 280.0 m²
- Project Year: 2017



Fig 1 Working Space -"Instead of visible space planning, what I create for each design is a beautiful world in my mind."(Baolong, 2017)

Once towards the inside the Bloom Design Studio, a totally white exterior comes into see, anywhere the white organization logo is incomplete, demonstrating an uncommon layering from side to side the overlay of light and gloominess.



Fig 2 Office area - White outline be a breathing space brimming with the shading white, which cover white base, white dividers, white glass parcels, white tables and seats, white cloth blinds, and additionally white daylight and ethereal music, influencing individuals to feel casual and quiet.



Fig 3 The constant glass cover windows with oak outline inside the workplace zone create the entire liberty associated with splendid."daylight is fundamental and altering from morning to

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night-time, the progressions of daylight and darkness in space influence you to believe the streaming time and freedom" (Baolong, 2017).

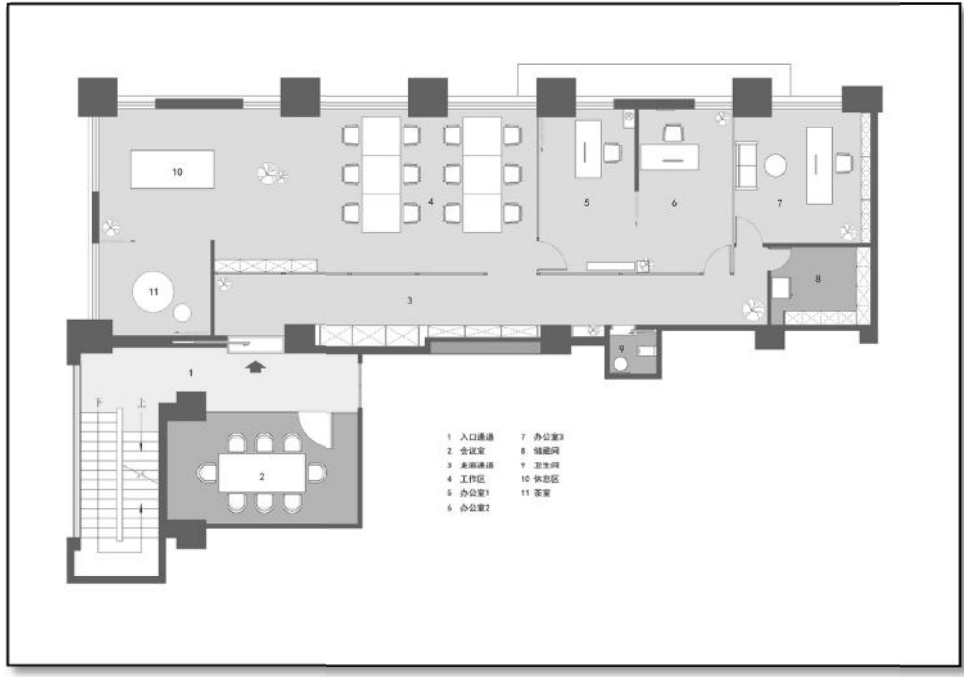


Fig 4 White outline isn't purposely composed: with the first concrete segment, uncovered roofs and retro red block divider, all has all the earmarks of being unpolished

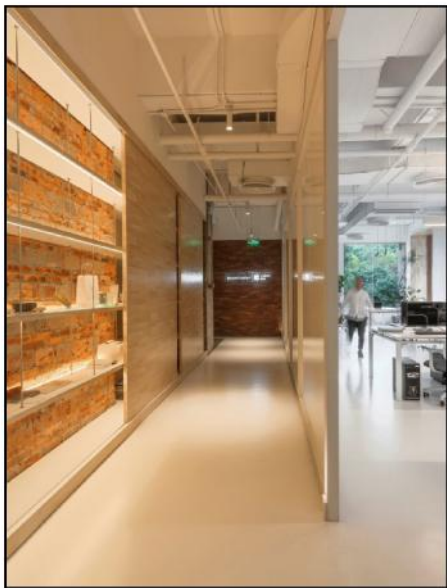


Fig. 5 The red block divider reaches out to the passage, where the outline components that have been utilized as a part of the past ventures are flawlessly shown on the show stand, recounting the stories of each undertaking. A wide range of lavish plant life indoor be reverberated with green plants outside, winged animal chirp can be heard every so often. Like working in the professional flowerbed, a horde of contemplation and thoughts develop.

Regard for natural world and concentrate the laws of environment, Bloom Design steadily looks for a basic delight and genuine move about. Bother the feline now, water the plant life and drink tea. It be a place for coming back to straightforwardness, life form ordinary and characteristic.

2.3 CASE STUDY-2

Bench Accounting Office Interiors

Architect : Perkins+Will

Location: 545 Robson St, Vancouver, British Columbia, Canada

Lead Interior Designer: Sarah Stanford

Design Team: K. Baba, S. Brent, D. Dove, H. Lai, S. Stanford

Area: 4656.0 m²

Project Year: 2017

(archdaily, 2017)



Fig.6 administrations to their fresh 50,000 square foot office space in downtown Vancouver. Content depiction gave by the modellers. Seat Accounting, a quickly developing innovation organization that gives benefit centred accounting arrangements, connected with Perkins+Will to give inside plan



Fig.7 This quick paced venture saw the conveyance of all outline stages from schematic plan to development archives finished inside seven weeks. The plan group submerged itself in Bench's way of life, rapidly picking up a

comprehension of their workforce and task objectives. This relationship permitted the outline group to make educated and precise suggestions that brought about a fruitful task on a driven calendar.



Fig.8 To take into account a brilliant and compelling financial outline, the group's methodology be to outlet the greater part of assets into municipal spaces. This specific outline centre brought about a remarkable parlour and completely adjusted kitchen on both floor. Furthermore, the current solid piece was fixed with the uncovered roof was held, addition to the crude stylish of the space.

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Fig.9 All together for Bench's workers to exceed expectations in customer benefit, the workplace looks to go about as a space with the purpose of administrations its own particular representatives during an accentuation on

health, decision, and culture. Sit-stand choices, centre rooms, phone rooms, casual and formal coordinated effort spaces, gathering suite, and friendliness and parlour spaces empower both unconstrained cooperation and private, heads-down work. At last, the plan gives 24 distinct typologies of workspace separated from singular workstations, likening to a proportion of 0.8 option work areas for each committed workplace.

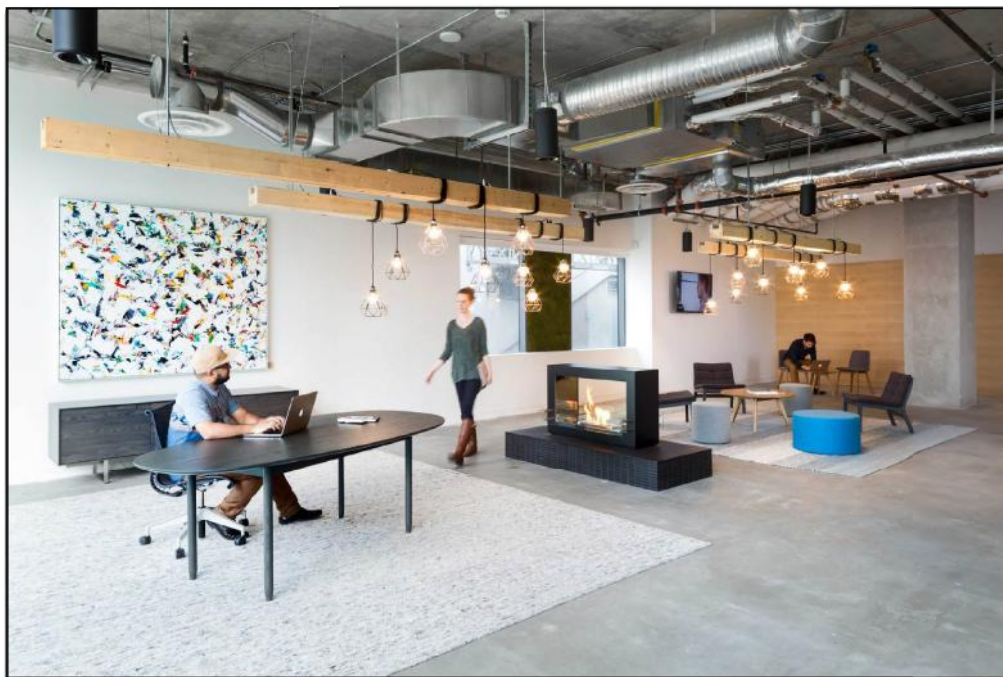


Fig.10 The authors of seat trust to their bodilybreathing space is an antique of their commercialsociety instead of a meaning of it. Lined up by means of this reasoning, Bench's way of life of advancement, cooperation, and group bolster is obviously reflected all through its working environment plan.

Table no. 1 Analysis of case study

Case Study-1	Case Study-2
<ul style="list-style-type: none"> • Space Organisation • Spacing of window • Proper material • Usage of colours • Placing of light • Communication space • Creating a Relaxation space • Open ventilation and open air 	<ul style="list-style-type: none"> • Space of working area • Orientation of window • Proper seating arrangement • Colours and materials • Placing of light • Communication space • Creating a Relaxation space • Open ventilation and open air

Table no. 2 The difference between Positive and Negative about Natural light

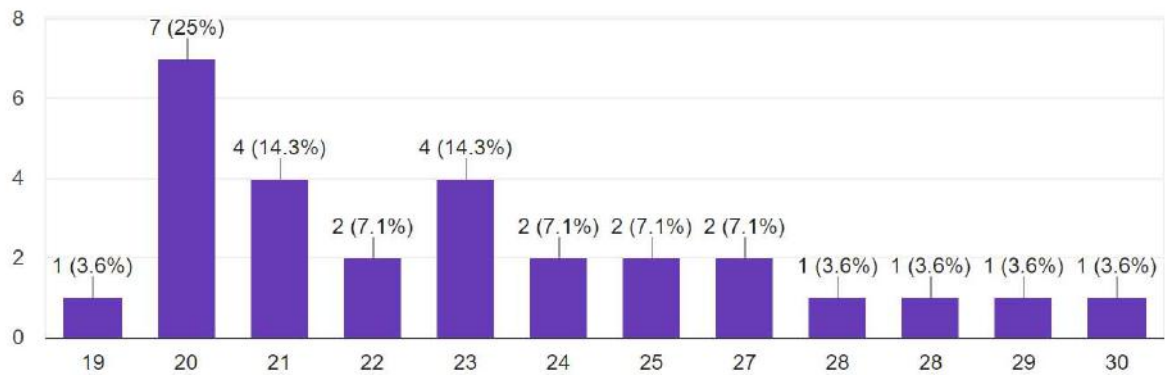
Positive	Negative
<ul style="list-style-type: none"> • Positive energy • Vitamin D • Health and Productivity • Placing of light • Creating good atmosphere 	<ul style="list-style-type: none"> • Over Heating • Exploration of light • Ultra valet radios • Wrong spacing of Orientation • Climate changing • Variation of Global Warming

2.4 SURVEY REPORT

1. What is your good name?

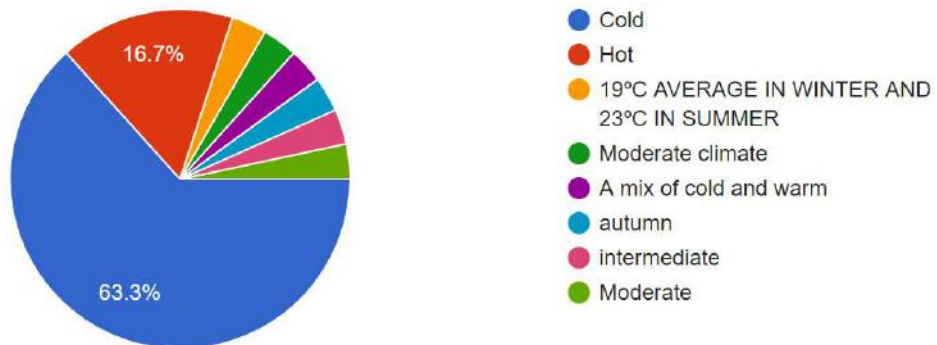
Amal, Anandhu S Nair, Ankushbirkaur, Aparna, Charisma, Ciya Paul, Dilvin Varghese, Dyson, FayaiGeorge, Greeshma, Juno Varghese, Midhil, MuktaNeha, Nikita, NingthoujamTondonsana, Rijo John, RishmaMariya Johnson, Rizwana, Silver Dsouza, Siona Mary, Thomas, Trupti, Visruth, Anna Pal, Farhan, Designer

2. How old are you?



3. What kind of climate do you like to stay?

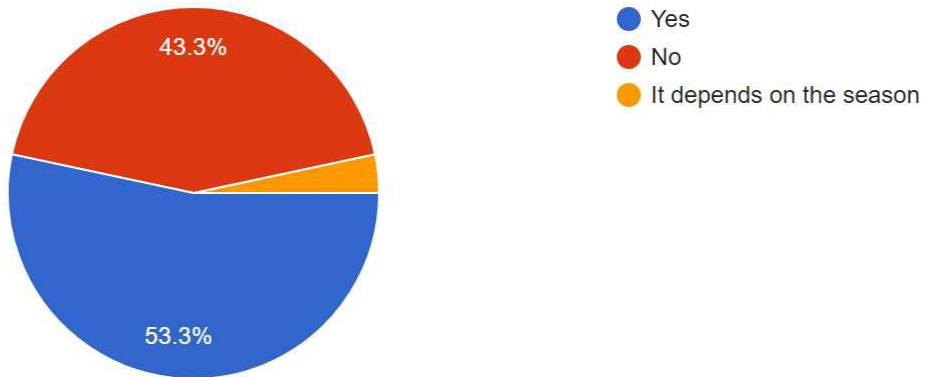
a) Cold b) Hot c) Neutral



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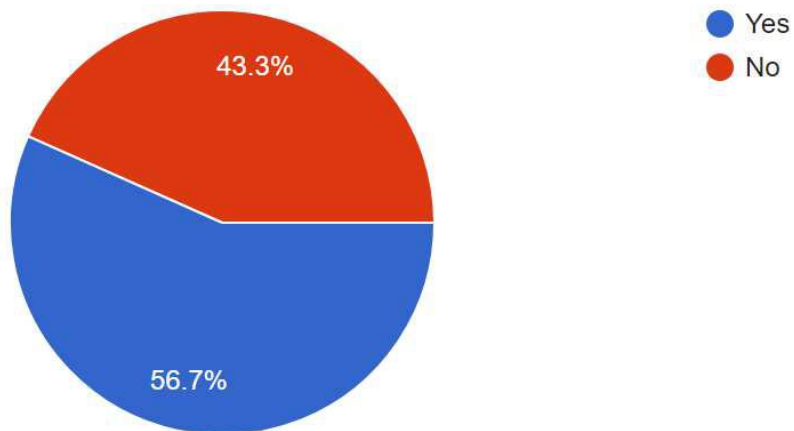
4. Do you get efficient use of natural light from morning till evening in your building?

a)Yes b)No



5. Do you find your building orientation right for the natural lighting?

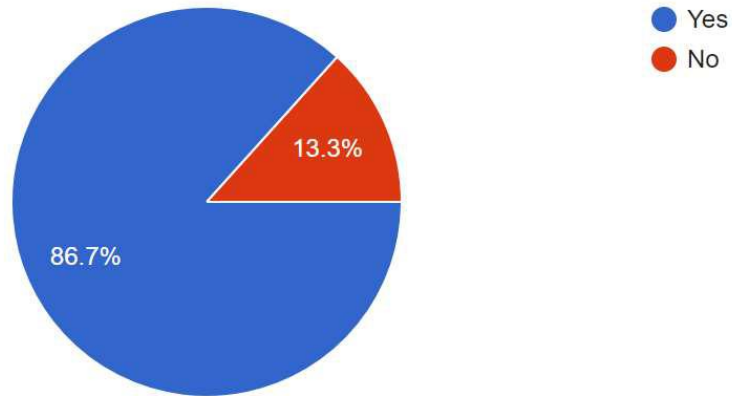
a)Yes b)No



Effect Of Natural Lights On Interior

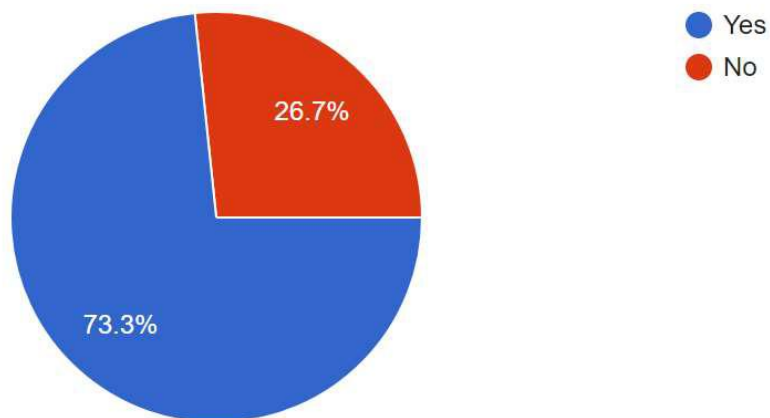
6. Would you want to save electricity bills in your buildings by using more natural lighting in interior?

a)Yes b)No



7. Do you find aesthetics by using natural lighting in interiors?

a)Yes b)No



Effect Of Natural Lights On Interior

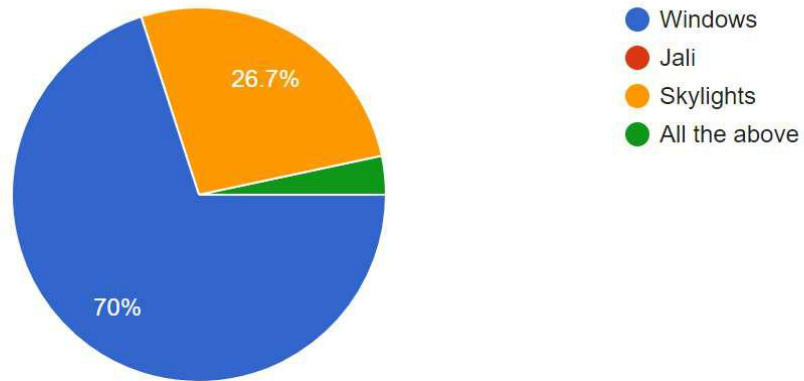
8. How should you get natural lighting in your building?

a) Windows

b) Jali

c) Skylights

d) Other



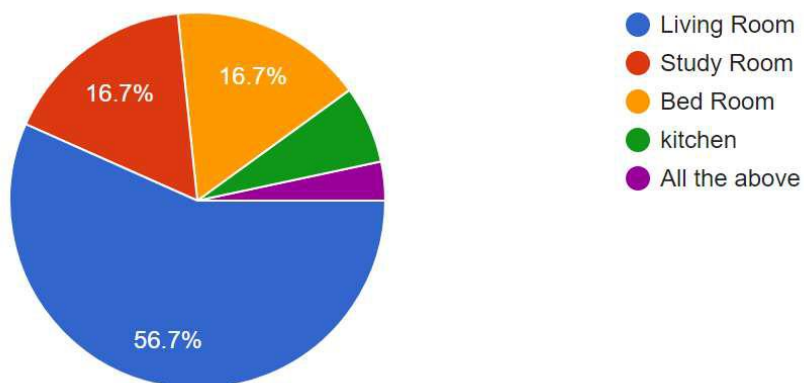
8. Where should you have maximum lighting in the home?

a) Bedroom

b) Kitchen

c) Living room

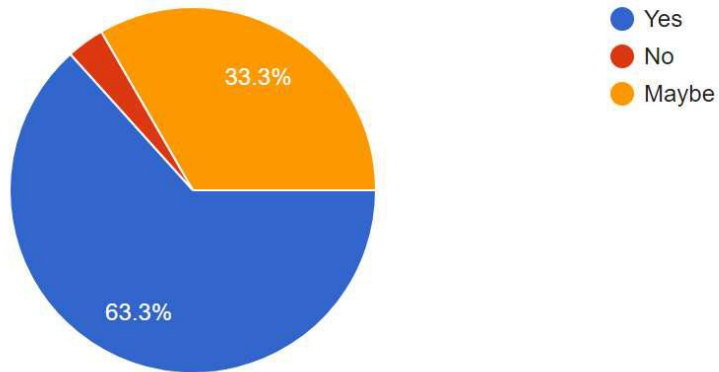
d) Study room



Effect Of Natural Lights On Interior

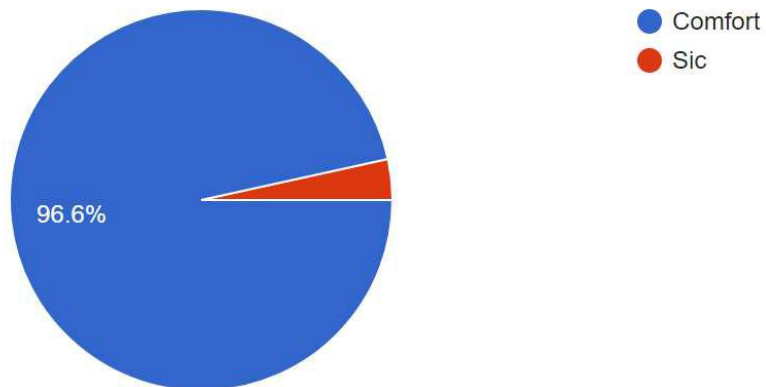
9. Would you feel refreshed if natural lights come inside working space?

a) YES b) No



10. How is your health when you are working in a building having sufficient natural light?

a) comfort b) sic c) other



11. Any suggestions for having different solutions of natural light in the building?

- Glassed terrace
- Orientation should keep in mind and the purpose of the space while designing light sources.
- More use ribbon windows
- Morning natural is cool, but after 10 an the light getting hot so I think direct using of light is making warmer so planting plans and etc. Its reduce the direct light effect. More open windows, Using transparent roofing etc is useful to use natural light.
- We must control natural light some times when we don't need. It may create light pollution.
- Jails give source of light as well as aesthetics so I find them good to be used along with windows.
- Daylight
- Increase Air Circulation

2.5 SURVEY ANALYSIS

As suggestions are provided for the different solutions of natural lighting in interiors. As number of relevant suggestions are provided by an individual. Orientation is the important think in natural light and same time placing of window. It will increase the air circulation and the productivity of work space. Someone say about jails, It is the one of the source of natural lights. And Ribbon windows, Its very help to get natural lights inside of room.

As I will consider about these suggestions and will provide the relevant solutions for the more natural lighting in the building.

CHAPTER-3 - NEW PROPOSED

3.1 Redesign an existing office



Fig. 11 Existing office area



Fig. 12 Renovated room, Specially for orientation of window , Changing material furniture layout, Spacing of Light



Fig. 13 Staff Room



Fig.14 Renovated room, Spacing proper furniture layout, Changing of material

RELATIVE RELEVANCE

3.2 Health and Productivity

3.2.1 Vision

Human mental picture under sunlight environment is typically better to below simulated daylight. It is classically here in higher amount and has improved shading reproduction, empower us to observe things all the additional obviously. Be that as it may, if too brilliant, or too immediate, sunshine, otherwise mainly daylight, can reason lower, keep us from see legitimately, otherwise notwithstanding causing eye harm. Moreover, it is critical to the brilliance of sunshine do not differentiate excessively starting the foundation light level, make it difficult used for our eyes to modify like we move about starting with one daylight resource then onto the next.

3.2.2 Mood of Occupation

The connection amongst light and disposition, and temperament and efficiency is intricate, and complicated to express logically since of the amount of one-time contributing components. Be that as it might examines have made relations among change in effort atmosphere daylighting with efficiency, and still the achievement of selloutlet has be appeared to considerably increment among the presentation of bay window. Notwithstanding conveying light, window additionally give a vision. This has been all the more specifically connected to enhanced working environment fulfilment, lessened anxiety and expanded efficiency. A sight give specialists write to with the exterior earth, the weather, the term of date otherwise year, in addition to give assortment and incitement.

Normally not all perspectives are elevating, and similarly sunshine does not generally positively affect profitability. Where daylight enters an office straightforwardly, it can divert and make problem areas, prone to diminish the efficiency of the labourers it impacts. Excessively extensive windows may likewise be dangerous by causing loss of security.

3.2.3 Green and Cost impact

Expanded use of sunshine in the place of work can considerably reduce the costs and vitality utilization of electric lights. The ideal condition is single where snap sensors modify the level of electric lights to adjust for change in level of sunshine. For whatsoever time-span of occasion that the daylight is aberrant, it be additionally cooler than stimulating lights, so force want less intense ventilating to correct. Be that as it may, if not separated or shaded, coordinate daylight will cause overheating and require costly cooling for workplaces. Windows, as a wellspring of sunlight should be precisely arranged since they preserve be both a wellspring of heating or warmth misfortune in cold atmosphere.

3.2.4 Physical condition&efficiency Benefits of Natural Office Lighting

while innovative office structures be constructed each month, an ever increasing number of people are investing hours in workspaces with practically zero presentation to common daylight. It should not shock anyone with the purpose of our body respond in depressing approaches to such condition with, consequently, impact how healthy we work into an expert domain. Despite the fact that our body include adjusted towards counterfeit lights throughout the duration human being in a normally light condition trigger reactions inside our endocrine framework with the aim of are expected to oversee rest, mind-sets and our safe framework. By supplanting simulated light with normal light, representatives will encounter numerous positive outcomes including enhanced mental lucidity, better vision and a lessening in cerebral pains and headaches.

3.2.5 Natural lights increase Visual Acuity & Productivity

An examination directed by Brian Libel, Rita Lee, Robert Clear, Sam Berman and Marc source presumed that light to discharges a pale blue shading reliably

chokes a person's understudies. Accordingly, the general capacity and perusing capacity of the eye up was improved. have extra blue daylight in the noticeable range tightens the understudy, which builds the eyeocular sharpness. optical sharpness alludes towards the capacity to perceive the shape and subtle elements of items you make out On the off chance that you have ever engaged an judgment exam, you know about optical keenness difficult.

Since our eye be intended to work beneath full-range lighting, having characteristic daylight lifts efficiency and enhances how healthy one can interpret a PC display, bits of daily or tickers on the inverse part of the area.

3.2.6 Ordinary Exposure to Natural Lighting prevent headache& Migraines

On the off chance that some of your representatives oftentimes create cerebral pains and headaches at work, it might have a remark with the lighting. Teri Robert, a specialist regarding the matter, has presumed that headaches may have three prospectivetriggers: glare on PC screen, glower from visual projection incandescent lighting, with glints from incandescent lights. Cerebral pains and headaches drag out undertakings and postpone work from being created. To ease these and counteract lost profitability, have a go at supplanting or upgrading fluorescent lighting with normal lighting. It will help dispense with cerebral pains and headaches and make a more advantageous workplace.

3.2.7 Reduce the threat of Cancer by warning Exposure to Artificial lights

A current report by the National Institute of Environmental Health Sciences (NIEHS) demonstrates so as to introduction to manufactured lighting, particularly around evening time, can possibly animate bosom disease. Despite the fact that the investigation was done on a gathering of lab mice, this examination has been demonstrated to reproduce similar consequences for individualbody. onemore investigation starting NIEHS discloses to us that, the danger of creating bosom malignancy is around five times higher in industrialized countries than it is in immature nations.

Solitary bolstered hypothesis is with the purpose of a diminishing in melatonin creation is a key in supporter of bosom disease advancement. Specialists presented to incandescentlights amid the night-time hours are mainly in danger, ever since the light trap their bodyinterested in stifling melatonin discharge.

COMPARITIVE STUDY IN NATURAL AND ARTIFICIAL LIGHT

NATURAL LIGHT	ARTIFICIAL LIGHTS
<ul style="list-style-type: none"> • Sun Light is resource from nature. • Natural lights are free of cost. • Natural light not consumes any electricity. • No electricity bills need to pay. • It keeps us healthy living by providing sunlight which provides vitamin D • It is renewable resource which we will get life time. • It is energy saving and saves electricity usage for other sources like cooling the room. • Electricity can resource from sunlight. 	<ul style="list-style-type: none"> • Artificial lights is man made. • Artificial lights are costly • Artificial lighting consumes electricity. • An electricity bill need to pay • It is not good for our health and pollution our environment. • It is not renewable resource as it works for temporarily for a particular time period time and it needs to get repaired • It consumes more electricity.

3.3 Artificial daylight

Many endeavours have been made to recreate sunshine utilizing counterfeit light. Indeed, innovation has achieved a point where globules do exist that produce the full range of light present in sunshine. What the knobs can't imitate is the common vacillations of the structure of the sunlight range as per the climate, time of day, season and even geographic area or encompassing scene. This variety in normal range light assumes a fundamental part in giving the advantages of sunlight conditions, and has not yet been effectively reproduced by any simulated framework.

3.4 Daylight in the Office

Tenants in light and full-extend office structures reported a development all around success. Specific points of interest in these sorts of office circumstances consolidate better prosperity, decreased truancy, extended effectiveness, budgetary venture assets, and slant of authorities. Favourable circumstances to the working environment master are awesome to the point that various country in Europe involve that employees be inside 27 foot of a window.

In structures anywhere day lights isn't or else can't be facilitated, with full-extend breathtaking lights has been appeared to firmly impact the authorities in the structures. Full-extend splendid lights empower day and night pros to modify their inside timekeepers or circadian cycles to organize their work cycles. improvement in proficiency, a decreasing in setbacks, an extended level of mental execution, redesigns in rest quality, and an extension in confirmation among night move masters have furthermore been credited to improved lighting.

3.5 Health inside the Office

study show to the right use of day lights reduces the occasion of cerebral torments, SAD, and eye weariness. headache and SAD are related to in short supply light levels. These infections are decreased when the lighting level is better by using correct unearthly light. In any case, the primary restorative issue in working environments is eye weakness Eye strain is related to the scope of light present in a workspace and the limit of the eye to transfer. The most ideal fuse and organization of day lighting in an office structure gives the best scope of light for the eye. Right when the eye isn't allowed to refocus to different partitions over drawn out extends of time, the growing muscle are shaped to a confined extent of perspective, propelling close or far sightedness. Eye exhaustion is decreased with scene sees through windows in light of the way that the blend of short-and long-run sees empowers the eye to progress

Stress lessening and thought focus be able to in like manner be extended by the proximity of trademark plant life in the workspace or else through windows. One examination found that subjects had cut down heartbeat readings and feel more careful in a grim room that had plants rather than single without.

Another fundamental yet clear effect from day lighting could be a more positive attitude for agents. Extended occupation satisfaction, work incorporation, motivation, progressive association, and cut down non-appearance could come to fruition in view of an upgraded perspective, Clark and Watson found that negative perspectives are connected with pain and preoccupation, while positive personalities are connected with the physical setting at work and step by step works out, for instance, social co operations among agents. Owen Bailey, condition you upgrade the room that delegates labour in, by after that they are most likely going to be additional euphoric, more helpful, and more productive."

3.6 Windows

Various structures are attempted to consolidate 24 – 30% of divider domain as window, as per regard planning confinements. Yet little ought to be conceivable to change this in existing structures, luckily this degree is ideal for the typical building. This ought to enable satisfactory daylight levels without over-lighting.

Over-lighting is transforming into a more ordinary wonder, with the present pervasiveness for structures swathed in glass, instead of regular pieces and mortar. The result is that a great deal of warmth is lost in low sunlight, and an over the top measure of warmth made when sunshine is splendid. Workers will experience strange measures of glare and scenery enlightenment, with the most understood result being that blinds are drawn perpetually, loosing each one of the points of interest design positive conditions of broad windows.

Basically to fake lighting, the best plan is a duel window approach. A best window is put high up, letting in lifted measures of daylight that can accomplish significant into the room, without causing glare. Underneath this are windows to give a view, that are shaded from arrange sunshine and let in cut down levels of light. The effect is enhanced still further if joined with duel fake lighting to grow the enveloping light, and give specific errand lighting where fitting.

Another technique, ensured to be more feasible at passing on light inside is the usage of Sun channels. Translucent, faceted curves on the highest point of the building assemble sunshine, which is then transmitted through a movement of smart pipes and precious stones significant

into the building. While keeping up a key separation from issues of warmth and glare, and saving the imperativeness costs of fabricated lighting, a pipe of only 30cm broadness is said to pass on more daylight than a customary 900x900mm window.

3.7 Benefits Of Daylighting

Day-lighting can altogether enhance life-cycle cost, increment client profitability, diminish outflows, and lessen working expense. Day-lighting can spare significant cash which is used for buying balances, apparatuses and controls for simulated lighting (power) and builds client solace and fulfilment, prompting enhanced execution. Sunlight likewise diminishes emanation of green house gasses (GHGS), moderates petroleum derivative exhaustion and aggregate vitality costs by 33%, than that of counterfeit lighting.

3.8 Daylight Availability

Sunlight techniques relies upon: I) the accessibility of characteristic light (in light of scope of the building site and encompassing states of the building); ii) atmosphere; iii) introduction of structures. High scopes have unmistakable summer and winter conditions, though, the regular variety of light is less obvious at low scopes. Henceforth fabricating fashioners should intend to augment sunlight entrance in structures in winter, at high scopes. In tropical locale, as the light levels are high consistently, architects ought to forestall overheating by confining the measure of sunlight entering in to the building. In this manner, the originator ought to ascertain the accessibility of sunlight under various climatic conditions and fix the introduction of building, which will allow most extreme light to infiltrate the working without delivering overheating.

3.9 Sky Conditions

Day-lighting configuration is typically in view of sky state of the building site. There are three regular sky conditions: clear sky, cloudy sky and mostly shady sky. Clear sky incorporates daylight and is exceptional and brighter at the skyline than at the peak, aside from in the region around the sun. Over cast sky incorporates thick overcast cover more than 90% of the sky and is portrayed by diffuse and variable levels of light and three times brighter at the pinnacle than at the skyline. Mostly overcast sky incorporates overcast cover that extents from overwhelming to light and is like the unmistakable sky at one minute and the somewhat shady sky at the opposite side. Since it is continually changing, the fashioners don't take any choices on the incompletely overcast sky.

3.10 Psychological Properties Of Colour

Shading is light, heading out to us in waves from the sun. At the point when light strikes any shaded question, the protest will assimilate just the wavelengths that precisely coordinate its own particular nuclear structure and mirror the rest – which is the thing that we see. Turn this around and it is straightforward how the shade of anything is a reasonable sign of its nuclear structure or, in basic terms, what it is made of. At the point when daylight strike the human being eye, the wavelengths make as such during various habits, affecting our observations. In the retina, they are changed over into electrical driving forces that go to the hypothalamus, the piece of the cerebrum representing our hormones and our endocrine framework. In spite of the fact that we are unconscious of it, our eyes and our bodies are always adjusting to these wavelengths of light.

Shading is vitality and the way that it physically affects us has been demonstrated on numerous occasions in tests – most quite when dazzle individuals were made a request to recognize hues with their fingertips and were all ready to do as such effortlessly.

There are just eleven fundamental shading words in the English dialect, but there are truly a huge number of hues. After the fundamental eleven, we get words, for example, avocado (is that the tissue, or the skin?) and grape (is that profound purple or green?) to depict the horde of shades, tones and tints. This definitely makes disarray in shading correspondence. Individuals regularly ask, "Do we as a whole observe hues the same?" Who knows? The fact of the matter is that in shading

brain research it doesn't appear to make a difference what we think we are taking a gander at; the impact of hues on us is caused by their vitality entering our bodies. Partially blind individuals are additionally touchy to shading brain research.

The eleven essential hues have central mental properties that are all inclusive, paying little mind to which specific shade, tone or tint of it you are utilizing. Each of them has conceivably positive or negative mental impacts and which of these impacts is made relies upon the connections inside shading mixes.

3.11 Materials And Methods Of Construction

The diverse sort materials used and most recent method received for greatest sunlight entrance into the structures are: 1) outside shading and control gadgets in hot atmosphere, outside shading gadgets, for example, light retires, overhangs, even louvers, vertical louvers and

dynamic following or reflecting frameworks are utilized to decrease warm increase diffuse regular light before going into structures; 2) coating materials sunshine is augmented by expanding coating territory. U esteem, shading coefficient and obvious transmittance of the glass assume a crucial part in day-lighting. A wide assortment of tints, metallic and low emissivity coatings, multi-paned litters of glass with inert gas fills, for example, argon or krypton are used for day lighting 3) gap area a them decide is that the profundity of sunlight entrance is around two and half circumstances the separation between the highest point of a window to ledge; 4) reflectance of room surfaces-it is alluring to continue roof reflectance more than 80%, dividers more than half and floors around 20%; 5) mix with electric lighting controls a fruitful day-lighting configuration to coordinate with the electric lighting frameworks. The electric light is balanced with propel lighting controls when adequate sunshine is accessible (exchanging controls, ventured controls and diminishing controls); 6) other lighting controls like inhabitancy controls (in freed, ultrasonic/small scale wave innovation, inhabitancy sensors and so on.,) and clocks are greatly financially savvy gadgets and are used for vitality proficiency in structures.

LIMITATIONS OF THE STUDY

- As characteristic lighting isn't accessible in the evening time so we can just use it in the day time and spares power utilization.
- As regular lighting we not get effectively in the winter days as sun not ascends in advantages of characteristic lighting as much we get back then.
- As distinctive shades get piece regular lighting like neighbouring structures, tall high trees other than the structures so we need to concern those components previously outlining the structures.
- As in the structures warm brilliant and glare of daylight can cause issues if not plan appropriately by legitimate determination material.
- As for the characteristic lighting in the structures, introduction is the fundamental factor so before planning building we need legitimate information of introduction of the building on the grounds that on the off chance that we outline our rooms in wrong introduction we didn't get productive measure of normal lighting in the structures.

CHAPTER 4 -CONCLUSION

Natural light is something that cannot be avoided in human life. Sun plays an important role in everything that happens in this world. In our daily life nature light is an essential factor as it affects human body. At the same time it influences human health also. If you have to perform a task, whether it is at home or work place, the motivation to do it with full energy and enthusiasm comes from the atmosphere and mood inside the room. The atmosphere of a room is set by controlling windows, air circulations and using eco-friendly materials which ensures healthy working environment.

Efficiency of natural light is influenced by its orientation. We convert natural light into energy and store it for future use by using solar panel etc. Nowadays artificial lights are available in abundance which we use to light up a particular area through which we are wasting energy and money added to which we are heating up the air.

Natural light also affects the quality of material. For example the wooden furniture used in a naturally heated and ventilated room will not have problems related to fungus or termite.

Through case study we could understand the relevance of natural light in workspace and how much it affects on productivity.

Natural light does not create any health issue. The colour used in interior also leads a person to their fuller most and makes them more energetic.

So natural light is having a very important role in interior and daily life.

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