Project 3

Decorative lighting design for luxury homes

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What is decorative lighting?

A light fixture that is decorative in nature or design. The term ‘decorative lighting’ covers all the traditional kinds of light fittings (floor lights, pendants, chandeliers, etc) and differentiates them from technical or architectural lighting.

Decorative lighting can provide general illumination for an entire room, focus on a small area for task or hobby lighting, or be used to accent other lighting and provide additional ambiance. Most decorative lighting can be either hardwired or plugged into an outlet and some can run on battery or solar power. We need to choose creative shapes, unusual colors, interesting designs and attractive elements to complement our decor with lighting.
Types of lighting:

Three are three basic types of lighting that work together in a home:

• Ambient
• Task
• Accent

A good lighting plan combines all three types to light an area according to function and style.

Ambient lighting

Provides an area with overall illumination. Also known as general lighting, it radiates a comfortable level of brightness without glare and allows you to see and walk about safely. In some spaces such as laundry rooms, the ambient lighting also serves as the primary source of task lighting. It can be accomplished with chandeliers, ceiling or wall-mounted fixtures, recessed or track lights and with lanterns mounted on the outside of the home. Having a central source of ambient light in all rooms is fundamental to a good lighting plan.
Task lighting:

Helps you perform specific tasks, such as reading, grooming, preparing and cooking food, doing homework, working on hobbies, playing games and balancing your checkbook. It can be provided by recessed and track lighting, pendant lighting and under cabinet lighting, as well as by portable floor and desk lamps. Task lighting should be free of distracting glare and shadows and should be bright enough to prevent eye strain.
Accent lighting:

Adds drama to a room by creating visual interest. As part of an interior design scheme, it is used to draw the eye to houseplants, paintings, sculptures and other prized possessions. It can also be used to highlight the texture of a brick or stone wall, window treatments or outdoor landscaping.

To be effective, accent lighting requires at least three times as much light on the focal point as the general lighting surrounding it.

Accent lighting is usually provided by recessed and track lighting or wall-mounted picture lights.
Types of Lighting Fixtures:

There are many different styles, sizes and shapes of lighting fixtures that are available to deliver the ambient, task and accent lighting we need. A study on the existing ones has been made to understand the market environment, sellers and buyers both.

The many shapes and forms of lighting fixtures are as follows:

• Chandeliers
• Hall/foyer fixtures
• Pendants
• Ceiling-Mounted Fixtures
• Wall-Mounted Fixtures
• Bath/Vanity Fixtures
• Portable Lighting
• Track Lighting
• Rail Lighting
• Recessed Lighting
• Under-cabinet Lighting
Chandeliers:

They add style and a decorative focal point to almost any room in the house. Though they have traditionally been used in the dining room, they are now commonly featured in bedrooms, kitchens, family rooms, living rooms, foyers and even bathrooms.

Some chandeliers are designed with down-lights to provide task lighting for homework, table games or to accent table settings. Others are available with fabric or glass shades, which reduce glare and provide an artistic element. Adding a dimmer to your chandelier lets you alter the intensity of the light to suit the mood or activity.
Hall/foyer fixtures:

Can create a beautiful focal point at the entrance to your home. They can provide the ambient lighting that you need to greet guests and to assure safe passage into other areas of your home.

The ceiling height of the space will determine the type of fixture that you should use. In taller ceilings and over stairways, large chandeliers and chain-hung foyer fixtures are most appropriate. Use surface-mounted and close-to-ceiling fixtures in foyers with lower ceilings and in hallways.
Pendants:

Can provide both task and ambient lighting. They are extremely popular and available in an unlimited range of styles, shapes and colors.

Equipped with shades or globes to avoid glare, they are suspended from the ceiling over kitchen counters, breakfast areas, game tables or other work areas. When used over bedside tables, they provide good task lighting and also free up the space occupied by table lamps. The use of a dimmer provides you with the flexibility to vary the light to suit the occasion.
Ceiling-mounted fixtures:

Are excellent as a source of ambient lighting and are especially practical in areas with much activity, such as foyers, hallways, bedrooms, kitchens, baths, laundry rooms, playrooms and dens.
Wall-mounted fixtures:

Can provide a unique sense of elegance and sophistication to any home. They can also furnish ambient, task and accent lighting. Many are designed to match and supplement chandeliers and other fixtures in sets or families.

They are excellent sources of light in foyers, hallways, bedrooms, living rooms, home offices and home theaters. Wall brackets also are often used for task lighting at the sides of bathroom mirrors.
Bath/vanity fixtures:

Supply task lighting, while supplementing the general lighting provided by ceiling fixtures. They are available in a wide range of styles, colors and shapes and are being used much more frequently today than the older bath/vanity lighting strips.

Newer versions of bath/vanity fixtures are available with either glass or fabric shades, which provide glare control as well as excellent task lighting for grooming, applying makeup or shaving.
Portable lighting:

Can deliver ambient, task and accent lighting while giving you the flexibility to move the light wherever you want. Table lamps, floor lamps and torchieres (floor lamps with an up-light component) are available in a variety of styles to complement your interior design. Small specialty lamps, such as clip-on-lights, adjustable task lights and desk and accent lamps, fill a variety of task, ambient and accent lighting needs.
Track lighting:

Has undergone many changes in recent years. The trend in track lighting has been toward smaller fixtures, which are much less noticeable in the space. Track lighting is excellent for its flexibility and can provide ambient, task or accent lighting.

You can move, swivel, rotate and aim the individual fixtures in any direction along the track, giving you the versatility to change the lighting scheme when the need arises. With special attachments, you also can hang chandeliers and pendants from the track.
Rail lighting:

Is increasing in popularity. As the demand grows for bendable, flexible rail lighting systems, rail lighting has been rejuvenated not only for function, but to add an additional decorative element to the space.
Recessed lighting:

Can provide general, task and ambient lighting in a very subtle manner.

Installed in the ceiling with only the trim showing, recessed fixtures can be used anywhere in the home, including outdoors, under eaves and on porches. They are ideal for any type of ceiling, including tall ceilings, shorter ceilings and sloped ceilings.

They are available as down-lights for ambient and track lighting, and as adjustable accent lights or wall washers for accent lighting.
Under-cabinet fixtures:

Offer both task and accent lighting. Mounted under kitchen wall cabinets, they provide excellent task lighting at the countertop. Used in display cabinets, they provide accent lighting for three-dimensional art and sculpture. In workshops or laundry rooms, they are an ideal source of task and ambient lighting.

They include slim, energy-efficient fluorescents, miniature linear lighting and strips of line or low-voltage xenon, halogen mini-lights or LEDs.
Types of Light Sources and Light Bulbs:

The performance of any light fixture depends very much on the light source (bulb) used. Different bulbs produce different lighting effects, and many bulbs have widely varying performance. To save energy, we have to select the most efficient light bulb that will provide the type of lighting we need.

Lighting Measurement Terminology:

**Wattage:** The amount of electricity consumed by a light source. The electric power required by an appliance or device. The amount of power, especially electric power, is expressed in watts or kilowatts.

**Lumens:** A measure of luminous flux, the total amount of visible light emitted by a source. The amount of light that a light source produces.

**Efficacy:** Measure of lumens per watt.

**Lux:** Measurement of lumen per square meter.

**Candela:** Unit of luminous intensity, that is, power emitted by a light source in a particular direction

**Foot candles:** The amount of light reaching a subject.

While watt measurements are familiar to consumers and have been featured on light bulb packages for decades, watts are a measurement of energy use and not brightness. As a result, reliance on watt measurements alone make it difficult for consumers to compare traditional incandescent bulbs to more efficient bulbs, such as compact fluorescents. Hence, lumens would at times be a better way for comparison.
Types of Light Sources:

**Incandescent bulb:** The common bulb used in daily life. General service and reflectorized are the different types.

**Parabolic Reflector bulb:** Used in recessed and track lighting. Also suitable for outdoor spot and flood fixtures.

**Tungsten-halogen bulb:** Have a longer life and provide more light per watt than standard incandescent bulbs, making them a more efficient choice.

**Xenon bulb:** These miniature bulbs are popular for strip, under-cabinet and cove lighting applications.

**Fluorescent bulbs:** They use 1/5 to 1/3 as much electricity as incandescent and last up to 20 times longer. Compact types are used in smaller, trimmer fixtures such as recessed down-lights, wall sconces, close-to-ceiling fixtures, and track lights.

**Compact Fluorescent Lamps (CFLs):** Small fluorescent bulbs that can be used in most types of lighting fixtures.

**T8 bulbs:** They are commonly used in commercial projects and are now being widely used in residential applications.

**High-Intensity Discharge (HID):** Do not produce pleasing light colors. In residential settings, HIDs are most often used for outdoor security and area lighting. Metal Halide, High-Pressure Sodium, Low-Pressure Sodium and Mercury Vapor are the different types.
Current Trend in lighting and light sources:

Illuminating the places where we stay all day and night is not just a necessity, it’s the way we conduct ourselves in life. The style, the aesthetics, the functionality and other such aspects of lighting all tell about our imagination, creativity and practicality.

Rising power bills and awareness about environment, lighting trends have favorably shifted towards compact fluorescent lamps (CFL), LED based lights & T5 which is the highly energy efficient version of fluorescent tube. Green lighting, as they are called, are durable and use less power.

In fact the new green lighting system has acquired a new meaning where it enables maximum utilization of building design, materials, colors, light sources and electronics etc. in order to make lighting effective and energy conservative.

Dynamic Lighting: As people are getting more natural, they are preferring advanced lighting solutions that can bring in the dynamics of daylight indoors promoting the feeling of well being. In dynamic lighting system, different lamps are used whose color, temperature and intensity can be controlled to create the desired atmosphere.

Recessed lights will continue to be in demand with more options to explore. Apart from the rows of halogen and LED recessed lights with their twinkling glow, concealed lighting is one more current trend that will not only illuminate living rooms but bedrooms too.
With retro looks gaining popularity, track lighting systems fitted with CFL and LED lights would also be in vogue. Sculptural pendant lights, chandeliers, floor lamps on tripod stands and arm table lamps, both in classic as well as modern designs

LED lighting: The innumerable LED lighting solutions can create a number of effects, moods and ambiances. And not only this, LED lights are highly energy efficient which is yet another lighting trend seen recently.

The projects lighting focuses mainly on the usage of LEDs for attaining the desired effect and ambience. The fixture too will hence be designed in compatibility with LEDs as the light source.
Light Emitting Diodes (LEDs):

LEDs produce light when voltage is applied to negatively charged semiconductors, causing electrons to combine and create a unit of light (photon). In simpler terms, an LED is a chemical chip embedded in a plastic capsule. Because they are small, several LEDs are sometimes combined to produce a single light bulb.

LED lighting in general is more efficient and longer lasting than any other type of light source, and it is being developed for more and more applications within the home. LEDs are currently popular in under-cabinet strips and some types of down-lights.

It is speculated that these very same sources will one day light our homes and everyday spaces. That is because they're highly efficient, long lasting, environmentally friendly and inherently controllable - enabling both new and traditional applications of light. Promising future aside, LED lighting systems already illuminate famous buildings, bridges, retail shops, television studios, theater stages, hotels, casinos, hospitals, restaurants and celebrity-filled nightclubs around the world.

LED lights have a variety of advantages over other light sources:

- High-levels of brightness and intensity
- High-efficiency
- Low-voltage and current requirements
- Low radiated heat
- High reliability (resistant to shock and vibration)
- No UV Rays
- Long source life
- Can be easily controlled and programmed
Lighting Controls:

Lighting controls give you the flexibility to design a lighting plan with multiple uses and decorative effects. With the touch of a button, today’s sophisticated dimming systems enable you to:
- Lower light levels to conserve energy and increase bulb life
- Vary the mood of a room
- Alter the intensity of the light to suit the activity
- Create and save a number of different lighting schemes in one room

Types of Controls

**Toggle dimmers** allow you to vary the intensity of the lighting by a small slider that is next to the toggle switch. The toggle allows you to turn the lights on and off, while the slider allows you to alter the intensity of the light. These are preset-type dimmers, which means you can set them at a favorite setting that will remain at the preset intensity each time you turn the switch on.
Slide dimmers:

Provide full-range, manual dimming control. Some are equipped with a touch-button that allows you to return to the previous lighting level when the lights are turned on. Others have an indicator light that glows in the dark for easy location.

Touch dimmers:

Allow you to vary the intensity of the lighting while depressing a button. These systems permit one-touch recall of the previous lighting level. Some are equipped with indicator lights that provide a continual readout of the lighting intensity and delay features that allow the operator time to exit a room before the lights turn off.

Integrated dimming systems:

Allow you to create multiple preset lighting scenes within a room. Scenes can be recalled with the touch of a button from a single wall-box or with hand-held wireless remote controls. Some manufacturers have even started offering systems that can be programmed via mobile devices such as the Apple iPhone.
Colors, moods and emotions:

There are four psychological primary colors - red, blue, yellow and green. They relate respectively to the body and the mind. The psychological properties of a few basic colors are as follows:

**RED.** Physical
Positive: Physical courage, strength, warmth, energy, basic survival, 'fight or flight', stimulation, masculinity, excitement.
Negative: Defiance, aggression, visual impact, strain.

**BLUE.** Intellectual.
Positive: Intelligence, communication, trust, efficiency, serenity, duty, logic, coolness, reflection, calm.
Negative: Coldness, aloofness, lack of emotion, unfriendliness.

**YELLOW.** Emotional
Positive: Optimism, confidence, self-esteem, extraversion, emotional strength, friendliness, creativity.
Negative: Irrationality, fear, emotional fragility, depression, anxiety, suicide.

**GREEN.** Balance
Positive: Harmony, balance, refreshment, universal love, rest, restoration, reassurance, environmental awareness, equilibrium, peace.
Negative: Boredom, stagnation, blandness, enervation.

**VIOLET.** Spiritual
Positive: Spiritual awareness, containment, vision, luxury, authenticity, truth, quality.
Negative: Introversion, decadence, suppression, inferiority.

**ORANGE.**
Positive: Physical comfort, food, warmth, security, sensuality, passion, abundance, fun.
Negative: Deprivation, frustration, frivolity, immaturity.

**PINK.**
Positive: Physical tranquillity, nurture, warmth, femininity, love, sexuality, survival of the species.
Negative: Inhibition, emotional claustrophobia, emasculation, physical weakness.

**GREY.**
Positive: Psychological neutrality.
Negative: Lack of confidence, dampness, depression, hibernation, lack of energy.

**BLACK.**
Positive: Sophistication, glamour, security, emotional safety, efficiency, substance.
Negative: Oppression, coldness, menace, heaviness.

**BROWN.**
Negative: Lack of humor, heaviness, lack of sophistication.
Definition of Lighting Terms:

**Absorption** - Refers to a measure of the amount of light absorbed by an object, instead of being reflected. Dark colored and matte surfaces are least likely to reflect light.

**Accent Lighting** - Lighting directed at a particular object in order to focus attention upon it.

**ADA (Americans with Disabilities Act)** - ADA-compliant fixtures cannot extend more than 4” from the wall.

**Ambient (General) Lighting** - The soft indirect light that fills the volume of a room with illumination. It softens shadows on people's faces and creates an inviting glow in the room.

**Amperage** - The amount of electrical current through a conductive source.

**Angle of Reflectance** - The angle at which a light source hits a reflective surface equals the angle at which the resulting glare is reflected back.

**ARM** - A decorative-shaped tube or casting that is used to support a socket. An arm usually has socket wires running through it.

**Back Plate** - The part of a fixture that mounts to a wall or vertical surface.

**Ballast** - Device that provides the proper starting and operating electrical condition to power one or more fluorescent or HID lamps. There are two types of ballasts available, magnetic and electronic.

**Bulb** – What everyone calls it except the lighting industry which calls it a ‘Lamp’.

**Canopy** - The decorative plate that attaches to the ceiling to cover the junction box.

**Chandelier** - A multi-arm, decorative, often ornate ceiling light fixture that holds a number of bulbs.

**Collection** – A group of matching fixtures and/or lamps that together can bring a unified look to a home or room.
**Color Temperature** – The appearance of white light, in terms of warmth or coolness. Warm color corresponds to lower color temperatures and cool colors to warm color temperatures.

**CRI (Color Rendering Index)** – A measure of how light sources render colors. The higher (to 100) the CRI, the better the color rendering, given the color temperature of the lamp.

**Diffuser** – A covering or shade over a light or lamp that generally softens or scatters the light and is usually used to eliminate hot spots and glare. Can be made from a variety of materials (glass, plastic, fabric, etc.) and in a variety of colors.

**Dimmer** - A control that regulates light levels.

**Dimming Ballast** - a ballast designed to allow the use of dimmers.

**Efficacy** - Measurement of the efficiency of a light source.

**Extension (EXT.)** - The depth of a wall light fixture (sconce or bath). The measurement from the wall to the farthest point away from the wall.

**Family** – Same as Collection - A group of matching fixtures and/or lamps that together can bring a unified look to a home or room.

**Filters** - Glass or metal accessory used to alter beam patterns or introduce/change colors.

**Finial** - A small finishing ornament at the crown or bottom of a fixture.

**Fixture** – A light that is permanently attached or wired directly into a junction box. Chandeliers, bath lights and wall sconces are examples of ‘fixtures’.

**Flush-Mount** - Attach directly to the ceiling with no gap between the light and ceiling.

**Foot Candle** - A measurement of the intensity of light reaching a surface. One uniformly distributed lumen falling on one square foot of surface produces the illumination of one foot candle.
**Halogen** - An incandescent lamp containing halogen gas which recycles the tungsten.

**Hard Wire** - Method of luminaire installation using a junction box.

**HCWO (Height from Center of Wall Opening)** - The measurement from the top of the fixture to the center of the outlet box when installed.

**High Intensity Discharge (H.I.D.) Lamp** - A category of lamp that emits light through electricity activating pressurized gas in a bulb. Mercury vapor, metal halide, and high pressure sodium lamps are all H.I.D. sources. They are bright and energy-efficient light sources used mainly in exterior environments.

**Housing** - Enclosure for recessed sockets and trim above the ceiling.

**Incandescent Lamp** - The traditional type of light bulb that produces light through electricity causing a filament to glow. It is not a very efficient source of illumination.

**Inverted pendant** - An ornamental hanging fixture with no multiple arms where the glass or diffuser opening is facing the ceiling.

**Junction Box** - an enclosure that houses electric wires or cables that are joined together and protects the connections. Junction boxes are also sometimes called ‘Gang boxes’ or ‘Splitter boxes’.

**Kelvin** - The common unit of measure for the color temperature of a light source.

**Lamp** - What the lighting industry technically calls a light bulb. A glass envelope with gas, coating, or filament that glows when electricity is applied. What everyone else calls a table or floor lamp.

**Line-Voltage** - The 110-120-volt household current, generally standard in North America.

**Low-Voltage Lighting** - System that uses less than 50-volt current (commonly 12-volt), instead of 110-120-volt, the standard household current. A transformer is used to convert the electrical power to the appropriate voltage.

**Lumen** - It is the measure of the “perceived power” of light.
PAR Lamps - Lamps (bulbs) with parabolic aluminized reflectors that give exacting beam control. There are a number of beam patterns to choose from, ranging from wide flood to very narrow spot.

Pendant - An ornamental hanging fixture with no multiple arms where the glass or diffuser opening faces down.

Portable – A light or lamp that is simply plugged into an outlet and can easily be picked up and moved. Ex: Table lamps

Sconce – A decorative lighting fixture with a flat side to be hung on a wall, that holds candles or lights.

Semi Flush – A light fixture which attaches to the ceiling with a stem or part that creates a gap between the fixture and ceiling.

Switches - Controls for electrical devices.

Task Lighting - Illumination designed for a work surface to provide good light, free of shadows and glare.

Timers - Control devices to activate luminaires at set timed intervals.

Torchiere - A tall floor lamp with a bowl-shaped glass that diffuses the light or directs it upward.

Transformer - A device which can raise or lower electrical voltage, generally used for low voltage lights.

Tungsten-Halogen - A tungsten incandescent lamp (bulb) which contains gas and burns hotter and brighter than standard bulbs.

Veiling Reflection - A mirror like reflection of a bright source on a shiny surface.

Voltage - A measurement of the pressure of electricity going through a wire.

Voltage Drop - The decrease in voltage between the source and the load due to resistance in the wire(s).

Watt – Unit of electrical power.

Xenon - An inert gas used as a component in certain lamps to produce a cooler color temperature than standard incandescent. It is often used in applications where halogen may normally be specified, because of a longer lamp life and lower pressure.
Market Study (Existing products from other parts of the globe): A brief look at what is in the international market

- IR 38: Crystals in a bucket
- IR 39: Ball and pattern
- IR 40: Crystals pendants
- IR 41: Single form lamp
- IR 42: Retro study lamp
- IR 43: Lighted pendants
- IR 44
- IR 45
Strong patterns on wall

Patterned posts

Lighted gong design

Lighted feathers blending with the interior

Simple but beautiful
Dazzling suspended crystal chandeliers

Good usage of textures on common materials

Use of copper plates

Usage of vivid and soft colours

Patterns in rich colours
Market Study (Existing products in Indian market and outlets): A look at what was on offer in Mumbai’s showrooms.
Ceiling suspended designs
Wall mounted designs
Wall mounted designs
Portable/table lamp designs
Portable/table lamp designs
Evaluations from the market study:

A study on the Indian lighting fixtures market shows that the most common design categories are:

- **Ceiling fixed/suspended**: Ex. Pendants, chandeliers etc.,

- **Wall mounted/suspended**: Ex. Scones, torchieres, etc.,

- **Portable**: Ex. table lamps, bed-side lamps, etc.,

Observations from market study:

- The designs as a collection do not seem to be targeting a definite user group

- Not much variety offered to the buyers

- Most of the products seem outdated/ been on the shelf for a long time

- Randomly designed products. No particular theme or purpose attached to them

- Decorative lighting section in home décor outlets either not doing well or neglected or removed entirely
User group:

With regard to the prime purpose and need for decorative lighting, the end users would be people who:

- have a good taste for lighting designs and style
- have an understanding of various moods and occasions
- are smart/luxury home occupants
- are open to innovative and new ideas
- would invest a little more than others for ambience and feel.

Considering the above traits, the product will be best designed aimed at the upper-middle and the upper sections of Indian society.

Targeted age group would be around newly married to middle aged families (25-50 years)
User profile and user study:

Users belonging to this user group have been interviewed and their view, opinions and needs have been documented accordingly. This helps in having a better understanding of user needs, hence resulting in a good design.

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Occupation</th>
<th>Prime user need</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rakanjana Sen</td>
<td>25</td>
<td>F</td>
<td>IT</td>
<td>Need something to lighten up the mood after a hard days work and stress</td>
<td>Living, Drawing</td>
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<tr>
<td>Ashish Deb</td>
<td>24</td>
<td>M</td>
<td>IT</td>
<td>The drawing room must be transformable into a relax/party/romantic zone by the help of lighting alone</td>
<td>Drawing</td>
</tr>
<tr>
<td>Nikhil Autade</td>
<td>26</td>
<td>M</td>
<td>Design</td>
<td>A theme based lighting fixture that can be installed throughout the house</td>
<td>Entrance hall</td>
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<tr>
<td>Suman Rooj</td>
<td>27</td>
<td>M</td>
<td>IT</td>
<td>Modular lighting setup which can be used and installed at free will, wherever and whenever</td>
<td>Living</td>
</tr>
<tr>
<td>Arjun Mandal</td>
<td>32</td>
<td>M</td>
<td>Business</td>
<td>Innovative way of lighting up a space, by means of a simple and long lasting design</td>
<td>Living</td>
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<tr>
<td>Pooja</td>
<td>28</td>
<td>F</td>
<td>Student</td>
<td>A design free of wires, as wires tend to cut down the feel that needs to prevail in a bedroom</td>
<td>Bedroom</td>
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<tr>
<td>Shailaditya Sarkar</td>
<td>22</td>
<td>M</td>
<td>Software</td>
<td>A programmable lighting setup that allows him to set different modes at different times of the day or occasions</td>
<td>Living</td>
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<tr>
<td>Jaya</td>
<td>30</td>
<td>F</td>
<td>Housewife</td>
<td>A lighting source/fixture that makes you feel warmer, at the same time not too harsh on the eyes</td>
<td>Living, Drawing</td>
</tr>
<tr>
<td>Name</td>
<td>Age</td>
<td>Sex</td>
<td>Occupation</td>
<td>Prime user need</td>
<td>Interior space</td>
</tr>
<tr>
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<td>Sushovam Das</td>
<td>25</td>
<td>M</td>
<td>Service</td>
<td>Lighting system with smart lighting controls that allow you to dictate the light levels and intensity</td>
<td>Living</td>
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<tr>
<td>Saurav Barua</td>
<td>26</td>
<td>M</td>
<td>Advertising</td>
<td>Light fixture which can be put up or taken down at will with ease</td>
<td>Living</td>
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<tr>
<td>Akvil Sakhare</td>
<td>22</td>
<td>M</td>
<td>Student</td>
<td>Simple design which goes with almost any kind of modern interior and colour theme</td>
<td>Hall</td>
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<tr>
<td>Madhumati</td>
<td>32</td>
<td>F</td>
<td>Research</td>
<td>The source of light must be totally concealed, while still giving off sufficient ambient and task light</td>
<td>Dining, Living</td>
</tr>
<tr>
<td>Koustav Biswas</td>
<td>30</td>
<td>M</td>
<td>Engineer</td>
<td>A light that can be self made by just buying a few components that are readily available in the market</td>
<td>Living</td>
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<tr>
<td>Shishir</td>
<td>27</td>
<td>M</td>
<td>Software</td>
<td>Fixture for all occasion, and a one that can be used all throughout the day</td>
<td>Main hall</td>
</tr>
<tr>
<td>Vineetha Rath</td>
<td>27</td>
<td>F</td>
<td>Designer</td>
<td>An innovative solution that can be used as task accent as well as ambient lighting all at the same time</td>
<td>Entrance room</td>
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<tr>
<td>Swarnendu</td>
<td>33</td>
<td>M</td>
<td>Architect</td>
<td>Wire management, by making the wires as part of the design</td>
<td>Drawing, Living</td>
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<tr>
<td>Ginia Banerjee</td>
<td>25</td>
<td>F</td>
<td>Housewife</td>
<td>Mood lighting to cheer oneself up after a days household work</td>
<td>Living</td>
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<tr>
<td>Prithvi Tarafdar</td>
<td>26</td>
<td>M</td>
<td>IT</td>
<td>Light source must not be too harsh, and a trance like feel must be induced by just looking at it</td>
<td>Living</td>
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<tr>
<td>Naveen</td>
<td>24</td>
<td>M</td>
<td>Engineer</td>
<td>Employ dimmers and controls for efficient lighting</td>
<td>Hall</td>
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<tr>
<td>Anupam</td>
<td>27</td>
<td>M</td>
<td>Sales</td>
<td>Modular fixtures that cover an entire portion of a ceiling, like a carpet</td>
<td>Living</td>
</tr>
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</table>
User needs:

After interviewing the users, the following have been outlined as the prime user needs requirements. This will be used later to frame the design brief.

- Fixtures to suit the mood associated with the room
- Lighting design has to transform the setting of the room
- Simple and elegant designs preferred over antique, bulky or complex ones
- Theme based fixtures required for each interior space
- Innovative visual or interactive experience needed
- Light sources should not be too harsh on the eyes
- Smart lighting controls to be incorporated
- Power consumed and heat dissipated to be kept low
- Wiring visibility management to be improved
- Easy assembly and installation
Interior layout and spacing of Luxury Homes:

Areas/zones in a general luxury home (not necessarily in order)

- Utility
- Living and dining rooms combined
- Guest/living room
- Kitchen (generally with balcony attached)
- Hallway/aisle to inner areas
- Bedrooms and toilet on either side of hallway
- Master bedroom

General floor to ceiling height is 9 to 11 feet. Average square feet area of living room/entrance hall is between 220 and 300
Design Directions:

- Designing a new experience of ambient lighting and fixtures for luxury homes

- Designing a functional and task oriented lighting for the various tasks of daily domestic life

- Designing portable lighting fixtures
Design Brief:

Designing a new, unique, visual and/or functional ambient lighting fixture for an upper class home interior where,

- the fixture will be suspended from the ceiling

- pleasant lighting, lighting control and wire management are provided

- easy assembly and installation

The design will be an end product of contemporary manufacturing processes.
Ideations
Basic shapes

- LED DOWNLIGHTS
- WOODEN TOP PLANE
- ACRYLIC PIPES
- PATTERNS
Basic shapes

TOP PANEL

DOWN LIGHT

LIQUID FILLED GLASS CUBOIDS

LIGHT ILLUMINATING LIQUID FROM BOTH ENDS

COLOURED LIQUID

BASE LIGHT TO ILLUMINATE LIQUID
WOODEN HEXAGONAL BEE HIVE STRUCTURE

PLAIN VIEW OF THE MODULES

LIGHTS AT THE CENTER OF EACH HEXAGON

CAN BE SPLIT INTO THREE INDIVIDUAL COMPONENTS

Basic shapes
Basic shapes

PRISM FOR REFRACTION

CENTRAL PLATE

WALL MOUNTED OR CEILING MOUNTED

WALL OR CEILING SURFACE

FOCUSED TOWARDS PRISM

LEDS AT PLATE BASE

DISPERSION OF WHITE LIGHT THROUGH PRISM
Basic shapes

- Variations in texture of glass
- Randomly sized circles of glass or acrylic in a bowl pattern
- Circles of random sizes placed along a cylinder
- Light source at centre
SEMI SPHERICAL HOLLOW BOWL WITH ETCHED PATTERN

LIGHT SOURCE INSIDE BOWL

TRANSLUCENT PATTERN GLOWS (EXTERIOR)

NEGATIVE PATTERN IS REFLECTED

NEGATIVE IMPRESSION OF PATTERN MADE IN REFLECTIVE MATERIAL

Patterned light and shadow
Patterned light and shadow

BASE TWIST REVEALS HIDDEN PATTERN

LOW INTENSITY POSITION

LED DOWNLIGHTS

LIGHT AND SHADOW PATTERN CREATED ON CEILING

LIGHT INTENSITY VARIATES AS IN A CAMERA SHUTTER
Patterned light and shadow

VARIOUS DESIGNS FOR PATTERNED LIGHTING EFFECT

THREAD OR WIRE BALL AROUND LIGHT SOURCE

ABstraction of fire with patterned openings

Thread yarn woven in the form of a basket
Patterned light and shadow

STAINLESS STEEL WIRES AND THREAD

RHOMBIC PATTERN

WATER CASCADE PATTERN

INTERWOVEN INDIFFERENT PATTERNS

RANDOM PATTERN
Patterned light and shadow

Pattern created on wall/ceiling

Pattern cut or etched back plate can be removed and replaced with other templates

Slide removal of the patterned back plate

Fixing to wall/ceiling

Lighted cylinder (frosted/translucent)

Suspension
Mirrors and reflective surfaces

- Multiple reflection pattern when looked at head on
- Three mirrored surfaces forming a tetrahedron (open)
- Light source
- Pyramidal suspension
- Tetrahedral suspension
Mirrors and reflective surfaces

**STRATEGIC POSITIONING OF FIXTURE ALONG WALL PANELS TO CREATING THE BEST EFFECT**

**QUARTER VOLUME TUBE LIGHT LIKE FIXTURE**

**TWO MIRRORS AT RIGHT ANGLES TO CREATE ILLUSION OF FULL TUBE LIGHT**

**SUSPENDED FROM CEILING**

**STRATEGIC POSITIONING OF FIXTURE ALONG WALL PANELS TO CREATING THE BEST EFFECT**
Mirrors and reflective surfaces

- SEMI-CIRCULAR PLATTE (DUAL MATERIAL)
- TRANSCLUCENT ACRYLIC LIT BY LEDS FROM BEHIND
- CENTRAL LIGHTING
- LED STRIPS
- SUSPENSION POINT AND CABLES
- MIRROR STRIPS REFLECT LED LIGHT ONTO CEILING/WALL
Mirrors and reflective surfaces

FULL SPHERE

1/8TH OF A SPHERE

SUSPENDED TYPE

MIRRORED EFFECT SHOWING FULL SPHERE OF LIGHT SOURCE

THREE QUARTER CIRCULAR MIRRORS PLACED ALONG THREE AXIS

STRATEGIC POSITIONING IN A CORNER
Mirrors and reflective surfaces

**MIRRORED BACK SURFACE**

**FLAT PLATE FIXED/SUSPENDED**

**TRANSLUCENT SURFACE**

LIGHT RAYS REFLECTING OFF THE BACK PLATE
Patterned light and shadow

VARIOUS PATTERNS CUT INTO METAL CYLINDERS ()AS A SET

CUT/ PRINTED PATTERNS

DRAMATIC PATTERN CREATED ON WALL/CEILING

PLASTIC HOUSING FOR LIGHT SOURCE

CYLINDER WHICH FITS INTO THE PLASTIC HOUSING
Concealed lighting

INNOCENT LOOKING SIMPLE FRAMES

ARC SHAPES HIDDEN-LED FRAME

HIDDEN LIGHTS

REFLECTING PLATES ON EITHER SIDE OF THE LED STRIPS
Concealed lighting

HOLLOW BOX WITH HIDDEN LIGHTS

LIGHTED AREAS

MIRROR PLACED TO REFLECT LIGHT ONTO CEILING

CEILING

INTERNAL STRUCTURE OF BOX
Concealed lighting

- Structure seems to originate from wall/ceiling
- Hidden LED strip (behind the peel)
- Peeled off surface
- Effect of paint peeling/chipping off
- Same colour as wall/ceiling paint
Flat plates and light

- Pull down cord
- Light strip
- Plates collapse along channel (switching off)
- Downlights beneath each plate
Flat plates and light

TWO FLAT PLATE ELEMENTS PLACED INTO EACH OTHER

FIXED OR SUSPENDED

PULL OUT ONE OF THEM

CLOSES TO FORM A SEPARATE LIGHT BOX

BECOMES A DOME
Flat plates and light

LED FRAME-WORK

PATH FOR LIGHT SPREAD

OIL JETS TO KEEP LIQUID MOVING

FLAT PLATE DISPLAY WITH DIFFERENT COLOURED OILS

FRAME OF FIXTURE

GLASS LAYER
BALLS CUT OFF TO AVOID TOP PLATE AND ADD TO THE EFFECT

UNIT PLACED BETWEEN TWO WALLS

SUSPENDED UNIT

METAL AND PLASTIC SPHERES PLACED AND CONNECTED AT RANDOM
ARRANGEMENT OF METAL SPHERES IN AN INVERTED SUSPENDED GLASS BOWL

COMBINATION OF METAL AND LIGHTED PLASTIC SPHERES FOR REFLECTION

DOWN FOCUS LED LIGHT PLATE

UPWARD FOCUS LED LIGHT PLATE

INTER REFLECTION

LIGHT SOURCE CREATES EFFECT ON METAL BALLS

ARRANGEMENT OF METAL SPHERES IN AN INVERTED SUSPENDED GLASS BOWL

EXPLOSION
Explosion

FOR AN INTERESTING PATTERN BETWEEN WALLS

WOODEN CIRCULAR PLATES

CENTRAL LIGHT SOURCE

WOODEN STICKS PROTRUDING OUT

CENTRAL LIGHT SOURCE

NUCLEAR ENERGY DESIGN
TWO HALVES OF A HOLLOW SPHERE

PART TERNING OF PLASTIC CONES/FUNNELS/BOTTLES

LIGHT SOURCE

CIRCULAR PERFORATIONS/TAPPINGS FOR PLASTIC FORMS TO BE SCREW IN

LIGHT PASSES THROUGH AND PATTERNS

SCREW FIT INTO HOLES

PART TERNING OF PLASTIC CONES/FUNNELS/BOTTLES

LIGHT PASSES THROUGH AND PATTERNS

SCREW FIT INTO HOLES

TWO HALVES OF A HOLLOW SPHERE
PATTERN ON CEILING BY BASE LIGHTS

BASE LIGHTS FOCUSED ONTO CEILING

FOUR PARTS AT FOUR CORNERS OF A SQUARE

LED DOWNLIGHTS

VARIATIONS IN CURVE FOR MAX LIGHT SPREAD

SOF LIGHTS VIEWABLE BY RESIDENTS

LIGHT BEAM (FOCUS ON CEILING)
OBJECTS PLACED IN BETWEEN TWO LIGHTED PLATES

LITE BOXES OF DIFFERENT SHAPES

ARRANGEMENT IN RANDOM FASHION TO CREATE VISUAL INTEREST
ABSTRACTION OF AN EXPLOSION

EACH LAYER LIGHTED UP IN DIFFERENT LIGHT LEVELS

WHITE LED PANEL (BACKGROUND)

FREEZE FRAMES DEPICTING SHATTERING OF GLASS

ABSTRACTION OF AN EXPLOSION

EACH LAYER LIGHTED UP IN DIFFERENT LIGHT LEVELS
Organic shapes

FISH TAILS MATERIALIZING INTO WIRE ALL THE WAY UPTO THE CEILING

OPTICAL FIBER

FOCUS LIGHT THROUGH EYES

PATTERN/ETCHING

ABSTRACTED FORM OF A FISH HOUSING THE LIGHT SOURCE
Organic shapes

INTERNAL LIGHTED SHAPES ON WALL/CEILING

ORGANIC SHAPES OF TREE BARK FUNGUS

ORGANIC SHAPES OF SEA SHELLS

TREE LOG SUSPENDED FROM CEILING

LIGHTED FUNGUS MODULES PLACED ON SUSPENDED TREE TRUNK
ABSTRACTION OF HUMAN FIGURES AS STICK FIGURES (BULBS AS HUMAN HEADS

HUMAN FIGURES SITING AROUND ON A RING

HUMAN FIGURES WITH BULB HEADS AND LIGHTED TOP HATS

Organic shapes
Sensor based

Modules placed for ambient lighting over dining table.

- Fully opened module
- LED lights
- Opening up process
- Pentagonal spread
- Cylinder that opens up at a touch
- Touch/push at base to trigger light sensor
- Modules placed for ambient lighting over dining table
Sensor based

FLOWER SHAPED MODULE
(CLOSED DURING DAYTIME)

USAGE OF LIGHT SENSOR

CEILING LEVEL

CENTRAL LIGHT SOURCE

SHRUB/BUSH DESIGN
WITH 'FLOWERS' PLACED AT STRATEGIC POINTS

FULL BLOOM AT NIGHT

LIGHT LEVEL DETECTING SENSORS IN PETALS
Pattern formed by multiple sources

Organic shaped frames

Hidden LED sources

Pattern created by LED from the four corners

Patterned plate covering LED source in each corner
Pattern formed by multiple sources

Various patterns obtained by positioning the sliding stopper

Light from LEDs from frame sides

Guided into a semi circular channel

Sliding stoppers in channel

Limits the length of the channel being lit by the LED
Water and fluid based

- Cylindrical lighted lamps
- Motor wiring and water path
- Flat metal plates/basin

Impression on plates bottom for water flow path
Water and fluid based

AIR OUTLETS
WALL MOUNTED (SMALL)
CEILING MOUNTED (BIG)

MOTOR PUMPING AIR INTO LIQUID

AIR BUBBLES RISING FROM BELOW (VISUAL EFFECT)

GLASS CYLINDER FILLED WITH COLOURED FLUID

BEER MUG INSPIRED DESIGN (SALT IN BEER)

DOWN LIGHT FROM TOP MODULE
**Experimenting with light and shadow effects:**

Light source placed inside a hollow structure made out of bamboo with gaps left for creating a play of light and shadow

Acrylic cylinder and the various effects and patterns it creates when white LED light passes through it at various angles

Cylindrical mesh created using bamboo and gaps left in a way that a light source from inside creates interesting patterns on the outside
Grouping of ideas:

**Cluster 1**  
Basic shapes

**Cluster 2**  
Dome lighting

**Cluster 3**  
Flat plates

**Cluster 4**  
Explosion/Random
Concepts
Concept 1

Fittings for locking modules into each other

Medium intensity bulbs

Milky white acrylic sheets

Step 1

Path for wiring/LED

Step 2

Step 3

Step 4

Step 5

Step 6

Suspenders from ceiling

Gaps left in between modules for lighting effect

Assembled structure
Concept 1 mock up model:
Concept 2 mock up model:
Concept 3

ARRANGEMENT 1

PIN BOARD, FIXED TO CEILING

SET OF CLEAR AND TINTED ACRYLIC SHEETS

ELEVATION VIEW

WIRE SUSPENDER

LED LIT PANELS

PLAN VIEW

RANDOM ARRANGEMENT ABOVE AND BELOW THE LED SHEETS

ARRANGEMENT 2

PIN BOARD NAILED TO CEILING

ACRYLIC SHEET SETS

HOLE FOR PATTERN LIGHTING AND WIRE PASSAGE

CORNER HOLES FOR SUSPENSION

CABLE SUSPENSION

FIXING UNIT FOR CABLE END

LIGHTED LED SHEET

ACRYLIC

BACK PLATE

LIGHT PATH

LED FRAME

BOTTOM ACRYLIC (FROSTED)
Concept 3 mock up model:
Concept 4

SLOPES FOR WATER FLOW

MILKY WHITE ACRYLIC

WATER CASCADING DOWN

OPAQUE ACRYLIC PATH ETCHED FOR WATER FLOW

SUSPENDED SETTING IN CORNER OF A ROOM

PYRAMIDICAL SOFT LIGHT

DEPRESSION FOR POOLING OF WATER

WATER MOTOR (PUMP)

LIGHT SOURCE

TOP HAT

SUSPENSION ROD

WATER MOTOR

BULB

CHANNEL FOR WIRING

BULB FOR BASE PYRAMID

GLASS BASIN AND PYRAMID LIGHT SUPPORT

TOP HAT BASE SUPPORT

FITTINGS FOR BULBS INSIDE PYRAMID

WATER PIPE FROM MOTOR TO TOP HAT

PYRAMID BASE SUPPORT

WATER OUTLET

COLOURED FILM OR ETCHING TO HIDE WATER MOTOR

BASE LAMP

CENTRAL LIGHT

DEPRESSION FOR POOLING OF WATER

PYRAMIDICAL SOFT LIGHT

MILKY WHITE ACRYLIC
Concept Evaluation:

The four concepts are now evaluated by users and subsequently rated on a scale of 10 against each of the issues given in the first column of the table shown below.

<table>
<thead>
<tr>
<th></th>
<th>Concept 1</th>
<th>Concept 2</th>
<th>Concept 3</th>
<th>Concept 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aesthetic quality</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>7</td>
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<tr>
<td>Lighting ambience</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>6</td>
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<tr>
<td>Non-complex design</td>
<td>5</td>
<td>6</td>
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<tr>
<td>Newness of design</td>
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<td>8</td>
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<tr>
<td>Scope for LED</td>
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<td>4</td>
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<td>6</td>
</tr>
<tr>
<td>Ease of assembly</td>
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<td>5</td>
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<td>Batch manufacture</td>
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<tr>
<td>Modularity</td>
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<td>8</td>
<td>6</td>
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<tr>
<td>Maintenance</td>
<td>5</td>
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<td>8</td>
<td>4</td>
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<tr>
<td>Cable management</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>8</td>
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<tr>
<td></td>
<td>64/100</td>
<td>66/100</td>
<td>79/100</td>
<td>65/100</td>
</tr>
</tbody>
</table>

Hence concept 3 will be taken ahead, variations tried out and the final design decided upon.
Variations in Concept 3: The concept is taken forward using edge lit LED panels (clear/frosted) as the light source

Concept 3A:

Dimensions: 5 feet long*3 feet wide*1.25 feet deep
Concept 3B:

Dimensions: 5 feet long*3 feet wide*1.25 feet deep
Digital 3D render

Concept 3B
Digital 3D render views
Concept 3C:

Dimensions: 5 feet long * 3 feet wide * 1.25 feet deep

ELEVATION

TOP BOARD

CHANNEL FOR HOUSING LED

LED STRIP

BENT ACRYLIC WITH ETCHIN/PATTERN ON IT

BENT INTO C AND L FORMS

WIRING AND HOUSING DETAIL AT BOARD TOP

TOP OF BOARD CONNECTIONS AS SEEN

RANDOM ARRANGEMENT OF C AND L FORM TO FORM AN INTERESTING PATTERN

VARYING SIZES OF CLEAR ACRYLIC PLATES
Digital 3D render
Digital 3D render views
Final Concept
Final Concept

TOP BOARD WOODEN (CORAIN OR LAMINATED FINISH)

TOP PLATE

BLACK ACRYLIC

PLATES ARRANGED IN THREE LAYERS

SUSPENSIONS TO CEILING

SS CHANNELS FOR WIRING AND SUPPORT FOR THE LED PANELS

SS CABLES FOR SUPPORT

LED PANEL

TRANSLUCENT BLACK PATTERNED ACRYLIC COVERING THE LED PANEL

Dimensions: 5 feet long*3 feet wide*1.5 feet drop
This concept has been chosen since it addresses all the problems pertaining to maintenance, power consumption, light intensity, modularity, wire and cable management and modularity, hence adding to its aesthetic and functional value.
Digital 3D render views

Dimensions: 5 feet long*3 feet wide*1.25 feet deep
Digital 3D render views
Full scale prototyping process
Full scale prototyping process: LED lit panels

One side frosted 5mm acrylic cut at 10in*8in

Groove laser cut towards edges of the smaller side to house the LED PCB strip

LED strip cut into pieces to fit into groove leaving gaps for wiring

Wires soldered to both ends of the strip

Strips fitted in place in the grooves on either side of the place

LED strip lighted up on one side for testing. Light spread still uneven

Whit laminated sheet pasted on one face blocking out light in that direction

1mm frosted acrylic with slots cut in the corners for wiring placed over it

Light spreads out uniformly because of the frosted sheet
Full scale prototyping process: Clear dark grey, patterned acrylic sheets

3mm clear grey acrylic sheet placed in the laser cutting machine

Patterned plates of 10in*8in (19 numbers) laser cut

19 plates laser cut and the edges buffed for attaining good lighting later

Approx 4.5ft*2.5ft panel of the same material laser cut for placing on top

Pattern on the big plate

Patterned plate placed on top of the LED panel

Patterned plate fit and stuck to the panel using industrial dual side tape

The lighting effect and intensity when switched on is tested out

Total thickness of the panel is measured and maintained at 10mm
Full scale prototyping process: SS channel fabrication

Half inch sided C-channels and square extruded SS cut out in required size

Open ends of C-channel packed and welded and polished (to house panels)

Square tubes and c-channels welded together forming a path for wiring

Total length fabricated and weld spots removed

Upper fitment of steel cable to be screwed and fixed onto the top board

Lower fitment of steel cable to be welded on channel nodes for extra support

Channels welded together and buffed as per the given design

Required length cut from steel cables for fixing later giving extra support

2mm thick SS plate with screw taps welded on both ends for fixing on board
Full scale prototyping process: Top board and support frame

5 feet by 3 feet, half inch ply cut and finished to form the top board of the fixture

4 feet * 2 feet, one inch L-angle MS frame fabricated for fixing on top of the board, providing it extra strength and support

Corian laminate of same size pasted on all visible sides of the board

Plates for placing hooks from the ceiling welding on the four corners of the frame
Full scale prototyping process: Final fitting and assembly

Acrylic plate and channels placed and screwed onto the board

Light panels with patterns wired and fit in the C-channel slots

Testing done after placing each panel to ensure proper wiring throughout

Fitments for attaching steel cables fixed onto the channel nodes

Four channels placed as per the design

A total of 19 plates fixed into the slots, completing the assembly

Hooks bolted into the ceiling at the site for suspending entire assembly

Hook strength tested by pulling at the suspender chains

Suspender chains attached and ready for ceiling suspension
Prototype installed at the site:
Prototype after switching on lights:
Prototype views after switching on lights:
Dimensional details:

LED light panels (3 layers)

BLACK TRANSLUCENT 3MM ACRYLIC

FROSTED 1MM ACRYLIC

ONE SIDE FROSTED ONE SIDE CLEAR 6MM ACRYLIC

Layer 1 (Plan View)
QTY 19 NOS

Layer 2 (Plan View)
QTY 19 NOS

Layer 3 (Plan View)
QTY 19 NOS

Layer 3
Layer 2
Layer 1

ALL LAYERS TOGETHER (SIDE VIEW)
SCALE 2:1
Top board and patterned acrylic:

**TOP BOARD (PLAN VIEW)**

1374.4 (4.52 Feet)

12.5MM CORIAN PLATED PLYWOOD PLANK

866 (2.52 Feet)

766 (2.52 Feet)

3MM BLACK TRANSLUCENT ACRYLIC PATTERNED PLATE

1475.03

**TOP BOARD (SIDE ELEVATION)**

12.5MM CORIAN PLATED PLYWOOD PLANK

3MM BLACK TRANSLUCENT ACRYLIC PATTERNED PLATE
SS square tube fabrication details:

SS FABRICATION (4 NOS)

6.5

0.5

SS FABRICATION (2 NOS)

8.0

SS SQUARE TUBE (VERTICAL)

3.0

CLOSE UP SIDE VIEW OF THREE PLATES IN THE C CHANNEL

C-CHANNEL GROVE

LAYER 3

LAYER 2

LAYER 1

DIMENSION IN INCHES
Conclusion:

The chandelier has been designed and prototyped keeping the target user in mind at all times, i.e., the upper middle and the upper class. The design has been found to suit their lifestyle and desires.

However, this does not mean that the highest level has been achieved. The design could be made more dynamic by introducing more features to it. For instance, the LED plated could be made easily removable and then placed back in the slots in any desired arrangement. The pattern used on the acrylic could also be played with, or multiple templates could be provided along with the fixture, so as to give the user multiple choices.

Looking ahead, the same design could also be made for different users and different contexts. It need not necessarily be a luxury product meant only for the elite. The manufacturing process, the detailing of the product, the method of fabrication and the materials used can be varied for each context while still maintaining a similar output in terms of aesthetic value.
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