



Project III

Lighting for variable moods

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Guide- Prof.A.G.Rao

Approval sheet

The Industrial Design Project - III, entitled

“Lighting for variable moods in a restaurant”

by Priyanka Vinay Marawar,

approved for the partial fulfillment of the requirements for the Degree of Masters of
Design in Industrial Design

Guide

Chair Person

External Examiner

Internal Examiner

Declaration

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/ source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Signature

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Date:

Acknowledgement

When I choose a project, I always look for something that I haven't done before. Something that gives me an opportunity to learn new things. Something that takes me out of my comfort zone. A project on lighting offered me exactly that and more. It was a challenge understanding its complexity. I thank Prof A.G.Rao for his undeterred guidance which helped me understand and explore this new medium. He always urged me to look at the problem in different ways which indeed led me to exploit my creative potential. He took me from the familiar to the unfamiliar which I now realize helped me learn more. I appreciate his constant support, and thank him for not giving up on me as I fumbled on my path towards my goal.

I would also like to thank my batch mates Suhrid, Vinish, Roshan, Sanket, Giri, Shiba, Vaibhav, Vanya, Sanjay, Shashank, Niharika, Radhika and Ajay for their support and staying up with me those sleepless nights as we struggled to finish our projects.

Last but not the least I am grateful to have a family who are always with me through thick and thin. I would want to especially thank my father who is my constant motivational force.

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1. Abstract

Lighting has always been my area of interest and something that always amazed me. I always wondered about its ability to touch one's senses to such an extent that it could alter one's frame of mind. This report is a glimpse into the journey that explores this ability of light. Hence the topic "lighting for variable moods in a restaurant".

The project is primarily in 3 phases: Understand, Explore and Experiment, Implement

The first phase involves understanding light its components, Role of light in creating different moods by studying photographs, movies, existing products, Theatre as a case study where light is used effectively to create different atmospheres, role of colour and coloured light and restaurant as a user scenario.

Secondly, Explore and Experiment with various aspects of light to understand its relationship with materials, surfaces and its potential to create moods. Playing with light in this phase also proved as a constant creative stimulus.

Thirdly, Implement this understanding and experimentation to realize an actual product which is a lighted modular wall which can transform to create different moods as per need. The second and third stage was a cyclic process until the desired effect was rendered. Various aspects of industrial design were also taken into account in this phase of actualization.

2. Introduction- Why lighting?

Light is Intriguing
Light is Exciting
Light amazes me
Light is Enticing
Light fascinates me
Light is uplifting
Light dazzles me
Light makes me wonder...

We are blessed with light in nature. It changes how we think, see and feel things at any point in time. Light makes morning and night, afternoon and evening.

Light creates life.

Light creates space and there can be no light without darkness.

Light is all around us and it has profound effect on our lives. I was always curious about light and its ability to create moods. With this project I have tried to exercise the power of light to create different moods in a restaurant scenario and hence create unique experiences for people that allure them.

I observed, learnt and experienced the power of light which could make things appear and disappear, create and destroy, full and empty.

This report throws some "light" on my endeavor to touch the tip of this huge iceberg called "light" and my attempt to understand its full potential.

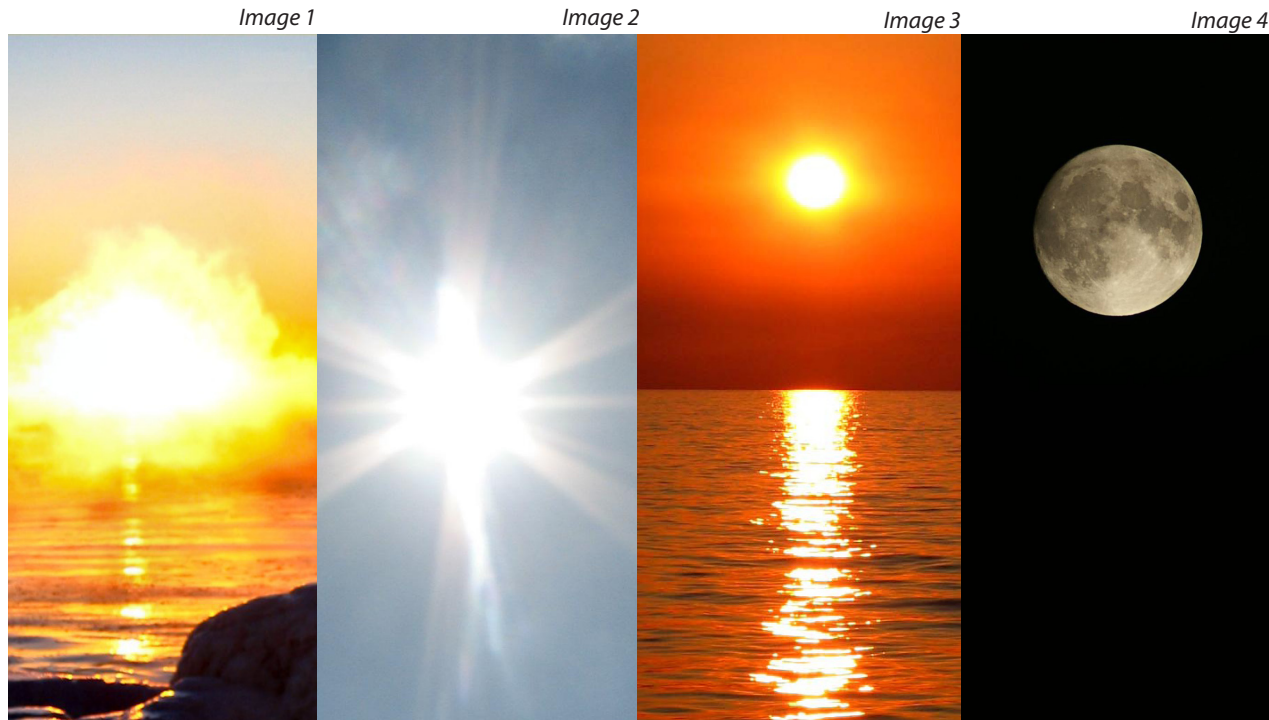
So finally...

Let there be light!

In the right light, at the right time, everything is extraordinary.

~Aaron Rose

3. Research and Analysis



Positivity
Refreshing
Energetic
Rejuvenating

Workmode
Serious
Harsh
Lethargic
Boredom

Romance
Relaxation
Soothing
Introspective
Pleasant
Grateful

Reward yourself
Family time
Satisfaction
Tired
Mystery
Party mood

3.1 Light and its effect on our lives

Natural light (sun, moon, stars) splits our day into morning, afternoon, evening and night. Our body tunes to the natural light. This tuning is called the body clock or the circadian rhythm. The 24-hour cycle natural clock called the Circadian Rhythm regulates most of the systems in the human body. The brain's suprachiasmatic nucleus (SCN) releases hormone as a reaction to light or darkness signaling the body when to be energetic or lethargic. We can hence associate certain times of the day to certain activities we do or the way we feel.

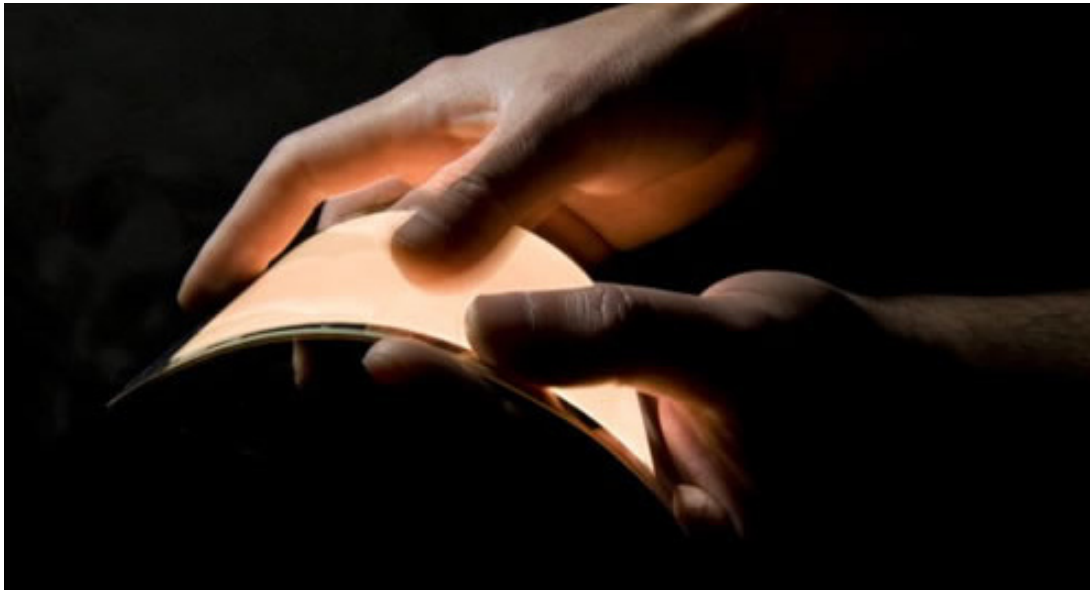


Image 5

Light influences the way we feel and think and also our actions. Lighting affects our health in a number of ways. Bright light or a well lit room will make one feel active and lowly lit room makes one feel dull and lethargic. Fatigue and headaches are incidentally caused by poor lighting or by light flickers. In workplaces, bright light has been recognized to increase and stimulate alertness and improve cognitive function. Low levels of illumination calms the sense. Depression and poor immune system are often triggered by the absence of daylight. While emotional stress and other physical ailments can also be linked to insufficient lighting.

Light therapy or Phototherapy consists of exposure to daylight or to specific wavelengths of light using lasers, light-emitting diodes, fluorescent lamps, dichroic lamps or very bright, full-spectrum light by a so-called light box. The light is administered for a prescribed amount of time and, in some cases, at a specific time of day. It is used to cure different ailments and disorders, like Acne vulgaris and neonatal jaundice. Light therapy which strikes the retina of the eyes is used to treat circadian rhythm disorders such as delayed sleep phase syndrome and can also be used to treat seasonal affective disorder, with some support for its use also with non-seasonal psychiatric disorders.

The presence or absence of visible light affects the mood through Neurophysiology based on our cognitive as well as our unconscious perceptions. light also affects our impression of a space and the mood or the feeling it induces.

Visible Spectrum

Image 6

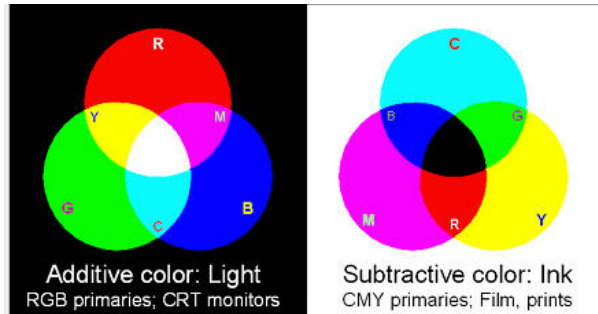
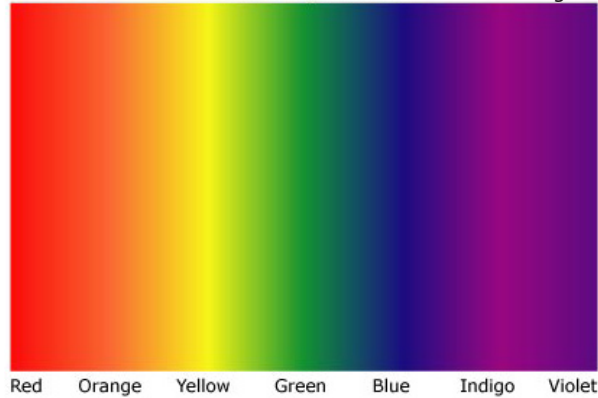


Image 7 Green leaf



Image 8 Reflective surface



Image 9 Translucent object

3.2 What is colour? How is it related to light?

All colours are components of white light. White light is made up of the colours of the rainbow. VIBGYOR (Violet, Indigo, Blue, Green, Yellow, Orange, Red). Different wavelengths, and thus different frequencies, of light are perceived by the human eye as colors. The ability of the human eye to distinguish colors is based upon the varying sensitivity of different cells in the retina to light of different wavelengths.

Most objects do not produce any light of their own. They reflect light from other sources. When it hits an object it is either absorbed or it is reflected. Mirrors are almost perfect at reflecting light so you can see yourself reflected in them. Black or dull objects absorb almost all the light that hits them, but white or shiny objects bounce the light back. Some materials allow light to pass right through them, like glass or water. They are called transparent. Some materials only let a bit of light through, like tracing paper. These materials are called translucent. Materials that don't let any light through are called opaque.

Objects tend to look a certain colour because of the light that they reflect from the electromagnetic spectrum. A green leaf would look green because it reflects green wavelength of light and absorbs the rest. If red light falls on a green leaf it would look black in colour. While if a green light is cast on a white object, it would look green as a white object can reflect any coloured light.

There is difference between colour pigments and coloured light. In pigments by combining Red, yellow and blue one can make any colours while in coloured light, combining red green and blue light, one can make light of any colour.



3.3 Effect of colour on our lives

Color is one of the languages of the soul.

- They influence our mood and emotions.
- They have their impact on our sense of well-being or un-easiness. Using and avoiding certain colors is a way of self-expression; it sheds light on our personality.
- Colors affect our way of perception (light colors make a space look big, a high ceiling looks less high when painted in a dark color, etc.)
- Colors have a symbolic meaning which is immediately recognized by our subconsciousness. It must be said that not all colors mean the same to all persons and all cultures.
- They influence the flow and amount of energy in our bodies.

Colour also has healing properties and it is used in different lines of medicine in various ways.

Chromotherapy- Also known as colour healing can be implemented in a number of ways. The ancients built great halls of color healing, where individuals entered and were bathed in light that was filtered through various colored glass panels or windows. Energy (spiritual) healers often supplement their healing work with color healing. As they lay their hands on the patient, they mentally direct specific color rays into the patient's aura and body. Oftentimes, the color used is inspired by the superconscious. In healing colors act as balancers: we administer the color someone needs more of, or we give the opposite of the color someone has too much of.

Chinese medicine- According to Chinese medicine, the "Five Healing Colors" can purify and heal all the pathways in the body, and the colors are traditionally used to harmonize the organs. When you visualize these universal energetic color forces, the organs become purified.

Blue: The healing color of the kidneys.

Red: The healing color of the heart.

Green: The healing color of the liver.

White: The healing color of the lungs.

Yellow: The healing color of the spleen.

Ayurveda- Color therapy healing helps to create this balance. colour in ayurveda is based on the vibrational energy of colors. Each color is linked to different parts of the body, as well as to the elements of the tridosha. A specific vibrational activity is applied to the body according the individual's constitution. This is one of many ayurvedic treatments to reach a state of harmony and prevent disease..

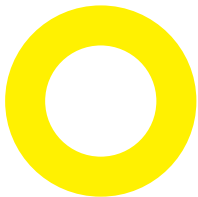
3.4 Colours and what they mean ?



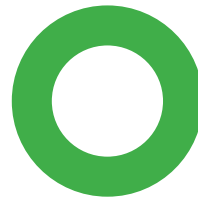
Energetic, love, danger,
desire, speed, strength,
violence, anger



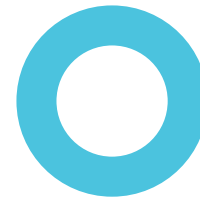
Warmth, enthusiasm,
vibrance, flamboyancy



Joy, happiness, optimism,
idealism, imagination,
hope, sunshine, summer,
gold, spirituality and
inspiration.



Nature, environment,
health, good luck,
renewal, youth, vigor,
spring, generosity,
fertility, jealousy, envy



Cooling, electric, Peace
and tranquility, calmness,
truth, wisdom, sincerity,
devotion, healing,



Royalty, spirituality,
nobility, ceremony,
mystery, wisdom,
enlightenment

3.5 What are moods?

Moods are long lasting than an emotion. They are less specific less intense, and less likely to be triggered by a particular stimulus or event. Mood also differs from temperament or personality traits which are even longer lasting.

Moods could be internal or external. Examples of internal moods are happy, sad, anxious. These are moods that you feel internally. Examples of external moods are bright, tranquil, energetic, dramatic etc. these moods are greatly influenced by the environment around us.

- Bright, Uplifting, Cheerful 
- Romantic 
- Energetic and Exciting 
- Tranquil, Serene, Peaceful 
- Mysterious 
- Dramatic 
- Refreshing 
- Party, Fun 

3.6 Identifying moods

Since moods are less specific than emotions, I underwent a brainstorming session and identified moods that are internal and external. Out of the huge spectrum of the external moods that light can create or affect, I broadly short listed and grouped them into 8 moods.

3.7 Understanding moods

I studied photographs, movies/videos, theatre and existing products to understand the moods, their expression and how they are created using light and other elements of design.

-  Photographs
-  Movies/videos
-  Theatre
-  Existing products

3.8 Analysis of moods

The photographs, theatre, movies were analyzed based on the following factors

Quality of light

- Intensity
- Nature
- Kind of source
- Direction
- Number of sources
- Distribution
- Colour
- Shadows

Other factors

- Material
- Colour
- Texture
- Surface the light falls on
- Pattern
- Metaphor



Image 10



Image 11



Image 12



Image 13



Image 14

Bright, Uplifting and Cheerful

Quality of light

Intensity- Medium
 Nature- Diffused
 Kind of source- Global light
 Number of sources- one
 Distribution- uniform
 Colour- white
 Shadows- none

Other factors

Material- Plastic, fabric, ceramic
 Colour- yellows with blue, black to balance
 Surface the light falls on- soft reflections can increase brightness

Other observations

In movies, context can be vital to create a mood. Happiness, auspicious events are bright and cheerful

Image 15



Image 16



Image 17



Image 18

Romantic

Quality of light

Intensity- Medium, low just enough to see things

Nature- soft and diffused

Kind of source- point

Direction- radial

Number of sources- multiple

Distribution- non uniform

Colour- yellow

Shadows- soft, uneven, blurry boundaries

Other factors

Material- Glass, wood, fabrics

Colour- No sudden contrasts in colour, earthen, pink, golden

Texture- matte

Surface the light falls on- reflective sparkle, diffused on wood

Metaphor- moon, beach, candle light, stars, sunset, autumn

Other observations

Composition has lot of elements, asymmetry, multiple lights in foreground and background

Image 19



Image 20



Image 23

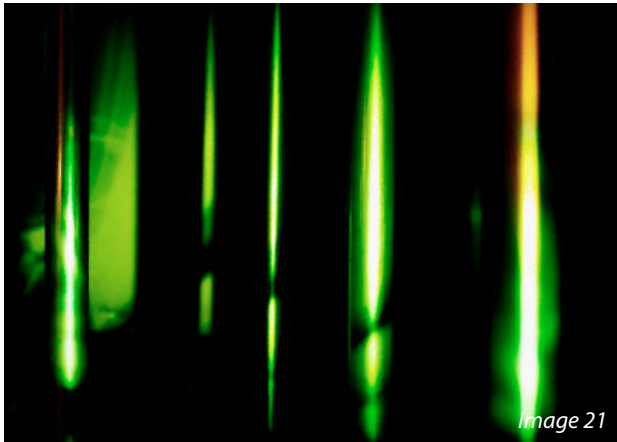


Image 21



Image 22

Energetic and Exciting

Quality of light

Intensity- medium or high

Nature- global light

Kind of source- point (large), line

Number of sources- one or more, the object should be well lit

Colour- white or coloured light with high contrast

Shadows- Medium

Other factors

Colour- bright colours with high contrast, green, red, yellow

Texture- reflective

Surface the light falls on- reflective and glossy

Other observations

Coloured light or light that brings about high contrast in colour,

Dynamic forms, feeling of uncertainty can create excitement

Image 24



Image 25



Image 26



Image 27



Tranquil and serene

Quality of light

Intensity- Medium

Nature- soft

Kind of source- point, global light

Direction- Radial

Number of sources- one or more

Distribution- uniform

Colour- white

Shadows- very soft

Other factors

Material- organic natural, glass

Colour- blue, white, purple, gradual tones

Surface the light falls on- Reflective

Metaphor- floral, water, ripples

Other observations

There is a feeling of expanse, radiating lines have a tranquil effect, there are no sudden disturbances.



Image 28



Image 29

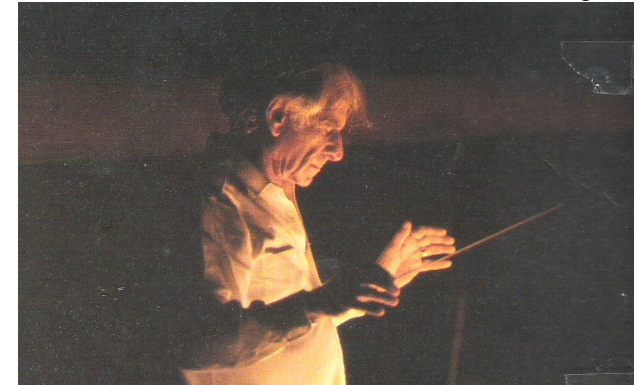


Image 30



Image 31



Image 32

Mysterious

Quality of light

Intensity- Low

Nature- soft

Kind of source- point

Direction- unidirectional, angular

Number of sources- one

Distribution- non uniform

Colour- white, yellow, blue

Shadows- strong, long, blurry

Other factors

Material- frosted glass

Colour- Greys, dull brown, black, white

Surface the light falls on- Reflective

Metaphor- smoke

Other observations

With mystery, there is always a context. There is always a story. Hiding certain details helps create mystery.

Fogginess, long pathways, cloudy days are also



Image 33



Image 36



Image 38



Image 34



Image 37



Image 35

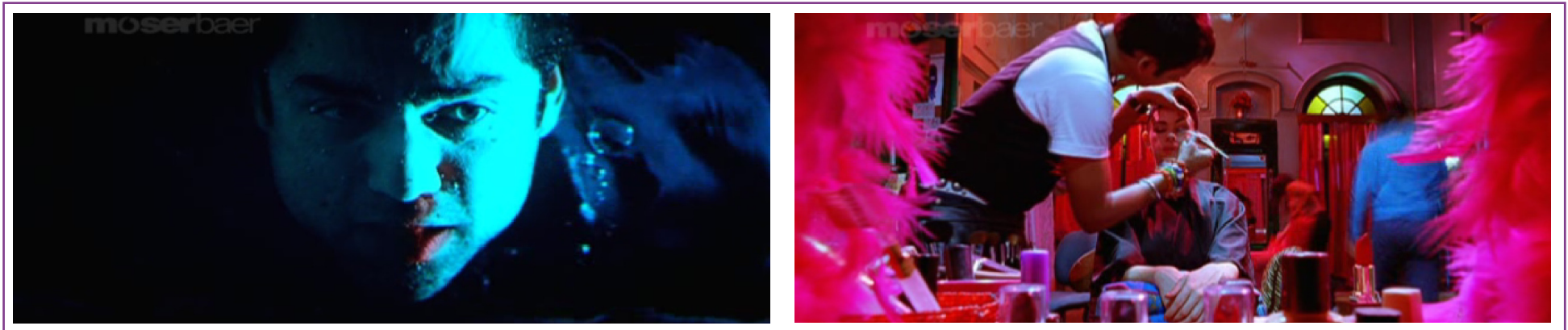


Image 38

Dramatic

Quality of light

Intensity- High
 Nature- soft
 Kind of source- spot light
 Direction- unidirectional, toplighting
 Number of sources- one or more
 Distribution- non uniform
 Colour- yellow, combination of coloured light
 Shadows- strong but blending

Other factors

Material- Fabrics, materials with contrasting character
 Colour- high contrast, red and green
 Surface the light falls on- reflective or non reflective
 Pattern- abstract lines or form, sudden waves

Other observations

Dynamism is dramatic. Jagged lines, movement can create dynamism. Context or a story may be vital. Composition is asymmetrical. Play of light and shadows.

Refreshing

Quality of light

Intensity- medium

Nature- soft

Kind of source- global light

Direction- radial

Number of sources- one or more

Distribution- uniform

Colour- white

Other factors

Material- glass, plastic, natural material

Colour- green, yellow, beige, hint of pink

Metaphor- floral, natural forms, droplets, water

Image 39



Image 40



Image 41

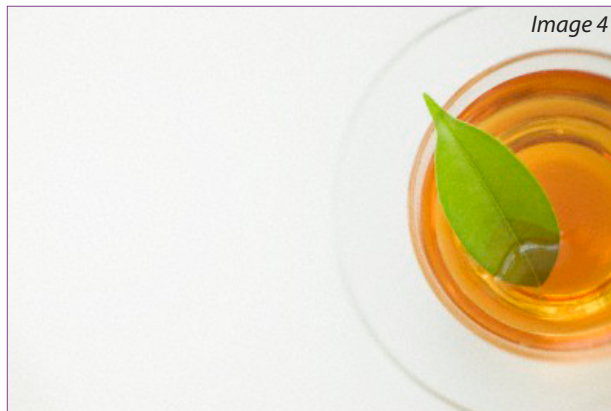


Image 42





Image 43



Image 44



Image 46



Image 45

Party and Fun

Quality of light

Intensity- varied
 Nature- soft, harsh
 Kind of source- point, line
 Direction- multidirectional
 Number of sources- multiple
 Distribution- non-uniform
 Colour- multi-colour
 Shadows- harsh

Other factors

Material- glass, plastic, mirror
 Colour- multicolour
 Surface the light falls on- reflective
 Pattern- abstract, geometric

Other observations

There are lots of elements in composition. chaos or no order can help create this moods.

3.9 Existing products



Image 47 Phillips living colours: This lamp focusses light on a wall or any other surfaces. It changes colour with the touch of a dial to create different moods.



Image 48 Changing colour wall : This changing colour wall consists of wall modules which are backlit and programmed to change colour constantly



Image 49 Colour kinetics: Moods change by manipulating 3 light sources (relaxing, romantic, energetic, meditative). Other objects are inactive in the room.



Image 50 The liquid glows because of its chemical composition



Image 51 Use of lighted objects to create moods



Image 52 Some hanging pendant lamps used to create moods



Image 53 Other examples of mood lighting

3.10 Creative analysis

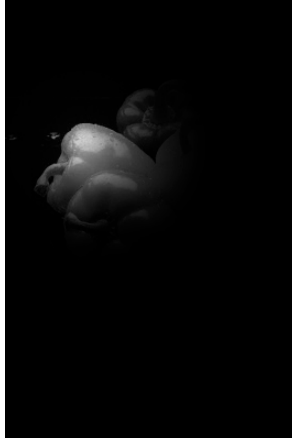
After developing a certain understanding of how the moods are created, I tried to validate them by changing some vital elements in photographs that changed the mood that the photograph expressed.



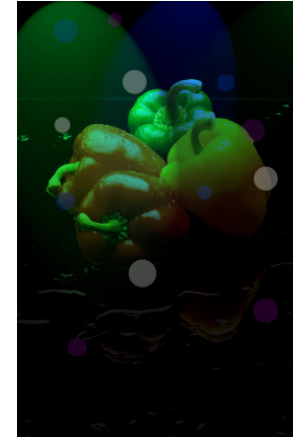
Original mood- energetic



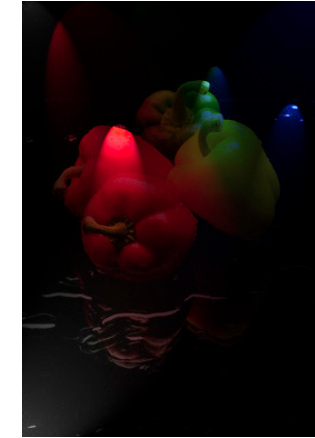
Bright and uplifting:
The background colour along with the colours of the objects was changed in an effort to get a bright and uplifting mood.



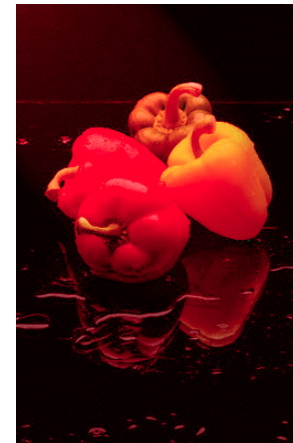
Mysterious:
Parts of the image were hidden. The light intensity was reduced, colours were changed to grey tones to change the image to mysterious



Party and Fun:
Multiple sources of lights were added with no order to create a party mood.



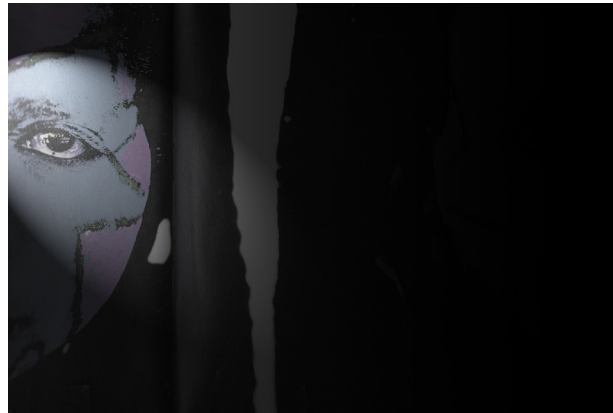
Dramatic:
wavy lines were added to the background, spot light was cast on one of the objects, some parts were de colourised to add drama to the picture.



A red filter was used to check if the mood changed or the image became more energetic. (It didnt)



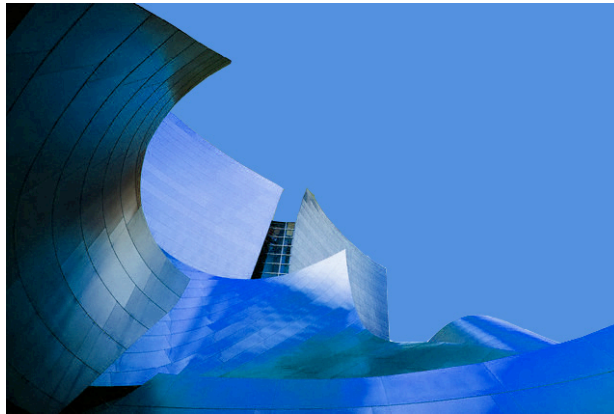
Original mood- energetic



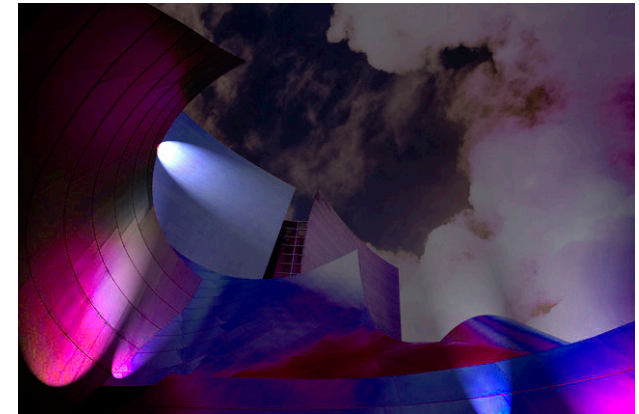
The image was de-colourised, darkened at places to hide certain parts to create a mysterious mood.



Original mood-Dramatic



The clouds were removed and the colours were changed to a uniform blue and dramatic quality reduced



Multiple coloured light sources were added to create a party mood



The contrast was increased with a spotlight to enhance the drama in the picture



The composition of the image was changed such that the building is more vertical than angular. This reduced the drama in the picture



The contrast and brightness were reduced hence reduced the dramatic nature of the image



Original mood- tranquil



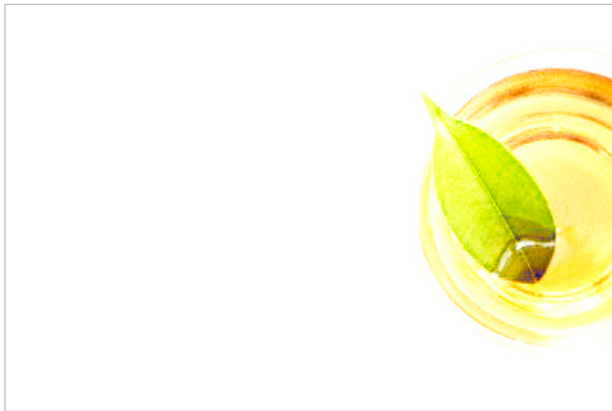
Irregular waves reduced the tranquility of the image



Red and green reduced the tranquility and took it more towards energetic



Original mood- Refreshing



Brightness was increased, the refreshing nature reduced



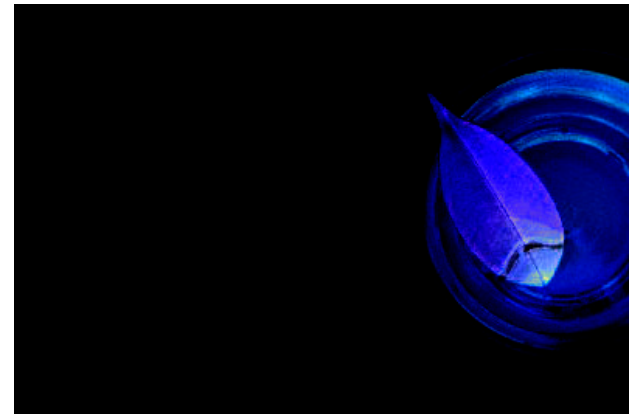
Reducing brightness reduced the refreshing mood



Darkening the image took away its refreshing nature.



Changing colours changed the mood to energetic



Ultraviolet object changed the image to exciting



Original mood- bright and uplifting



Changing the colour reduces the bright nature of this image



Changing the context to a night time, the mood is no longer bright

3.11 Types of lighting

I studied types of lighting on the based of function.



Image 54 General light



Image 55 Task lighting - Reading writing



Image 56 Accent or feature light- to accentuate something



Image 57 Sconce- lights up the wall, area around



Image 58 Sky light



Image 59 Mood



Image 60 Layering light

3.12 Kinds of light sources

The kinds of light sources available in the market were studied for their properties, wattage, luminance, sizes, energy efficiency etc.

Wattage
The amount of electricity consumed by a bulb.

Lumens
The amount of light that a bulb produces.



Image 61 Incandescent



Image 62 CFL



Image 63 High-Intensity Discharge

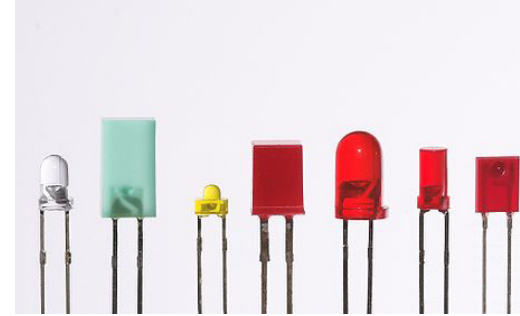


Image 64 LED lamps

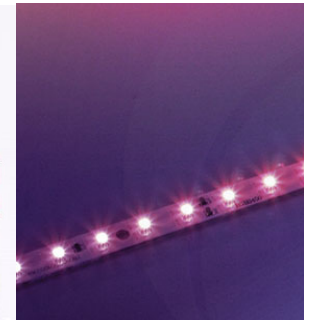


Image 65 LED strips



Image 66 Fluorescent circline



Image 67 Gas discharge lamps



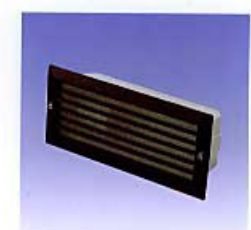
MQ-L150



MQ1-J26X2



MB-60



MB1-60



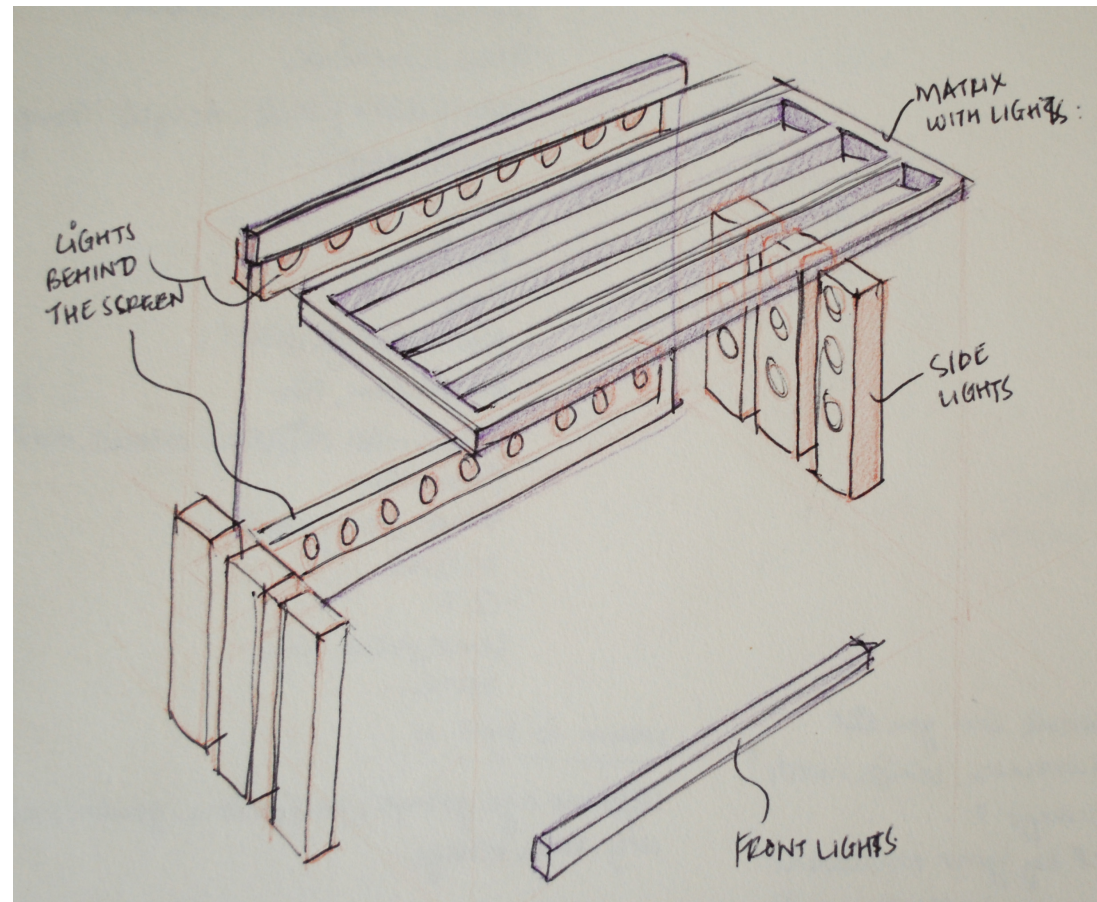
Image 68 Tungsten halogen more lumens per watt

3.13 Studying light in theatre

In theatre artists use drama, music, dance to express themselves. To aid their expression, lot of other physical elements like set design, lights, colour, costumes are used selectively to enhance this expression.

Hence, Theatre served as an excellent example where with a minimal use of props and lighting different atmospheres are created as per need. These elements are used so effectively that the effect that is rendered is almost magical. I studied some examples of theatre set design to develop a better understanding of how they use these elements.

I developed this basic model of how lighting is arranged in a stage set up. There are lights on the sides, behind the back screen, rows of lights on the top and also a front row of lights. All of them are not lit up at the same time but light up selectively or in combination as to create different effects.



Set transforms into different atmospheres by usage of light. The set is a large composition of elements. Light is used to emphasize some. The intensity, direction, number, and colour of light is played with to render these effects.



Image 69 Example 1. - Set design by David Hockney

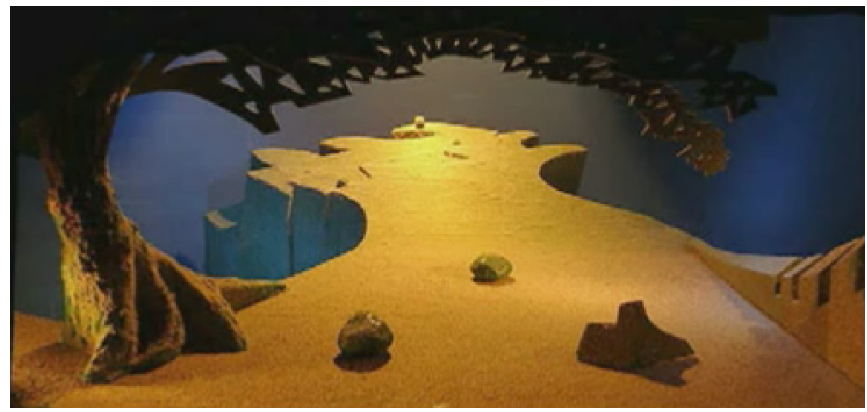
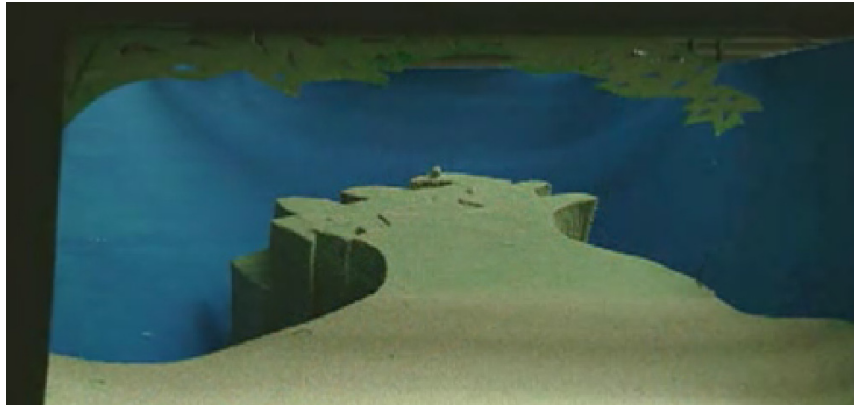


Image 70 Example 2. - Set design by David Hockney



Image 71 Example 3. - Black light theatre

Here we see the usage of luminous moving objects to depict something

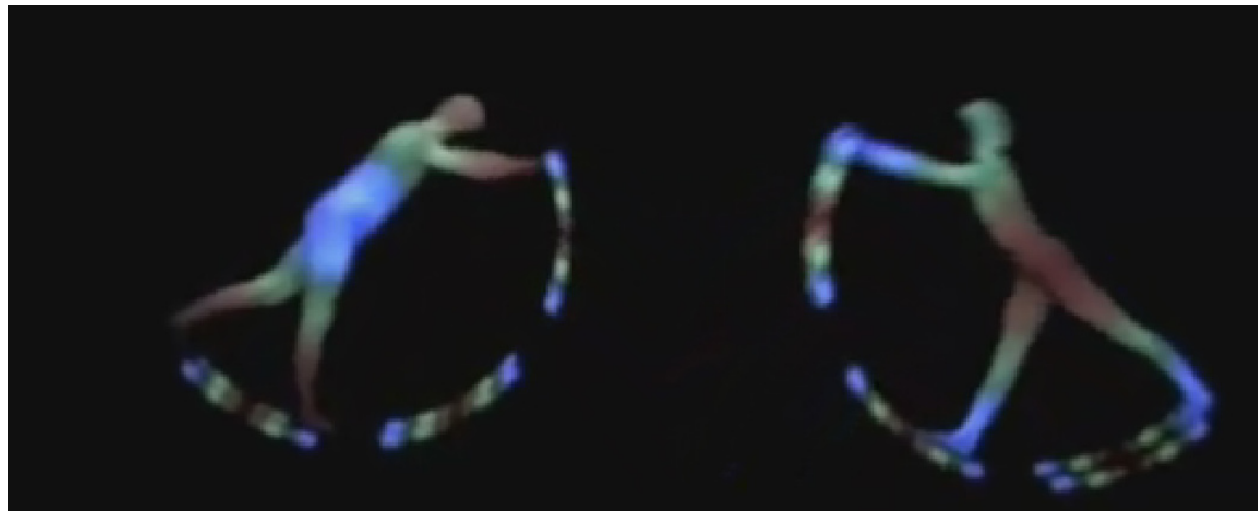




Image 72 Bonachella dance company- Light is used as modules. Tube light structure which selectively light up to convey something

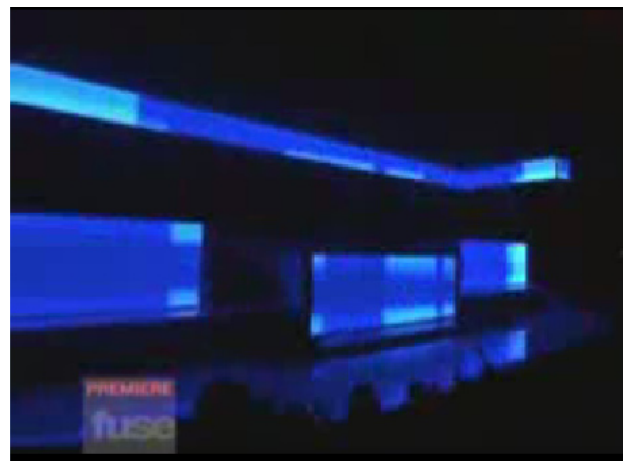


Image 73 Projection screen and LCD's are used to project scenes



Image 74 Physical theatre- Here we see multiple action areas on stage that are inactive in one mode but light up in the other

Other observations

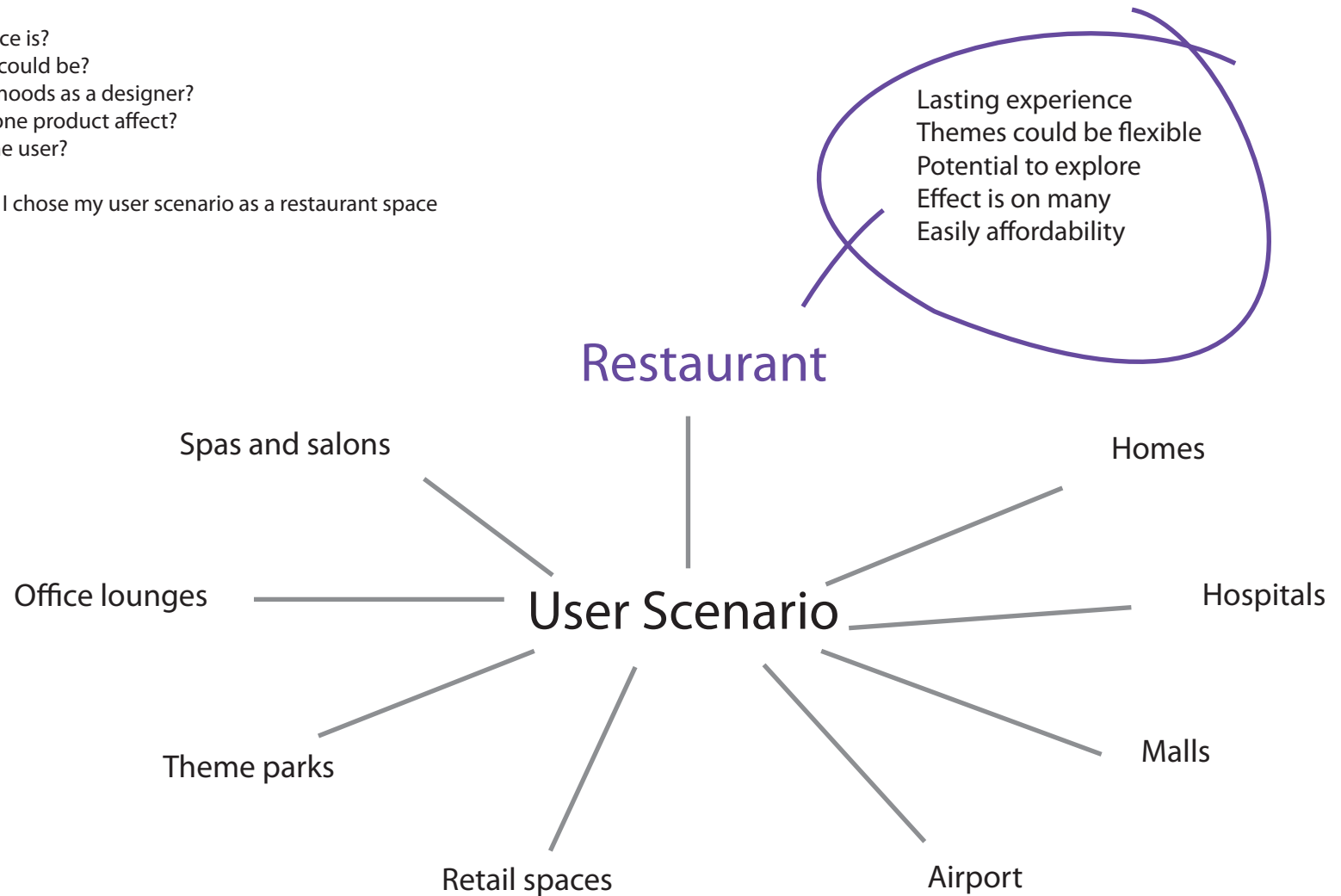
In theatre there is always a context. There is a strong relationship between music, dance, light. They often work in coordination.

4. Choosing a user scenario

The next step was to choose a user scenario that requires variable moods. I evaluated various scenarios on the basis of the following parameters

1. How lasting the experience is?
2. How flexible the themes could be?
3. Potential to explore the moods as a designer?
4. How many people does one product affect?
5. How affordable it is for the user?

Based on these parameters I chose my user scenario as a restaurant space



5. Restaurants and what create an experience?

There are lots of factors that collectively create an experience in a restaurant space. The next step was to identify these factors as lighting alone cannot create a mood or an experience but is also dependant on many other elements that comprise a space. The identified factors are listed below.



Food, cuisine



Lighting



Music



Temperature



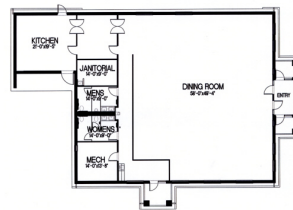
Furniture



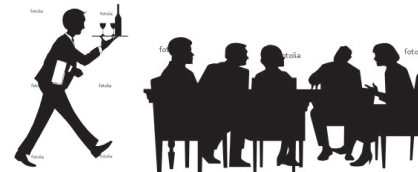
Objects



Dance



Layout and arrangement



People

6. Narrowing down on moods

Considering the scope of my project, I relooked at the identified moods for study and exploration. I decided to explore 4 moods amongst the pervious 8. These 4 moods were selected on the basis of how distinctly different they are from each other and well suited they are for a restaurant context.

-  Romantic
-  Energetic and Exciting
-  Tranquil, Serene, Peaceful
-  Mysterious

7. Moods and Restaurant

Two specific user scenarios were identified

Scenario 1. Smaller spaces within the same restaurant which creates different moods

Scenario 2. Same space transforms into different moods as per requirement. eg.

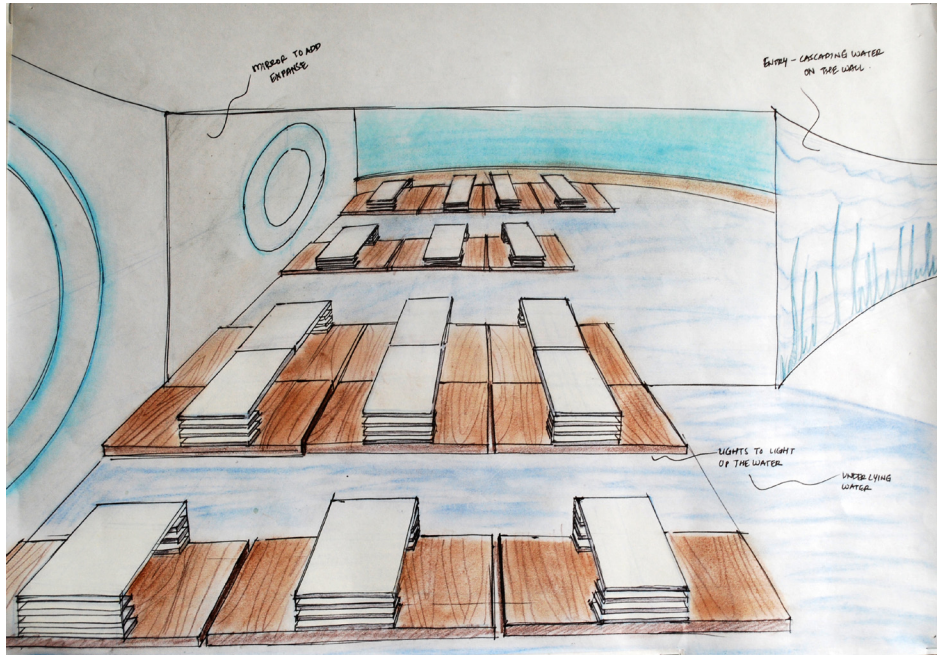
Monday- Tranquil

Tuesday- Energetic

Wednesday- Mysterious

Friday- Romantic

Firstly I started working on scenario 1. Where I envisioned specific spaces for specific moods.



Mood 1. Tranquil and serene

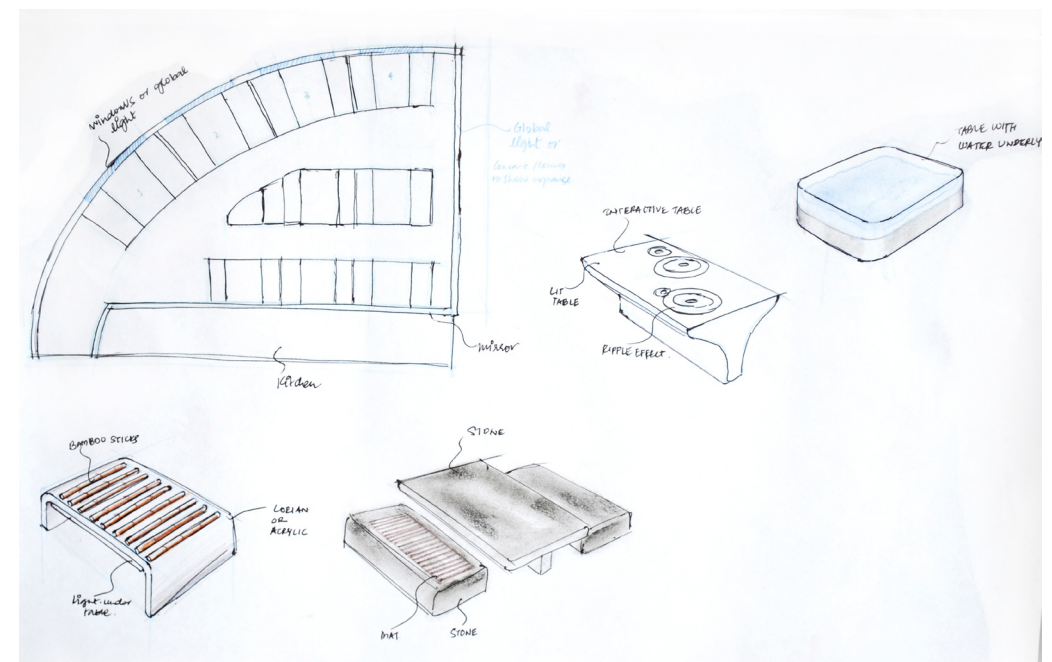
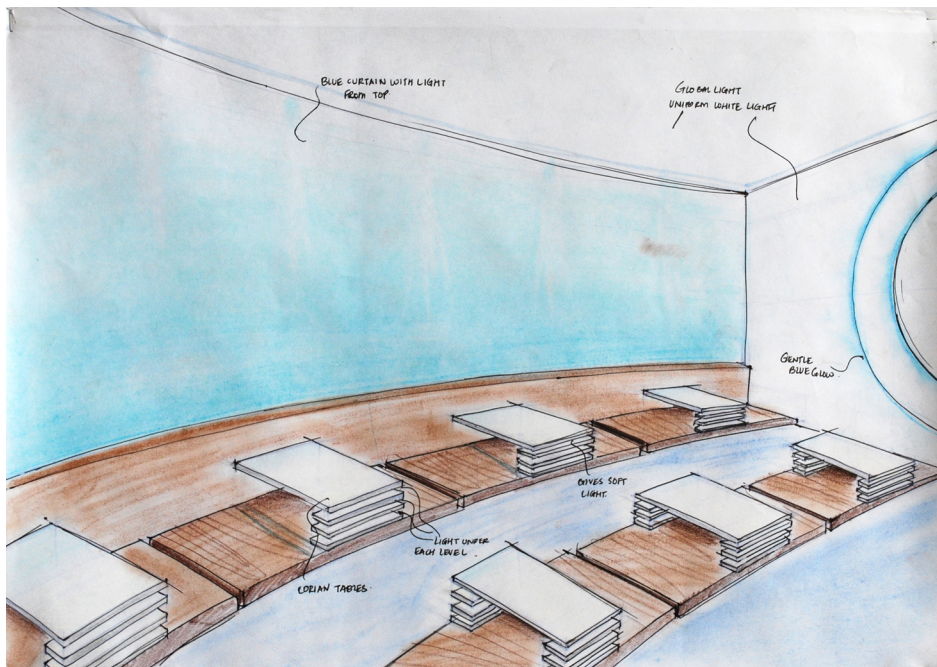
Desired light quality- Abundance of white light such that there are no dark areas. But the light shouldn't be so abundant that it's harsh and disturbing.

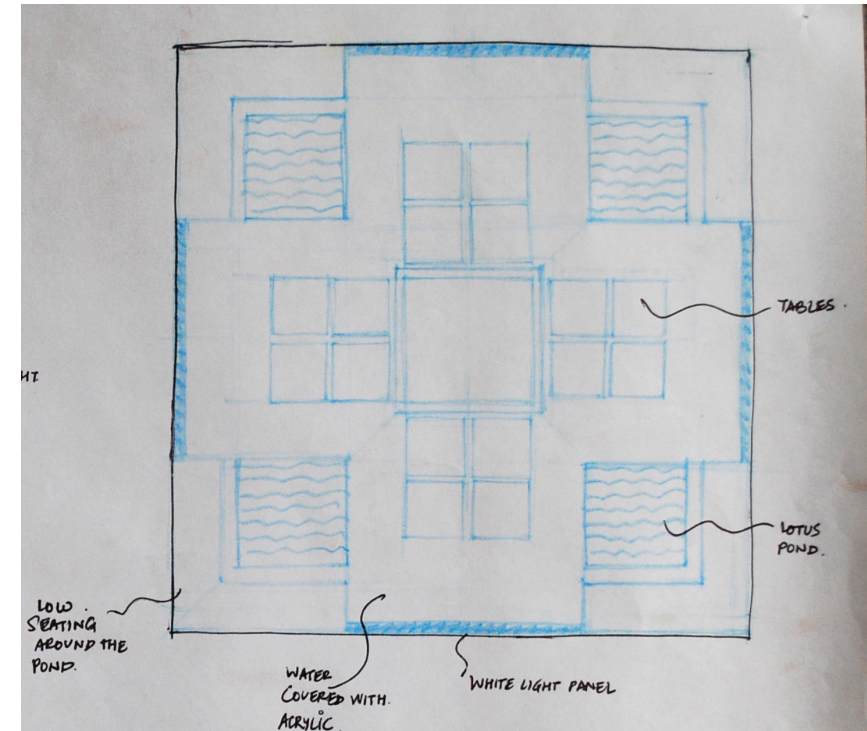
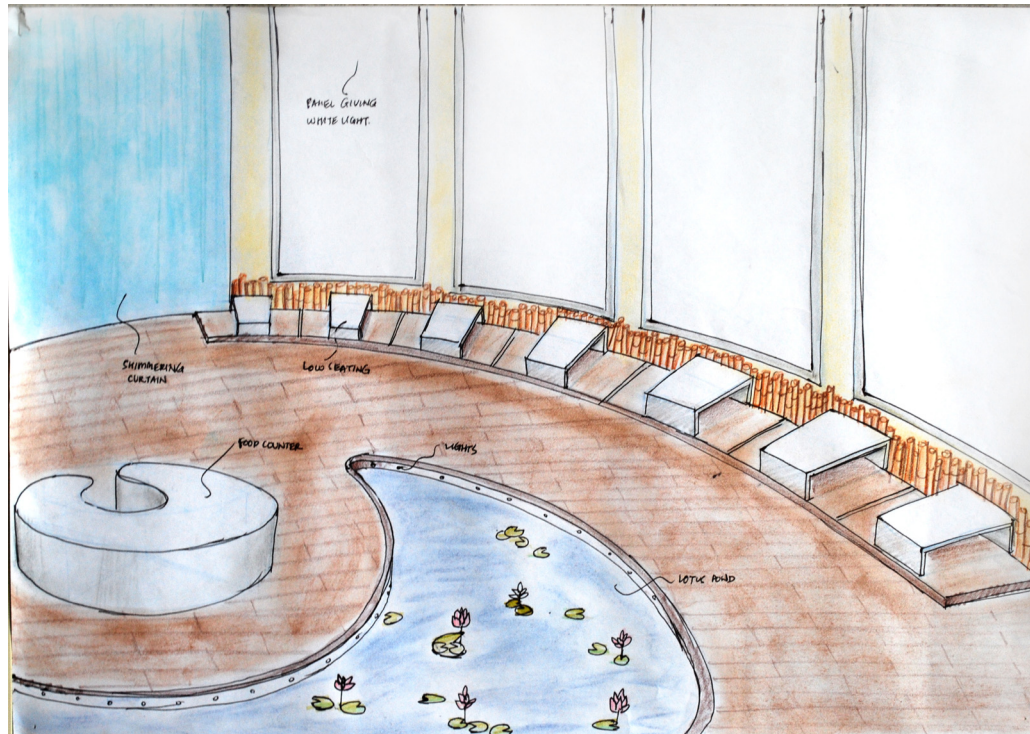
The vision- space (a)

The first thing that comes to one's mind when you think of tranquility is expanse. Hence I envisioned large open spaces with high ceiling, low seating, less clutter, simple furniture made in natural material. There is a whole wall 1. Which give abundant white light. The main space has one large wall which is a blue curtain lit from top which creates a uniform gradient. The opposite wall is a mirror which creates an illusion of a bigger space. The floor is transparent and underlined with water. The entry passage is like walking into a water cave where there are water curtains on both sides. Seating down reduces visual barriers and gives a feeling of openness.

There were some other ideas of the table being made of CORIAN and lit from the bottom. Some other material suggestions for the table and seating were stone or bamboo.

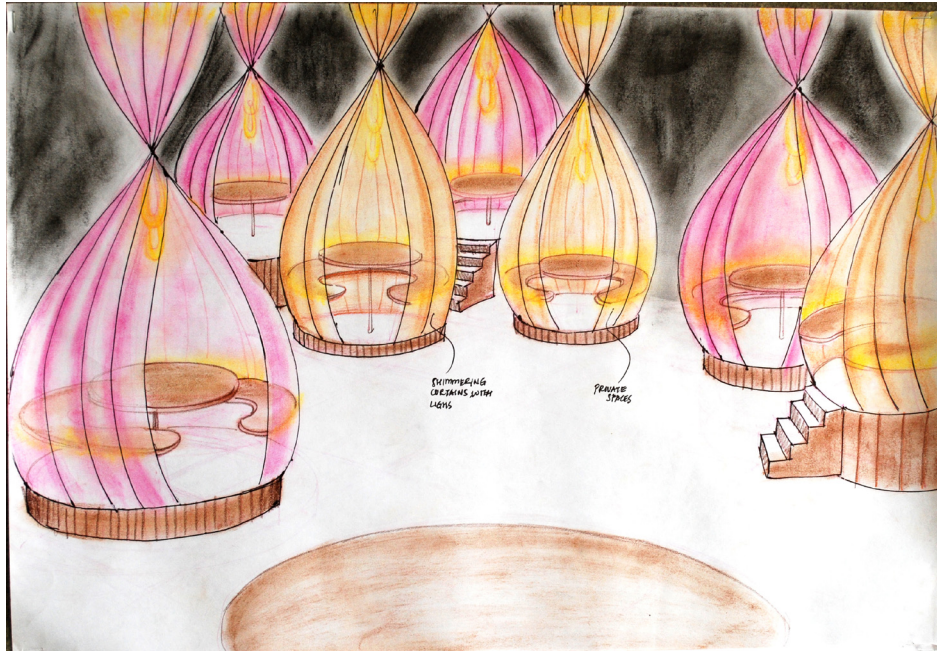
The food should be simple and organic. Music should be soft classical (jal tarang).





The vision- space (b)

Here we have a large circular space with a large water body in the centre. The ceiling is high. With this space I envisioned large panels which give abundance of diffused white light. The furniture is low, with a bamboo fence along the wall. The vision is to create a natural space within an indoor space. The floor is wooden. The other hemisphere of the circular space is lined with a huge blue curtain which is back lit. Using similar concept of this space, I also envisioned multiple layouts. with the square space (c) there are tables along the centre pillar. There are water bodies at the corners with low seating along side. The four walls have tall light panels which give abundant of white light.



Mood 2. Romantic

Desired light quality- dimly lit, yellow light, non uniform lighting, play with reflections and shimmer to create magic, soft diffused shadows

The vision- space (a)

I associate privacy with romance hence here I envision private enclosures made of fabric with localized dim yellow pendant hanging lamps. The space overall is very lowly lit. The fabric enclosure wall is lined with a series of lights which lights the curtain from the bottom creating an enchanting effect. The colours associated with romance are pink, golden, red. The furniture is wooden which diffuses the yellow light. The music I recommend would be soft Spanish guitar.



The vision- space (b)

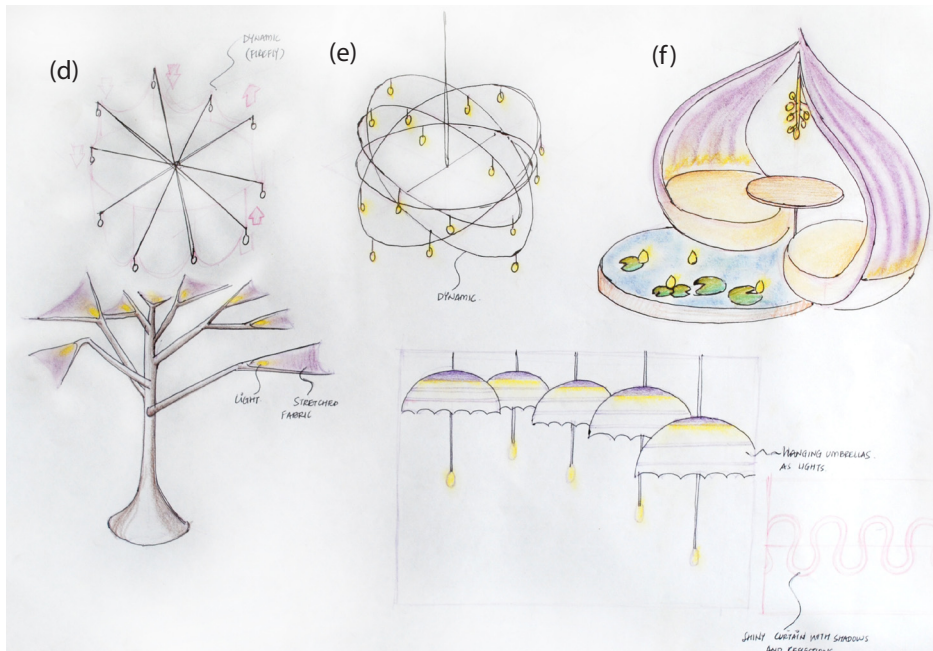
This vision is of floating tables. With floating candle like light sources in water. The tables are isolated from each other by water bodies and the area is dimly lit. There is a ornamental table lamp and also a fence which throws soft yellow light on the table. The effort made here is to create a feeling of being in nature while being in an indoor space. The floor is wooden. Furniture is covered in white fabric.



Space (c)

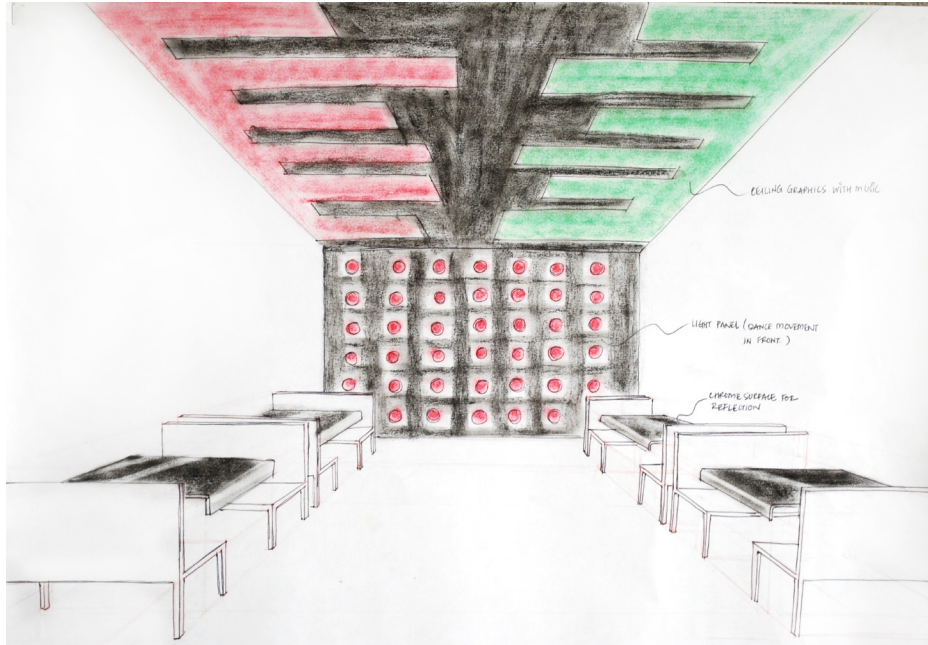
The vision- space (c)

Here I envision hanging tables and seating surfaces. I wanted to create a magical space where one feels as though one is floating in the air. The strings which attach the table and the seats to the ceiling are covered with lights. These give diffused yellow light. Each table also has a hanging ornamental lamp from the ceiling which gives localised light. There is also a shimmering curtain behind the tables, along the wall. This fabric curtain has hanging mirror like reflective surfaces which are constantly moving. Light is placed behind these hanging surfaces such that shadows and reflections are cast on the curtain. This creates an enchanting effect. The colours used are royal purple and golden.



Other ideas

(d) and (e) are light installations inspired from fireflies. The effort was to make a dynamic installation which has lights which are flickering, constantly moving like fire flies. (f) is another idea for an enclosure with a water body along side.

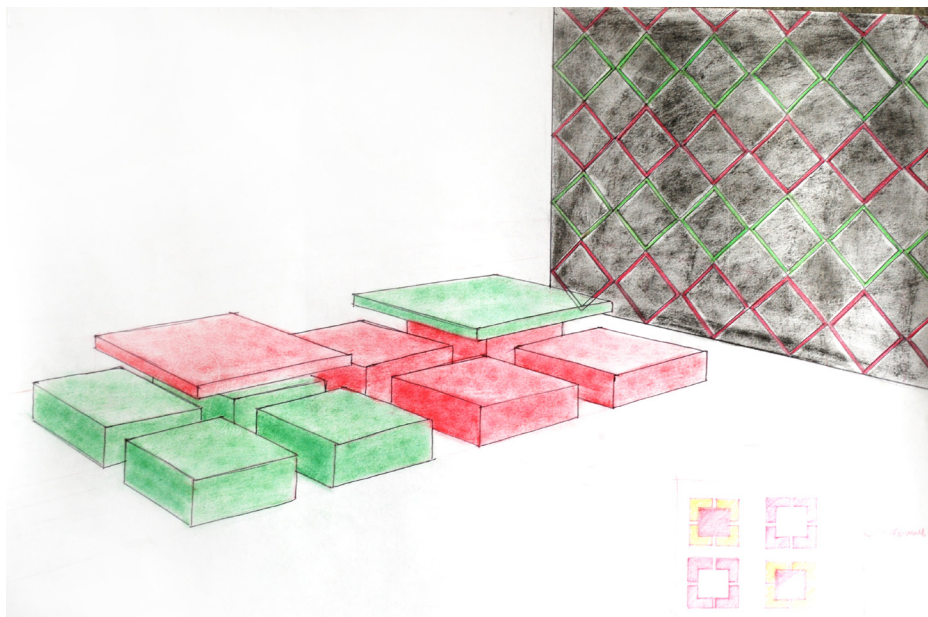


Mood 3. Energetic and Exciting

Desired light quality- light that creating contrast in colour, movement and element of surprise, use of reflective surfaces to create play.

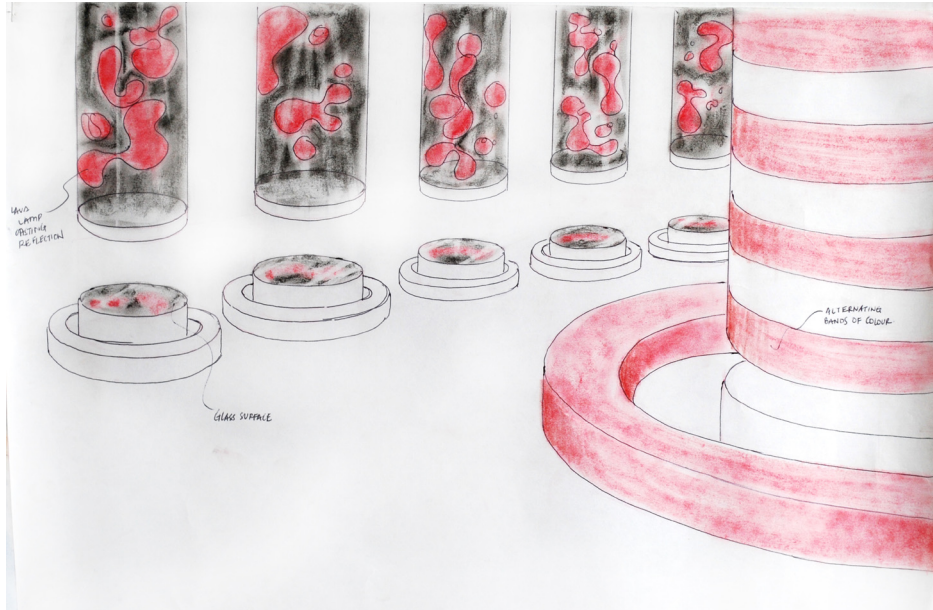
The vision- space (a)

When one thinks of energy and excitement, there is high contrast of colour, movement, pulsating music, reflective surfaces which create interest and excitement. This space is a culmination of some of these visions. Here I visualize a ceiling which is like a screen which displays energetic graphics that are linked to the music. As the tempo increases the bars in green and red go up and down faster. The tables are made of reflective material such that it reflects the ceiling hence creating interest on the tables. The main wall has a matrix of lights which selectively light up. I visualize a dancer in front of the light wall, whose movement with the light creates interesting effects



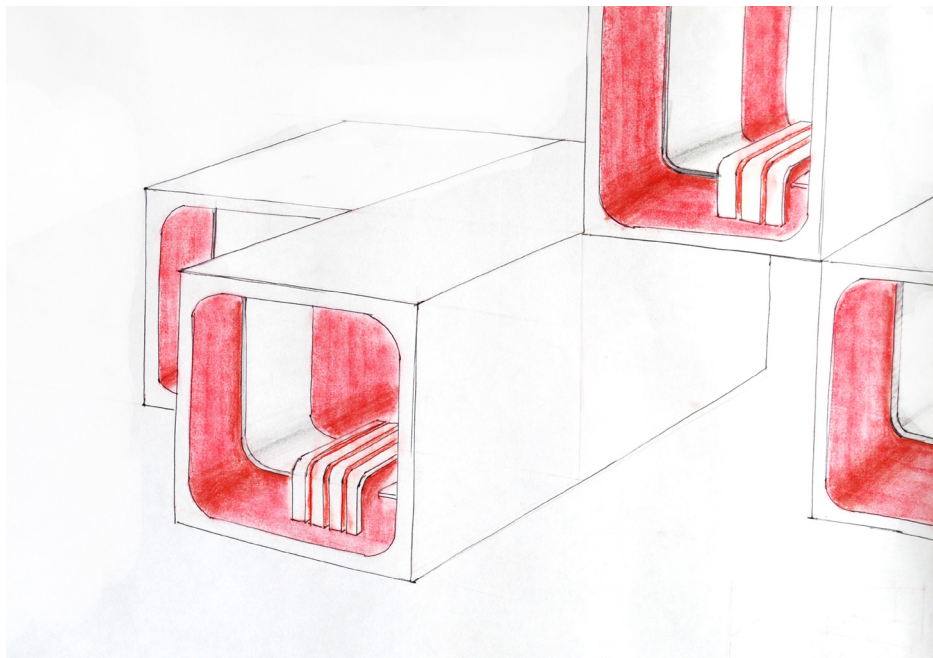
The vision- space (b)

Here I envision lighted furniture with alternating colours. In a given cluster, if the table is red the seating surfaces are green and vice versa. This lighted furniture is coordinated with music such that the colours alternate with the frequency of the music. The wall has square shaped cross sections of coloured acrylic with light at the back which pass light through the acrylics cross section creating an exciting effect.



The vision- space (c)

Here we have transparent cylindrical tubes hanging from the ceiling which has a plasma liquid inside. This liquid inside the cavity is lit from the top. The movement of the liquid with the top light creates unexpected movement and hence excites people. This cylindrical tube has a transparent bottom which casts interesting reflections on the reflective tables under the cylindrical tubes. The large cylindrical bars of red and white on the right are a light panel which are coordinated with music.



The vision- space (d)

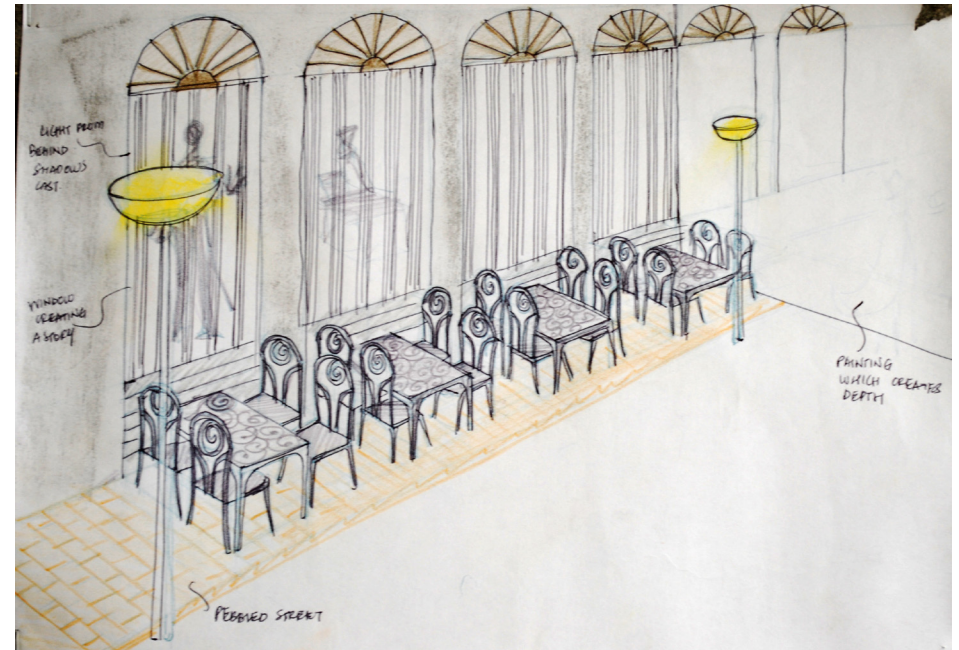
The vision here is to create energy capsules. The colour red is known to have energizing properties. This space will have these square cavities (capsules) where a people can have a meal and spend time and in the mean while get energized.

Mood 4. Mysterious

Desired light quality-dimly lit space, lighting areas which increase interest, light that creates long shadows.

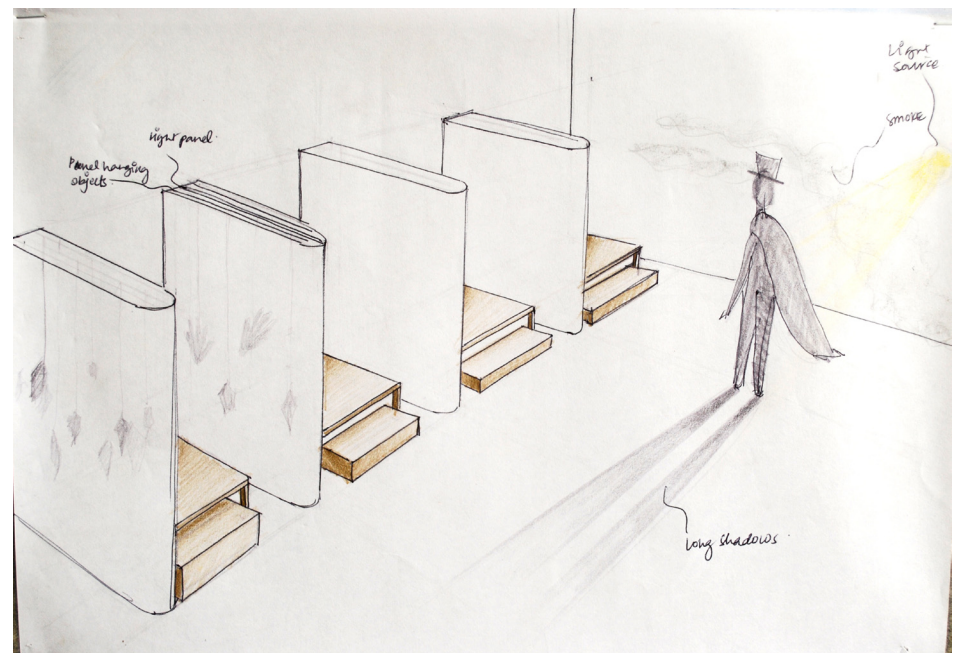
The vision- space (a)

With mystery there is always a context or a story. Here I envision creating a restaurant on the street. Where the walls are made of brick. There are shop windows which have objects partially hidden behind a curtain. Light is behind the object. There is an element of interest created. The main wall is made of mirror which gives an impression that the street is long and endless. The restaurant is dimly lit with street lamp like tall lamps and the shop windows which give very little light.



The vision- space (b)

Here I am creating private spaces, where the partition is double walled. Between these walls there are moving objects that create shadows on the walls that create mystery. There are also objects kept in the passage that cast long shadows as long shadows are associated with mystery.



8. Identification of changeable elements

After the visualization exercise, I realized that there were too many elements that can be used to create a certain mood. Hence the next step was to identify those elements. I grouped these elements into physical elements, design elements and others.

Physical

Wall

Partition

Ceiling

Floor

Accent, floor, floating lamps

Furniture

Food, drinks

Accessories

Paintings, sculptures

Layout and arrangement

Space

Enclosure

Wearables

Table ware

Menu card

Curtain

Reception, Bar counter

Lakes, water bodies

Window

Design elements

Colour

Light- intensity

Distance

Number

Colour

Direction

Nature of light source

Shadows

Form

Material

Pattern and Texture

Others

Music

Dance

Odour

Air

Time

Dance

9. Design intervention

The next step was to identify those key elements that are most vital to creating a mood and also give me a scope for design as an industrial designer. Also since my project is on lighting, my intervention had to be with light playing a major factor in creating a mood. I looked back at my visions of moods and identified lighted walls and enclosures as my area for design intervention.

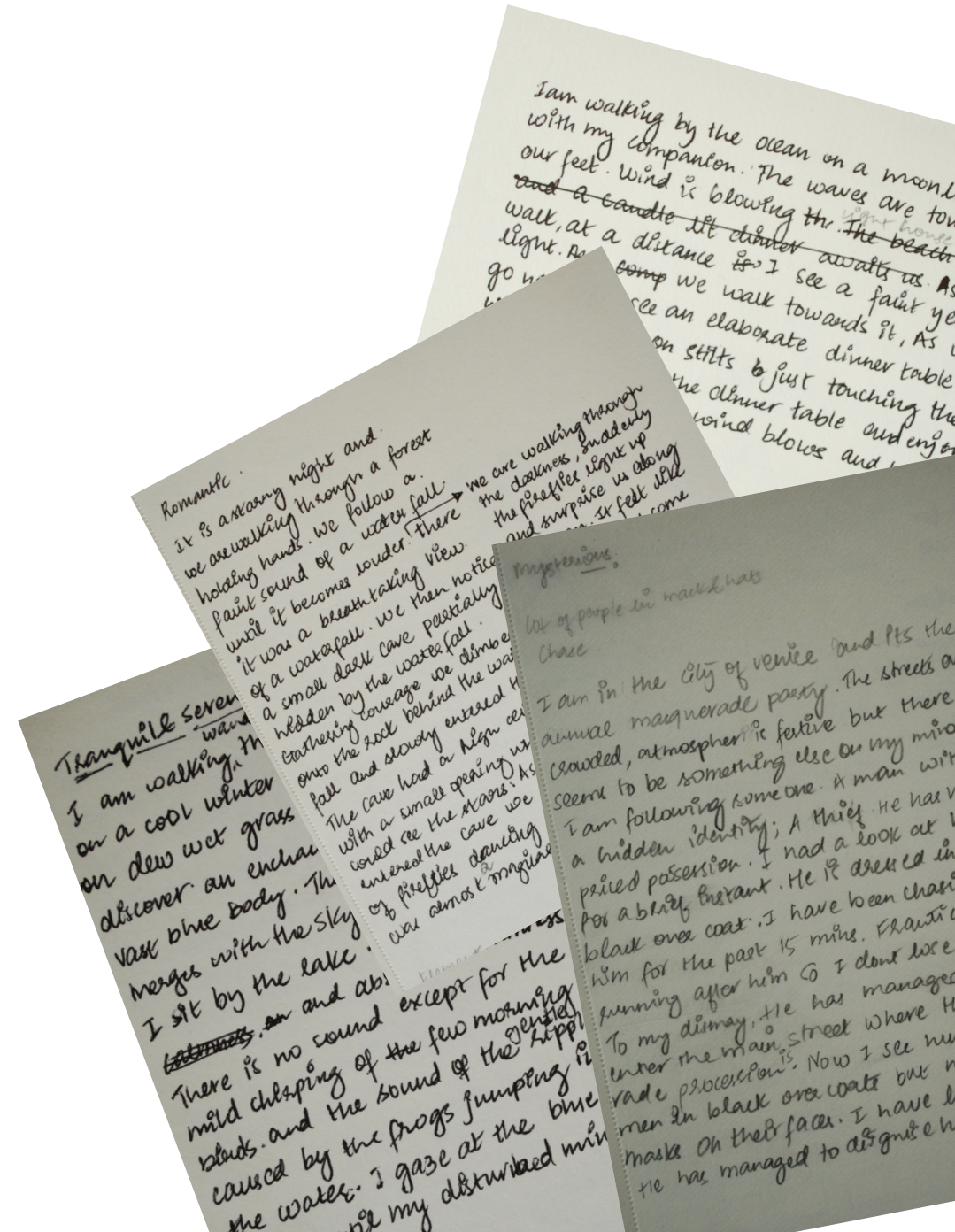
10. Design brief

To design a lighted wall, enclosure or a partition to create different moods in a restaurant. The user should be able to change, transform the product to create the respective moods as per need.

11. Imagery and Narratives for creativity

Since creating a mood is creating an experience, I conducted some imagery sessions for myself where I visualized the ideal experience for a certain mood. This helped me identify interesting metaphors that I could use to enhance my expression of moods.

Refer to appendix for details



12. Initial light experiments

Light is a complex phenomenon. The experiments were conducted to develop a better understanding of light.

How it interacts with different materials?
How it interacts with surfaces? Angles? Distance from the surface?
How it falls, reflects, refracts?
How are shadows created?
Effects of coloured light

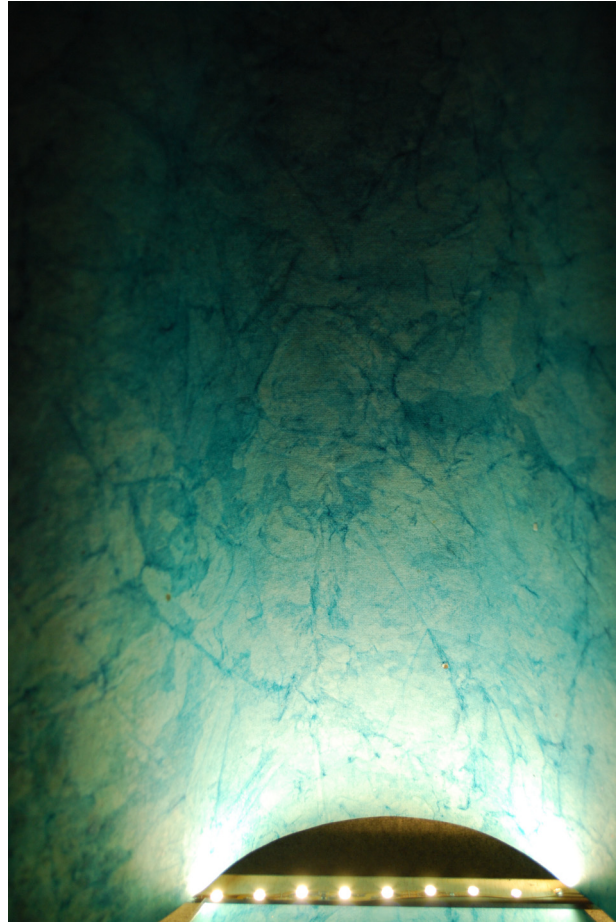
Some of the experiments were done with an attempt to translate the understanding of creating moods with actually creating the effect with light.

The process followed was as follows. First visualizing the effect on paper and then testing it with light. But the process was not always so methodical. Some were achieved by a lot of trial and error and some pure serendipity!

The light source used was an LED strip and an incandescent bulb.



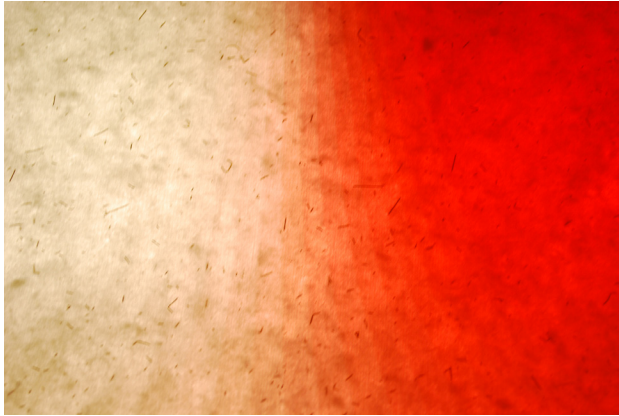
Using paper roll with a line source of light, creating a uniform gradient and a tranquil effect



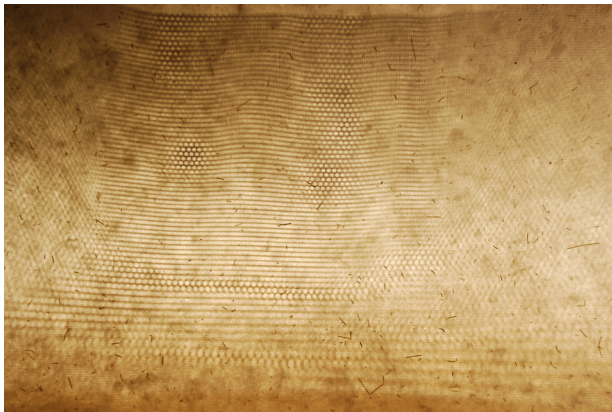
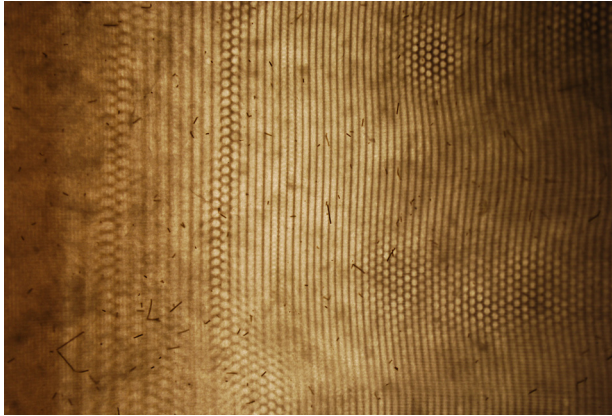
Experimenting with concave surfaces and bottom light



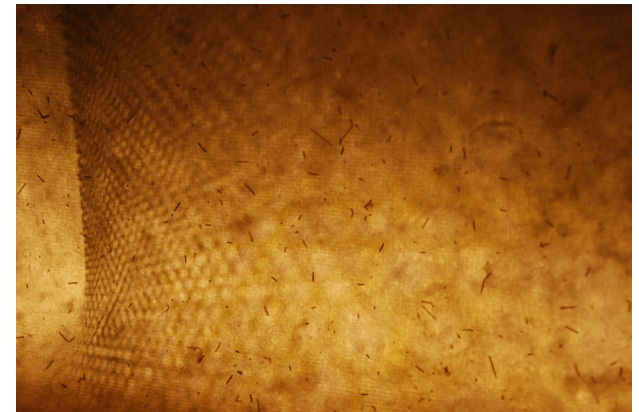
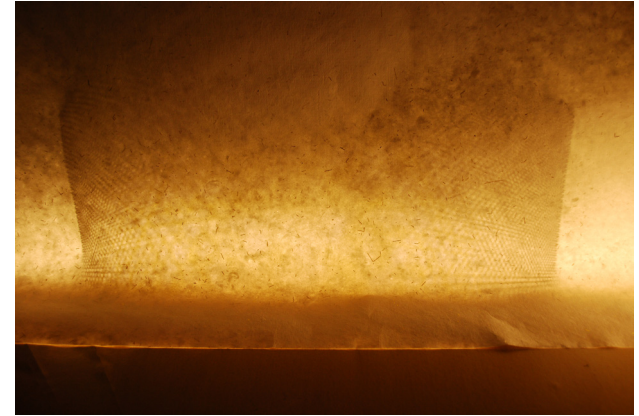
Creating mystery with hiding certain elements behind a surface.

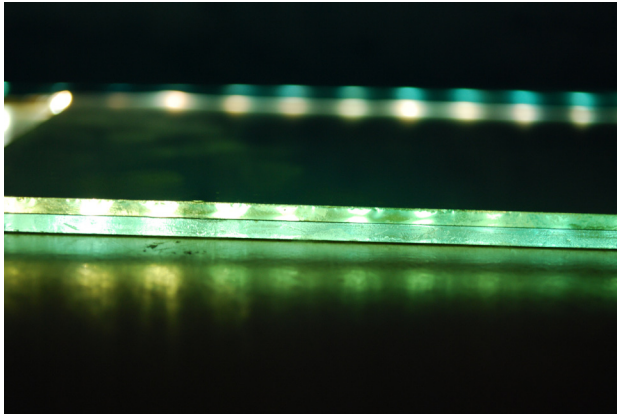


Acrylic behind a paper and back light. Playing with the distance from the light source

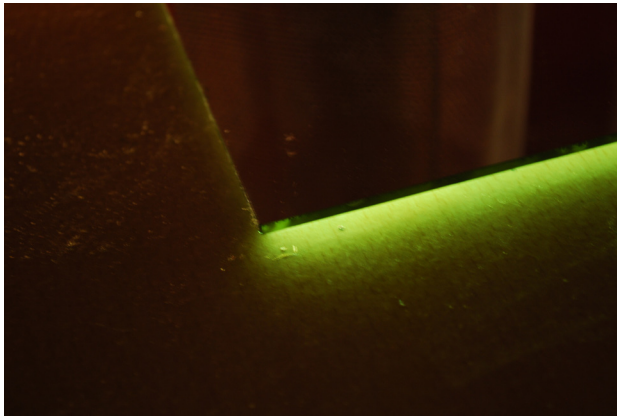


Experimenting with mesh behind a paper. Playing with the form of the mesh and paper. Light is behind the mesh. Creates interesting shadows.

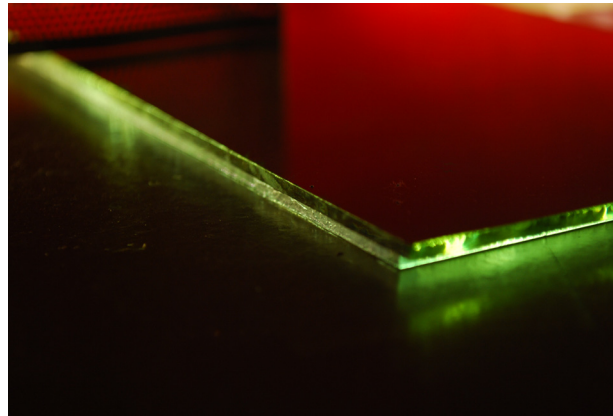




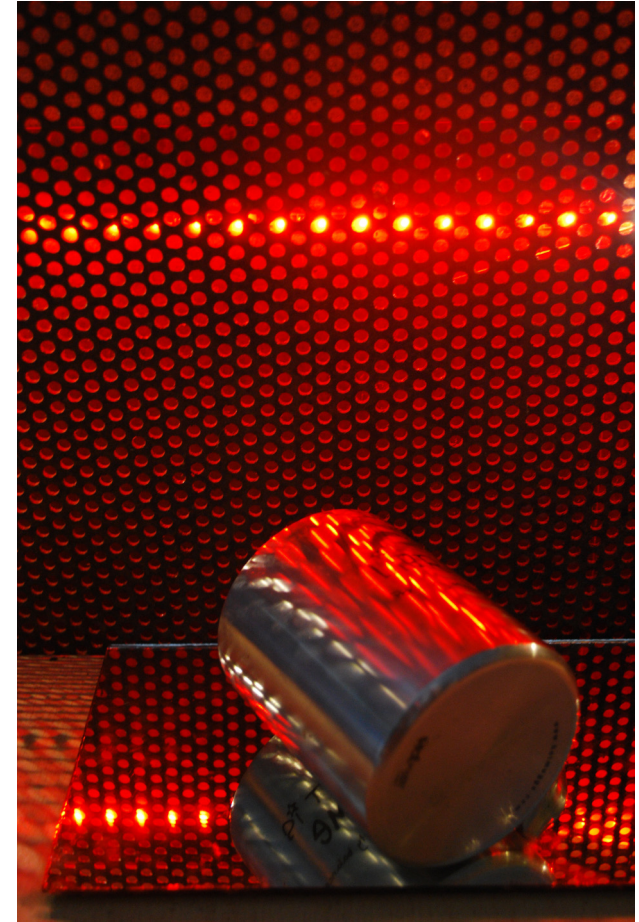
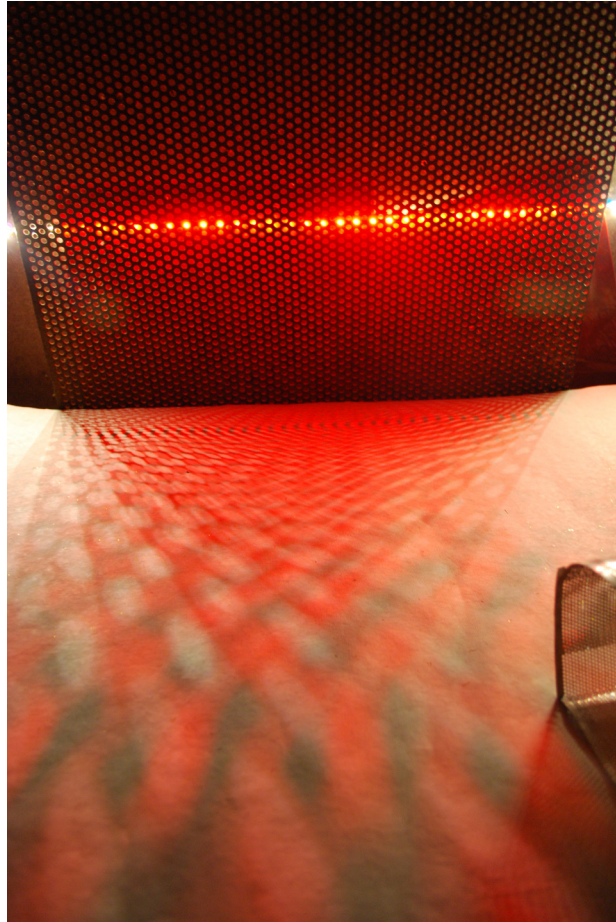
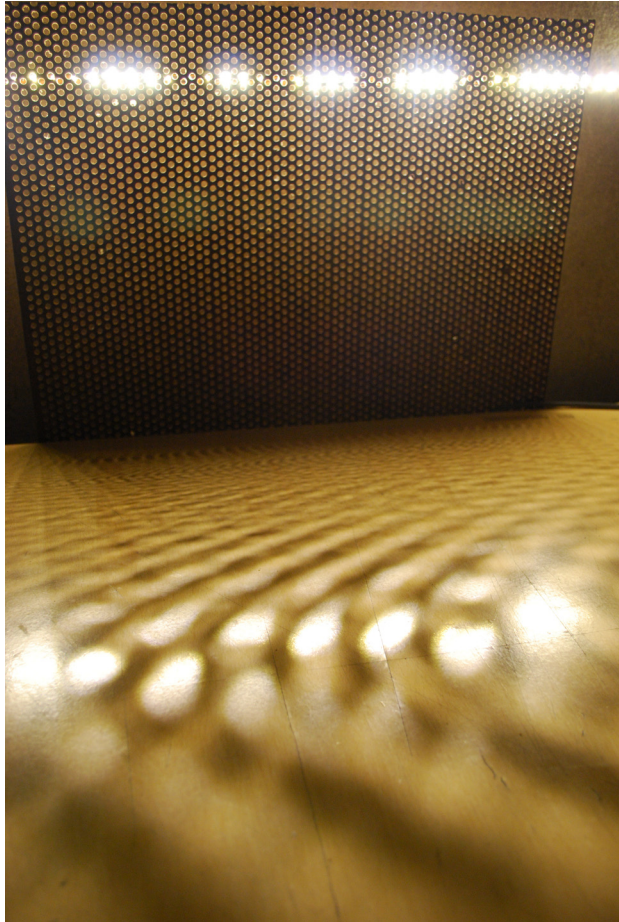
Casting shadows on a surface



Passing light through the cross section of glass, acrylic

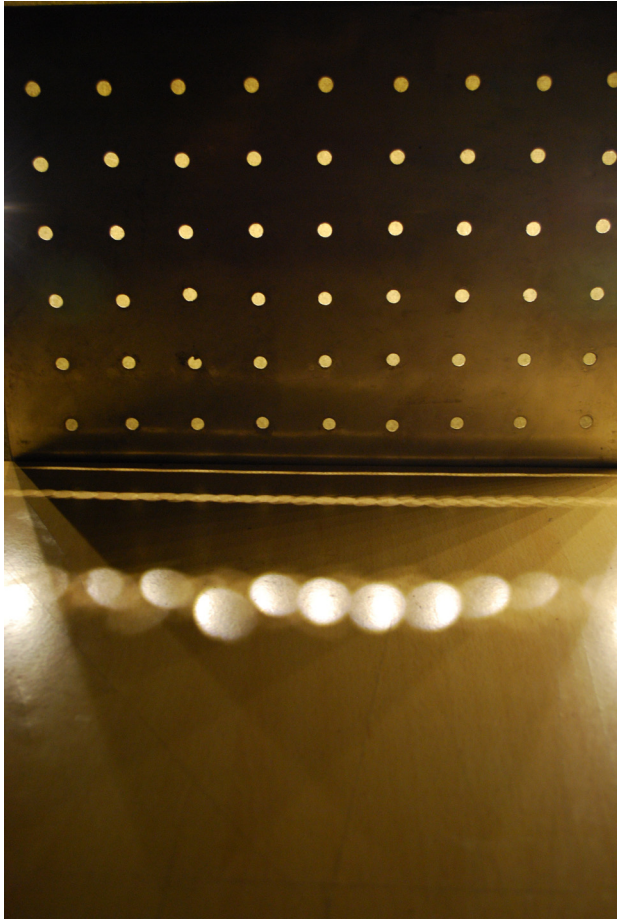


Passing light through white acrylic , reflecting it on a mirror floor

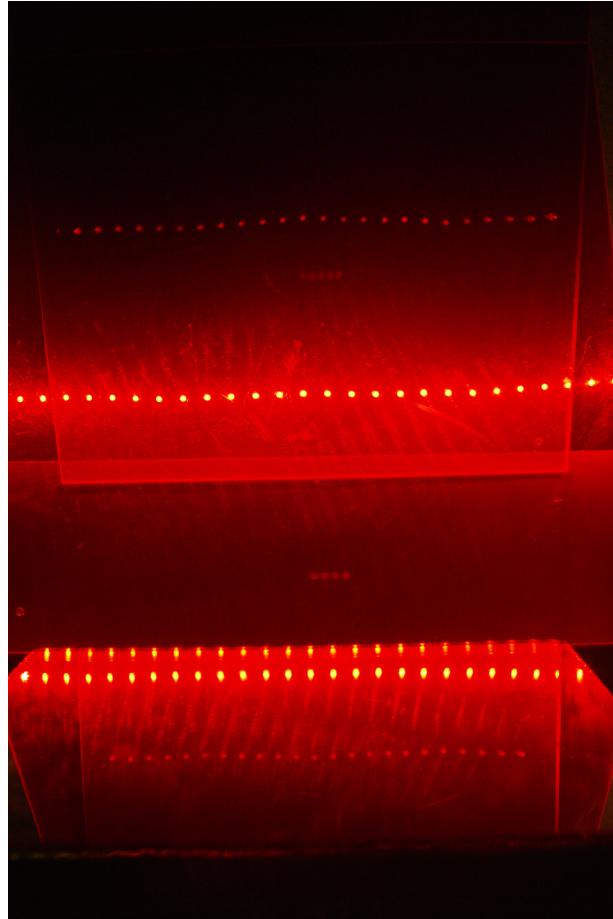


Mesh with led strip, tilting the angle of the mesh with respect to the light source, adding a red filter to create a energetic effect.

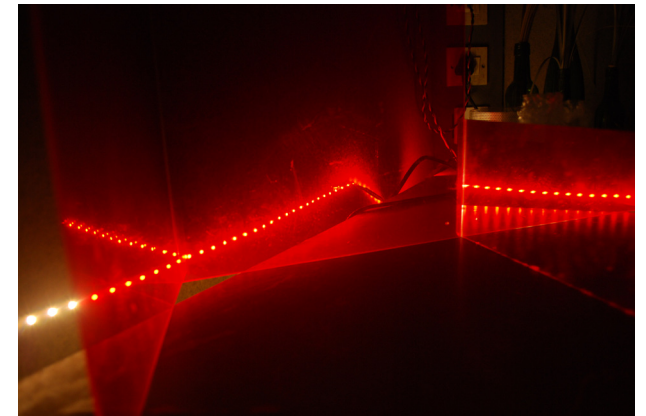
Reflecting light on metallic surfaces.



Mesh with LED strip



Playing with multiple acrylic surfaces at different angles



Creating mystery with hiding certain elements behind a surface.



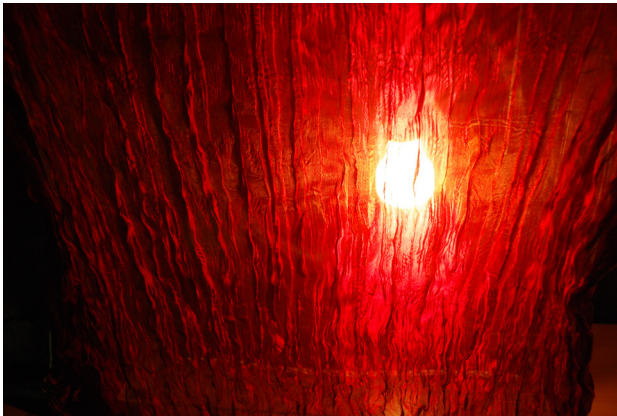
Throwing coloured light on coloured objects



Creating shadows of different lengths



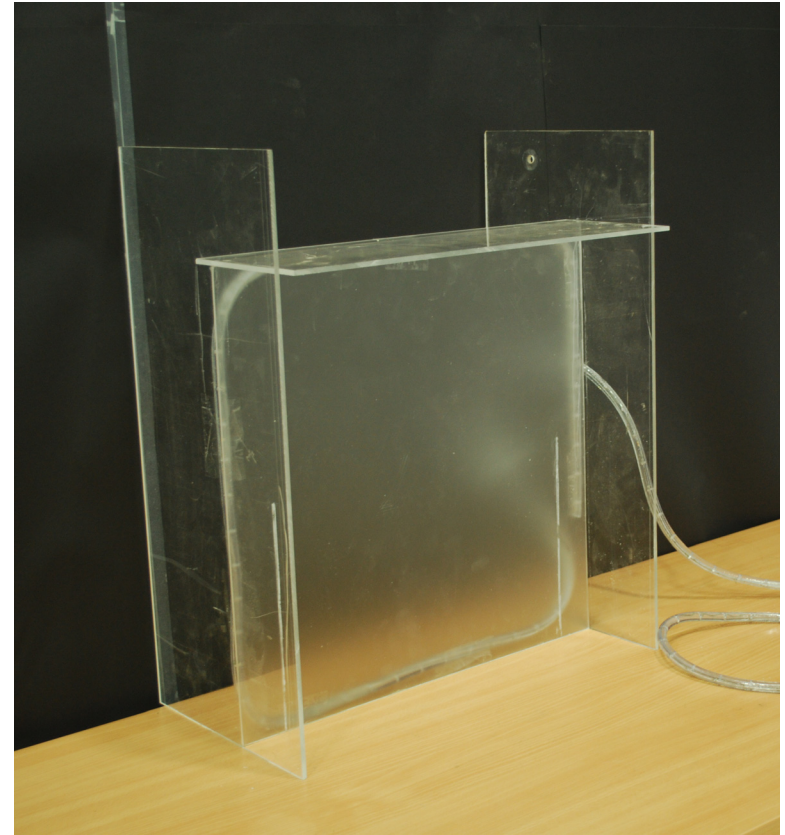
Crushed fabric with incandescent light



Creating shadows

13. Ideation and light experiments

After the initial experiments the next session of experiments were more structured where the intention was to create different moods. The ideal solution would be, that the same module creates all the different moods with minor changes. I created a testing tile which is back lit. Multiple surfaces can be kept in front to test effects. The light source used is LED strip.





Group 1.

This first set of ideas were inspired from set design. I picked up relevant metaphors for each mood and tried to create moods.

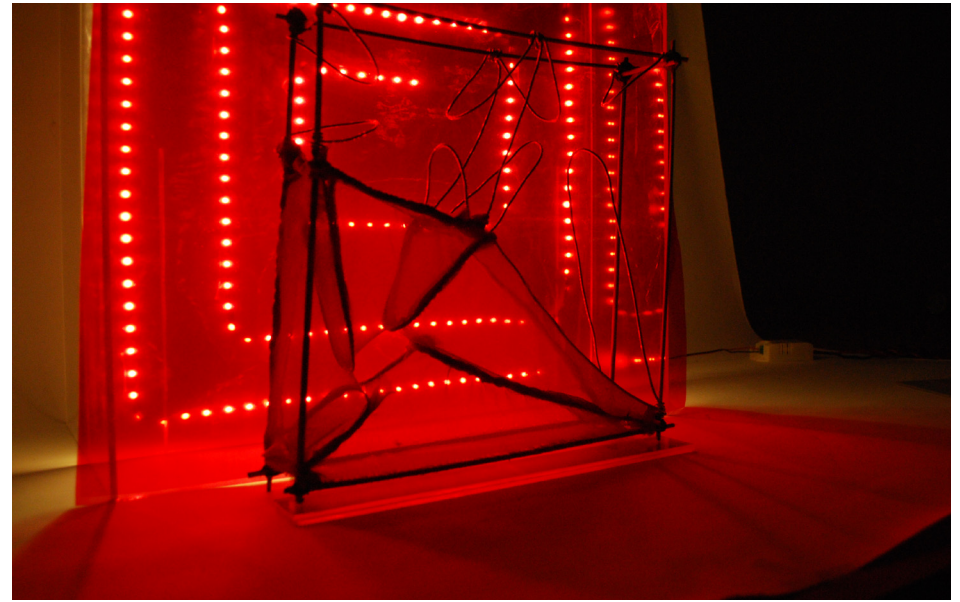
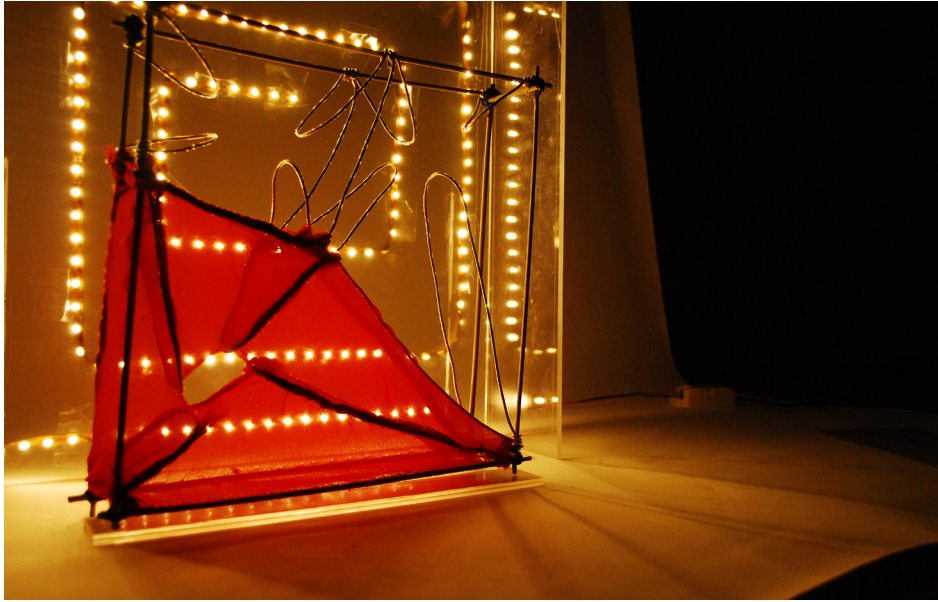
Mood 1. Tranquil

The metaphor taken was water. I tried cut outs with different filters.

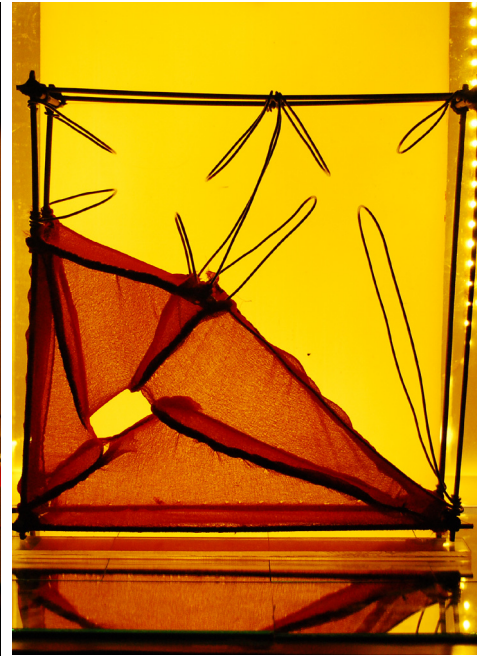
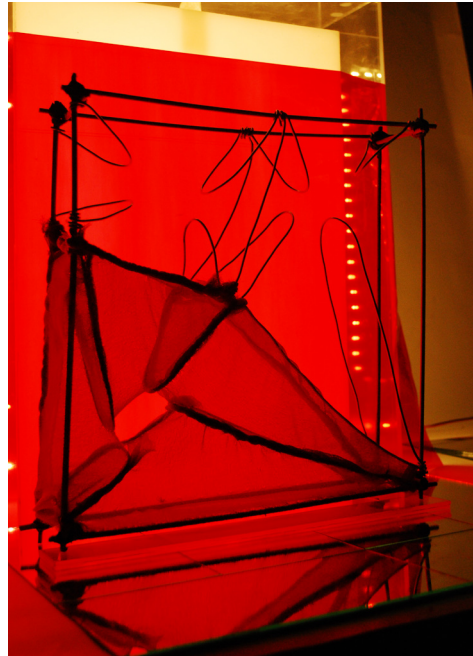


Here I tried to create an experience of lakeside tranquil waters with grass blades. Here we consider this image as the entire wall. Reflective base added to the tranquil effect

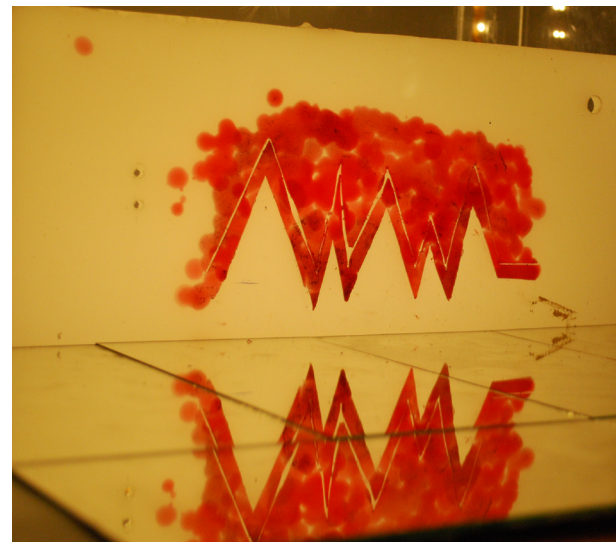
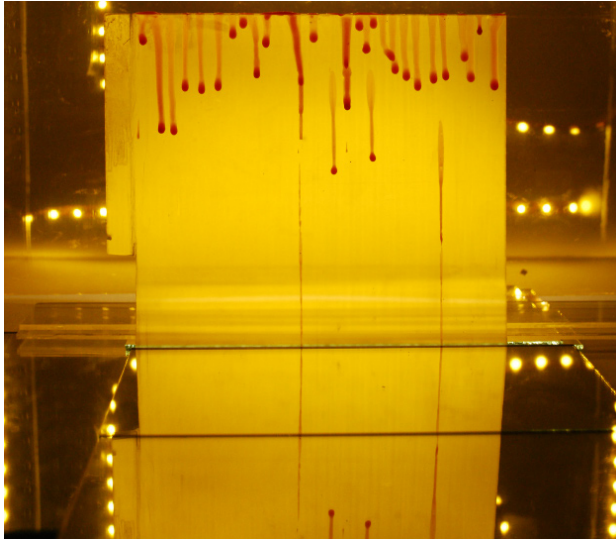
Mood 2. Energetic



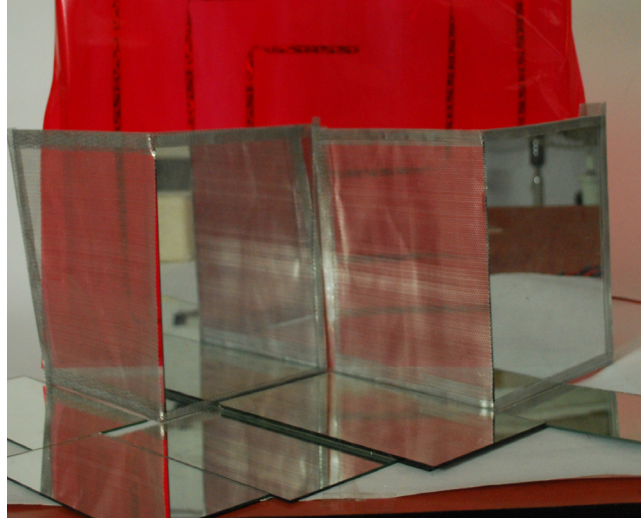
Here the effort was to use red stretched fabric to show energy. This shows one module of the entire wall. i then experimented with different light filters to see which seems more energetic. Here we also notice that the dotted LED strip is hindering the over all effect because of its linear nature.



Here I placed a white filter to change the dotted nature of the light being given out by the LED strip. But this seemed to reduce the intensity of light, hence reduces the energetic nature.



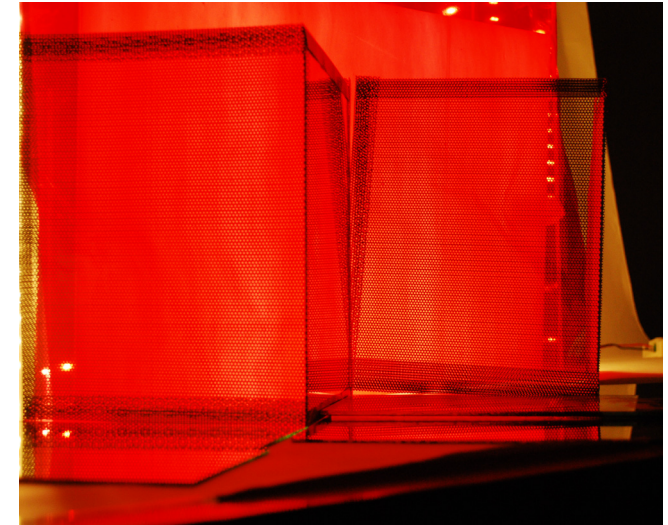
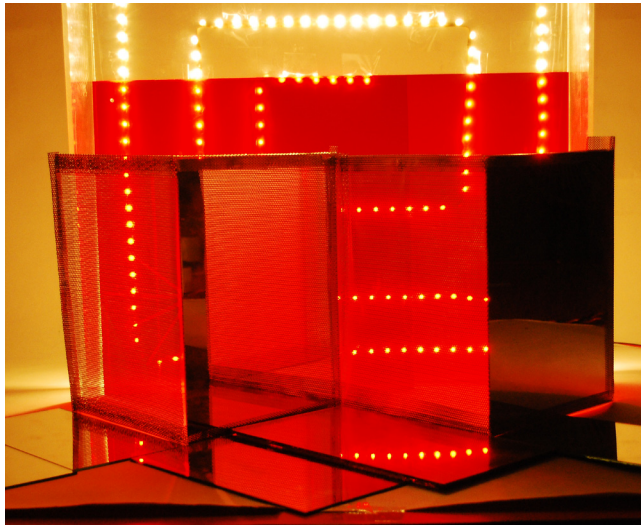
here i tried to use wax as a medium to create effects. Then used different filters to check the change in expression

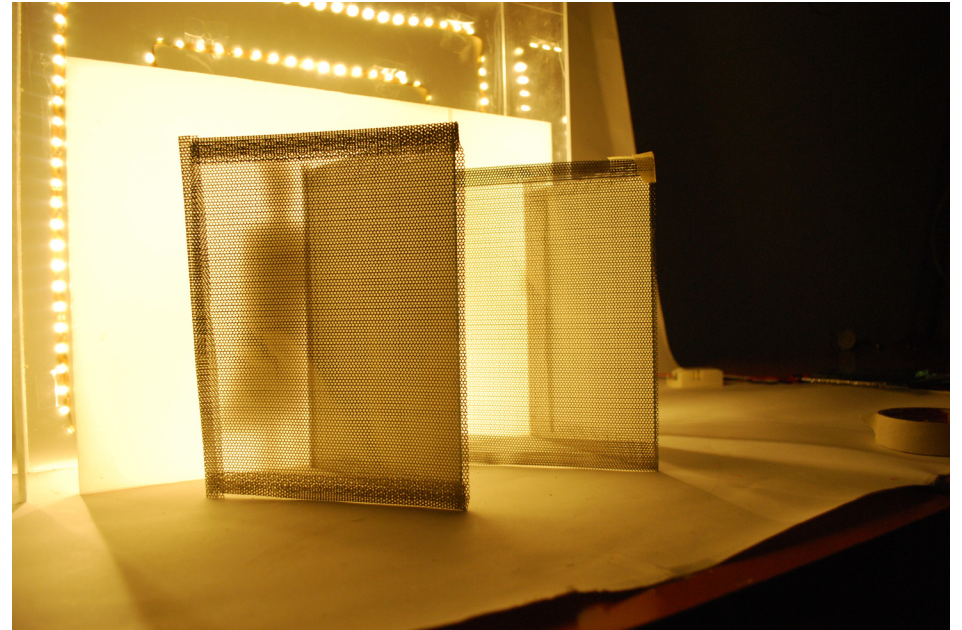


Group 2

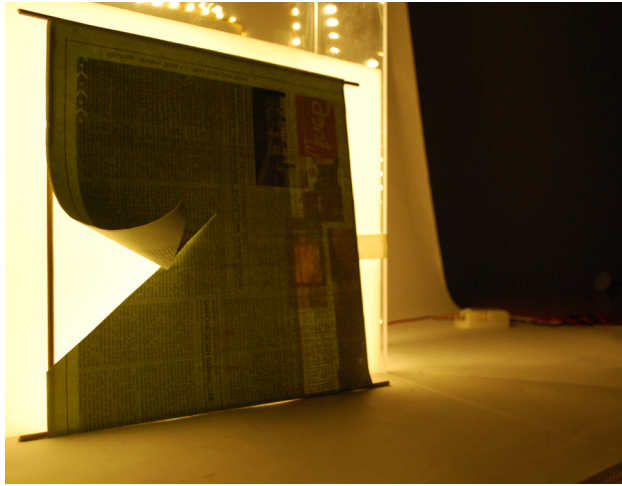
With this group of ideas we have a V - shaped panel which has mesh on one side and mirror on the other. Two panels are kept adjacent to each other such that the light passing from the mesh gets reflected on the mirror of the other panel.

A red filter was then added to create an energetic effect





The red filter was replaced by a white filter and the V - shaped panels were pulled closer and a mysterious shadow was cast on the filter, to create a mysterious effect.



Mystery- seems like showing very little



Tranquil- creating gentle waves by paper folding

Group 3.

In this group of ideas I'm using peeling of paper to create different effects. Each of them represents one module of the entire wall.



Romantic- creating ornamental patterns on some of the modules on the wall



Energetic- the effort was to create energetic bars. This experiment failed hence needs tweaking.

14. Analysis of Experiments

After a number of experiments I realized that what you necessarily visualize on paper, with light the effect might be drastically different.

There is no sense of scale with respect to the entire wall. Hence I need to finalise on an optimum size of the module.

There needs to be a optimum structure for arrangement of the light source.

There is a specific role that is played by the light source, filters and masks. Further study and investigation is needed in this area.

15. Product requirements

Optimization of a structure of LED lights

Since the nature is Modular, seamless integration is necessary on a big scale

The change required to transform into different moods should be easy for the user to change

Ease of manufacturing

The partition/enclosure could have same modules or could be an adaptation of the wall.

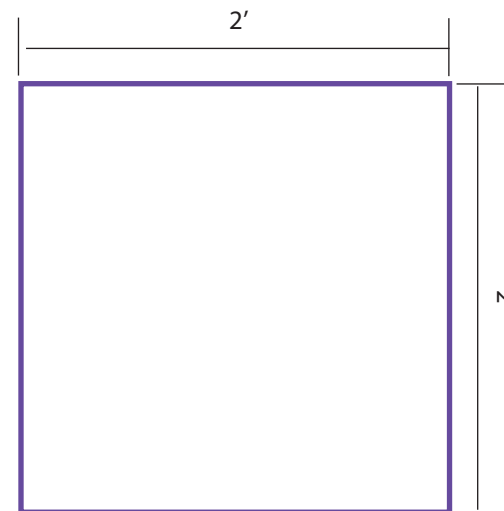
16. Size of one module

Looking at architectural standards for a restaurant and ease of handling the module,

Minimum wall height- 12 feet

Minimum length of the wall such that 3 tables fit comfortably- 15 feet

Optimum module size = 2x2'

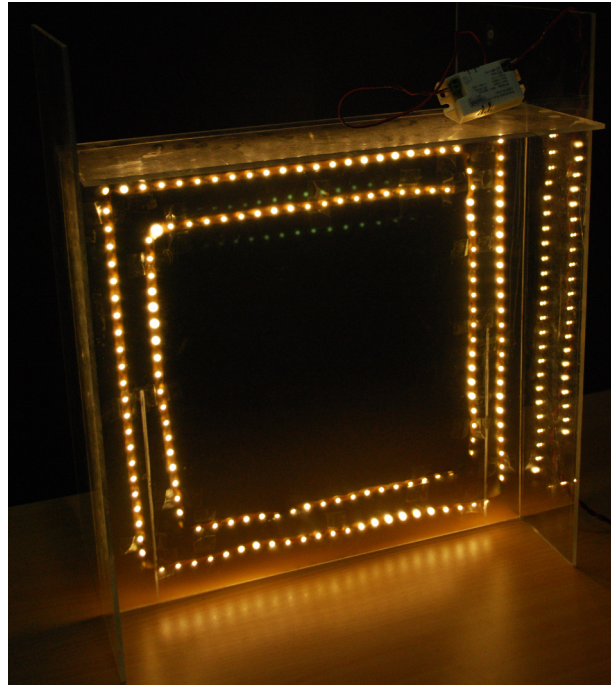


Refer to appendix for details

17. Choosing arrangement of lights

After the experiments, the results provided with both the structures per module were compared and it was decided that arrangement (B) provides better results

Also one of the other factors was, when the modules attach to each other and become a wall, they should seamlessly integrate and give uniform light.



Arrangement (A)



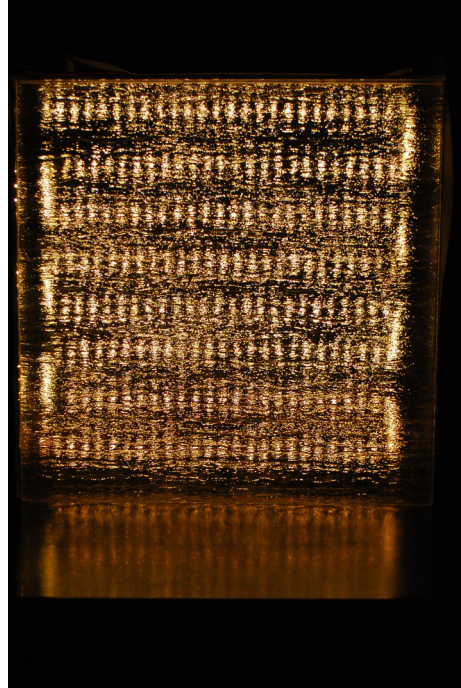
Arrangement (B)

18. Experiments -relationship between light source, diffuser, mask.

The next task was to conduct experiments to check which is the optimum desired arrangement of light source. These next experiments were also vital in understanding the relationship between the light, filter and mask. It was realised that the filter itself is capable of creating certain effects hence a mask may not always be necessary to create the desired effect.



simple white acrylic filter creating a tranquil, calm effect

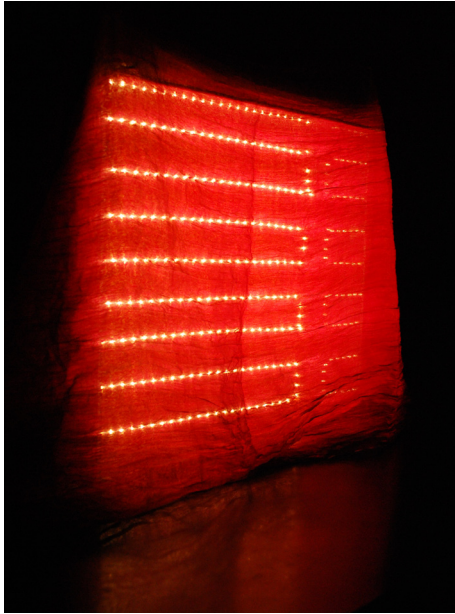


Textured acrylic with light



overlapping textured acrylic and white acrylic

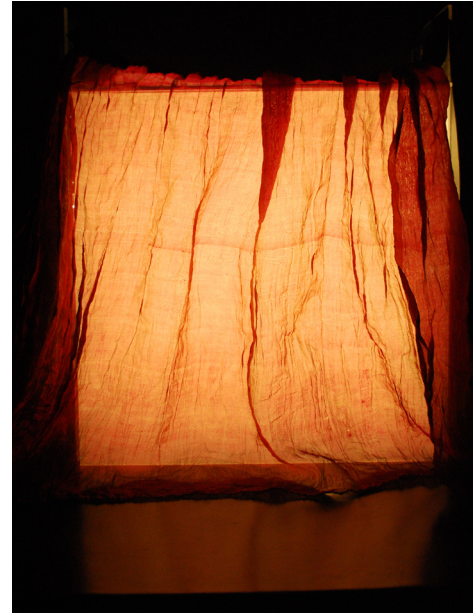




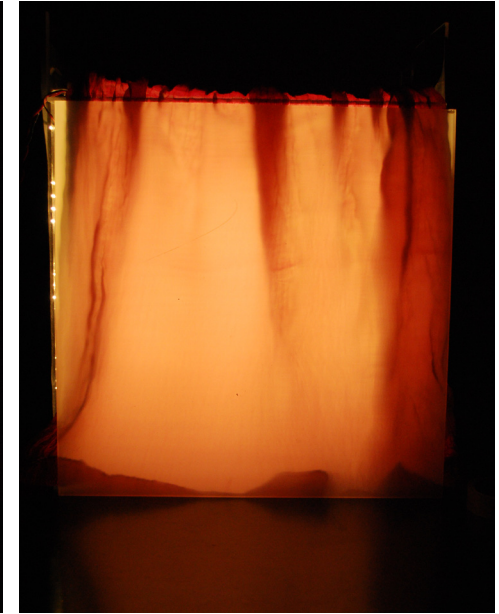
Red fabric as a filter with light.



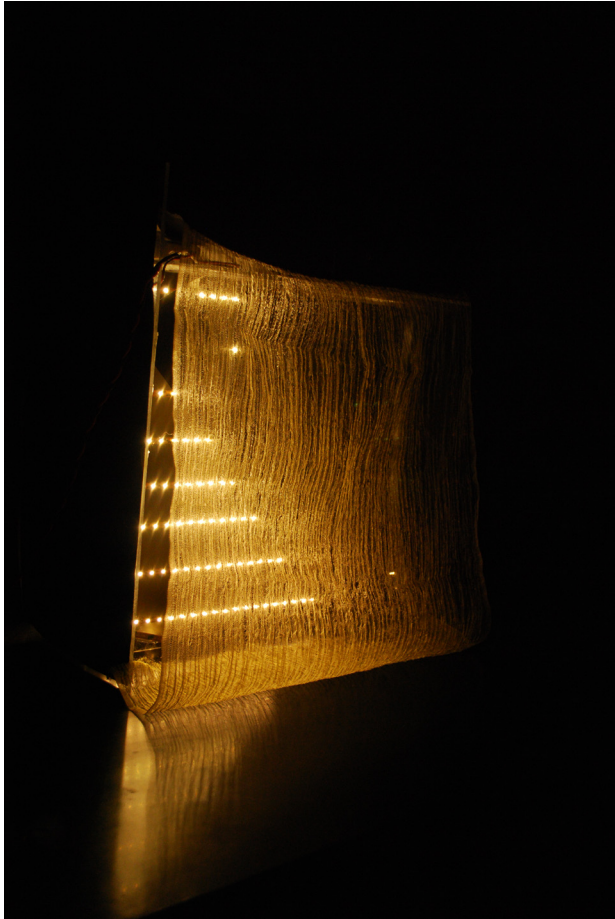
Red fabric with partially hidden light



Red fabric with underlying white acrylic



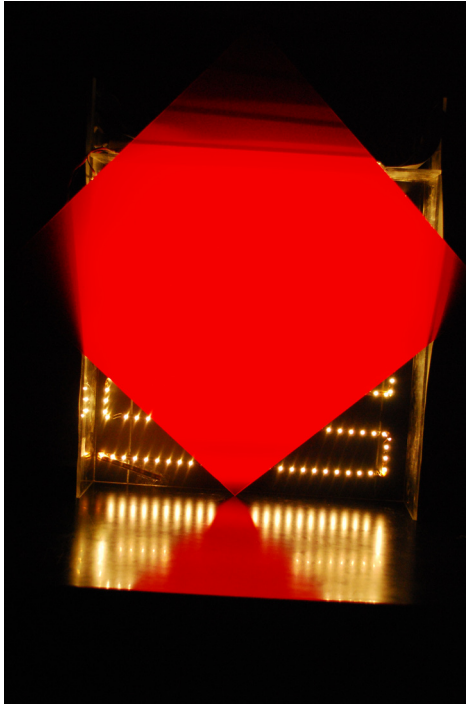
Acrylic with underlying red fabric



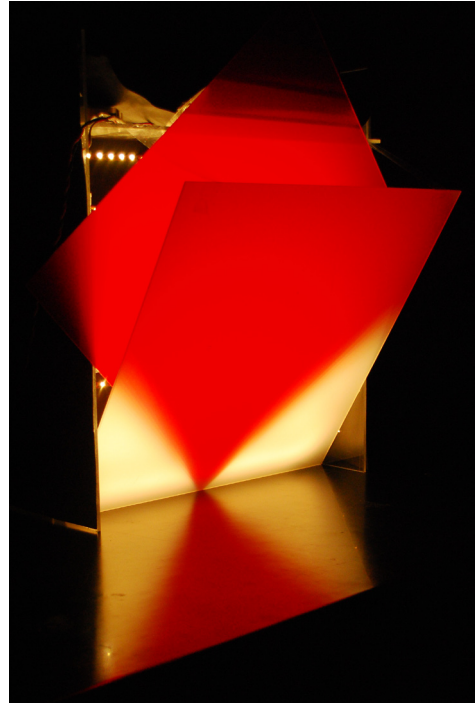
Golden shimmering fabric with partially hiding the light



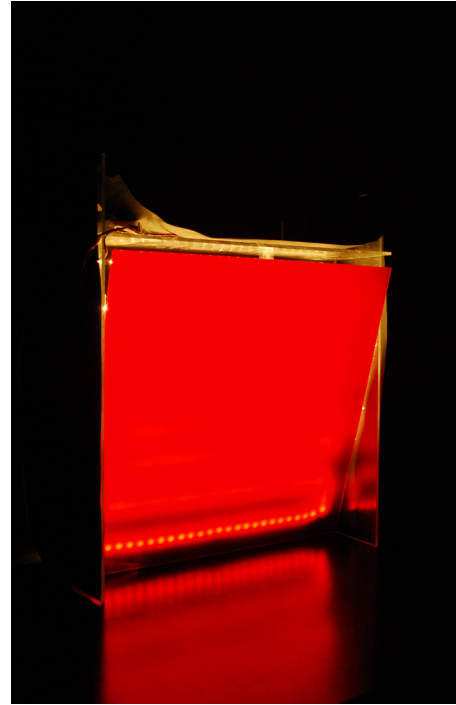
Combining fabrics with light. Creating romance



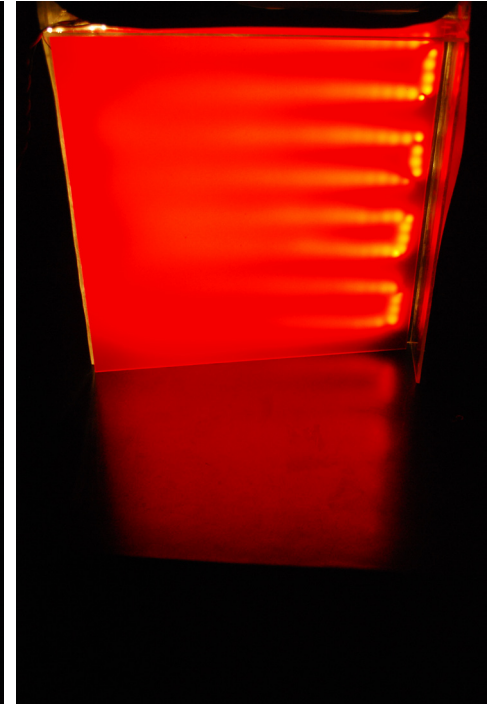
Red acrylic as a filter with light

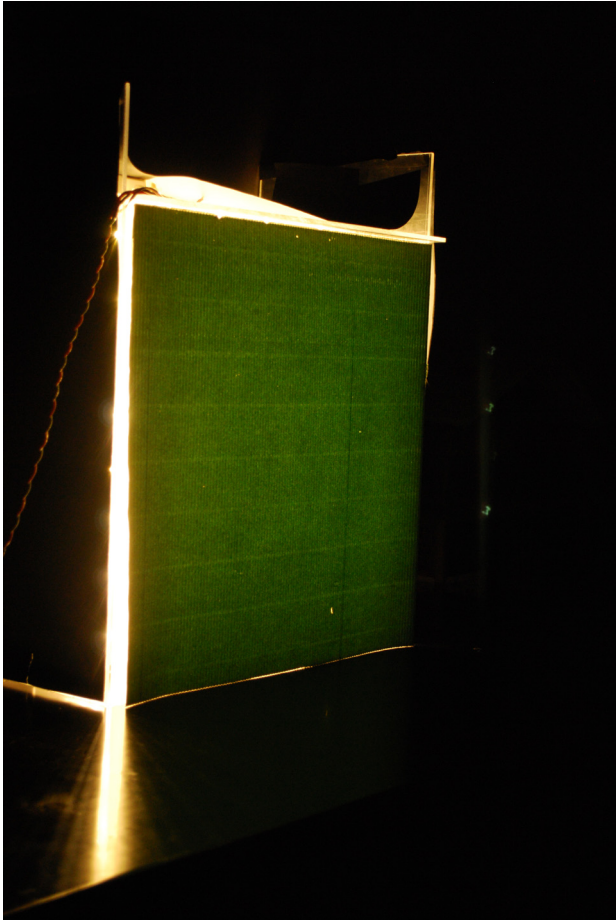


Red acrylic with white acrylic at angles

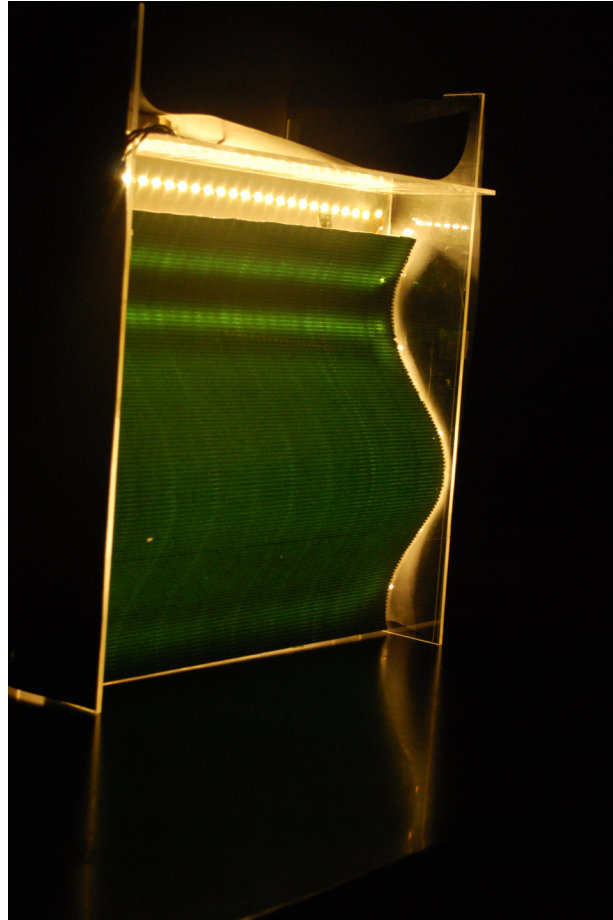


Red acrylic at angles with the light source

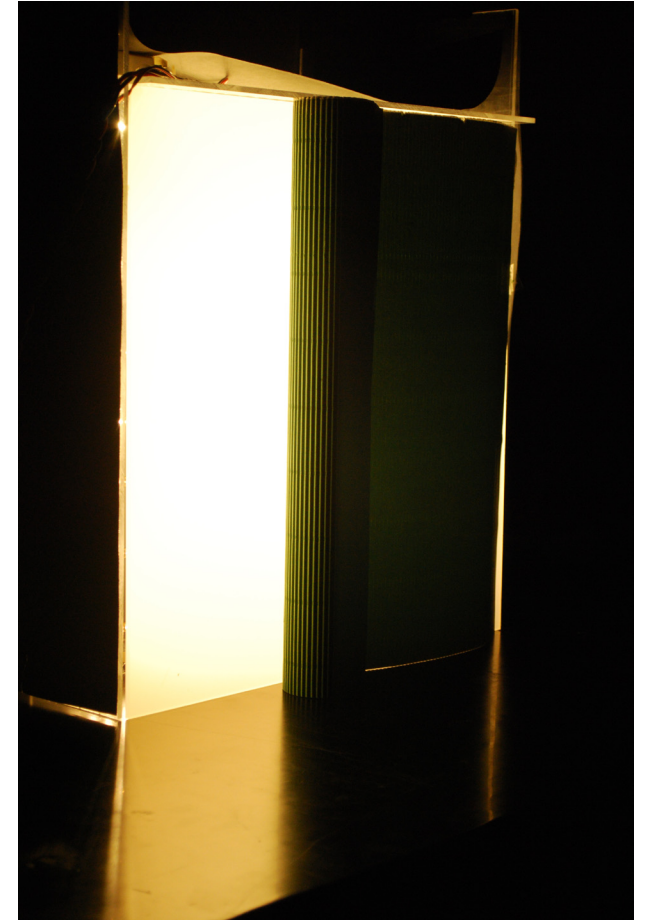




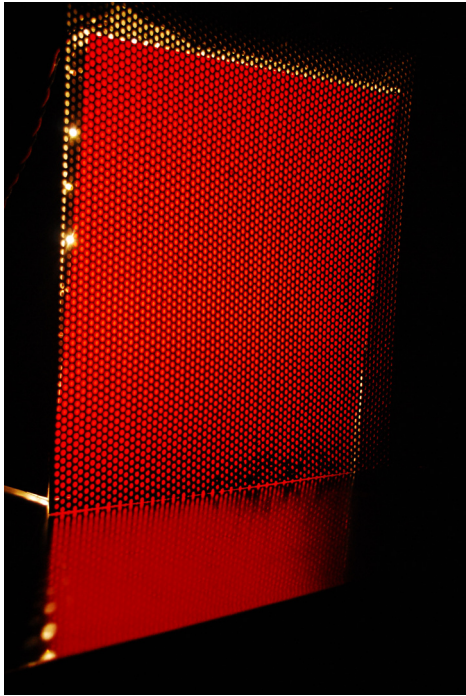
Green corrugated sheet as a filter with light



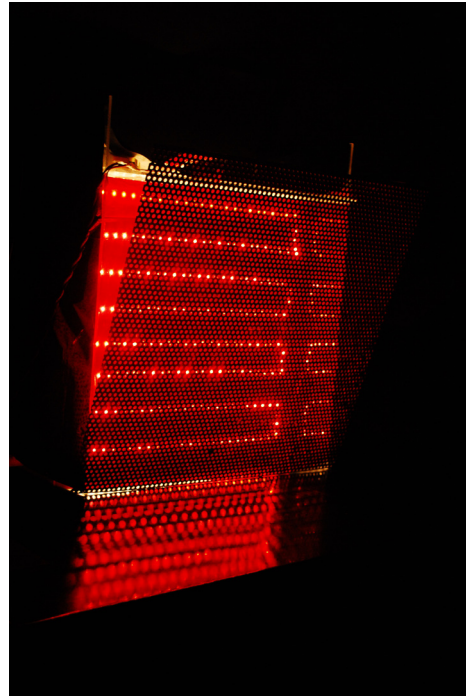
Green corrugated sheet bent to vary the distance from the light source. Creates an interesting effect.



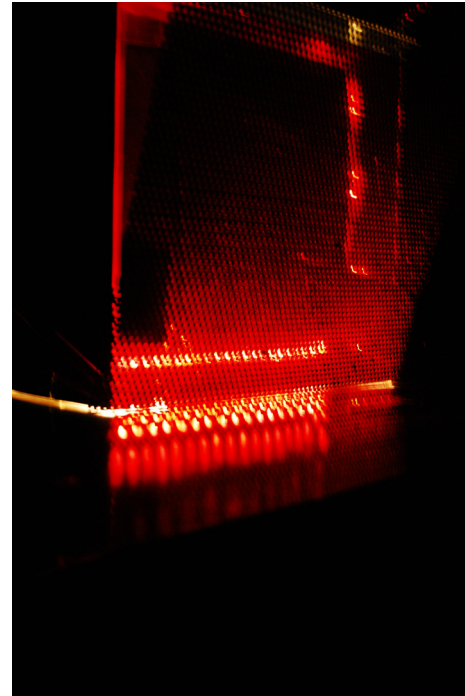
Green bent corrugated sheet with white acrylic.



Red acrylic as a primary filter, mesh as a mask.

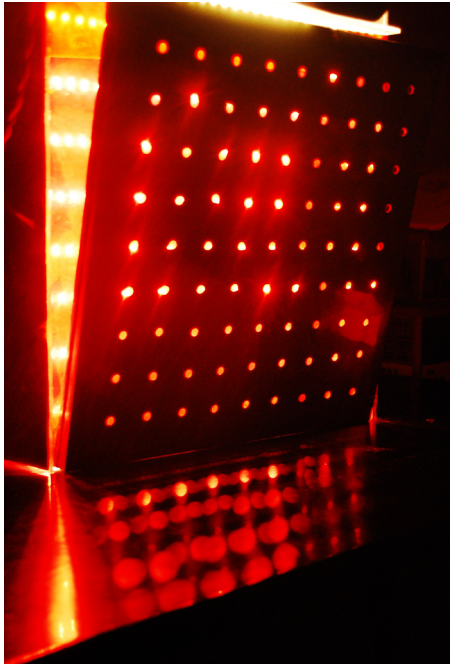


Red gelatin paper as a primary filter, tilted mesh to create an energetic effect

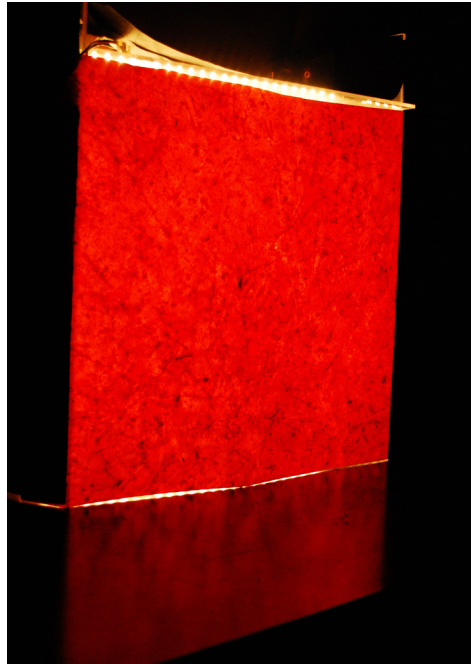


Last experiment with hiding a part of the light





Red acrylic as a primary filter, mesh as a mask.



Red gelatin paper as a primary filter, tilted mesh to create an energetic effect

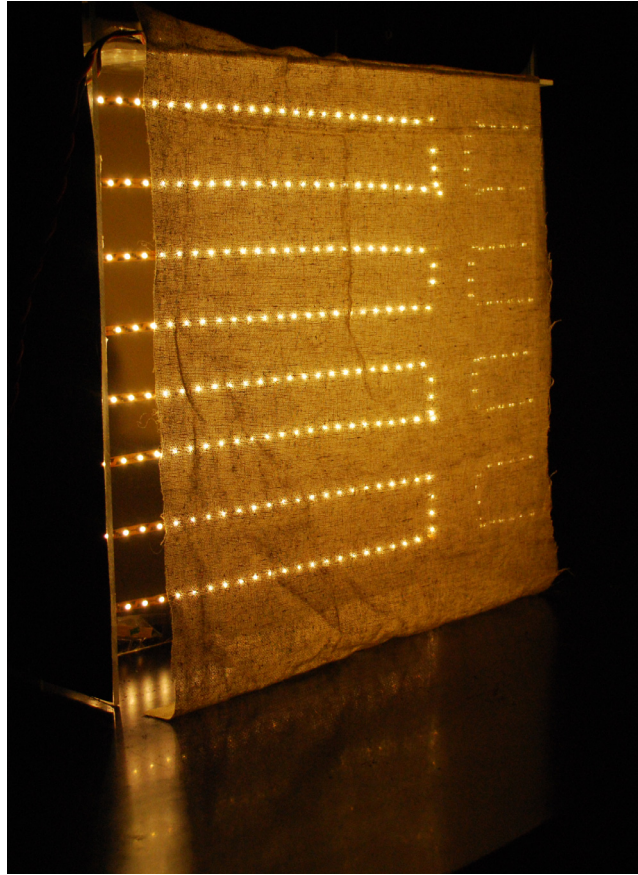


Last experiment with hiding a part of the light





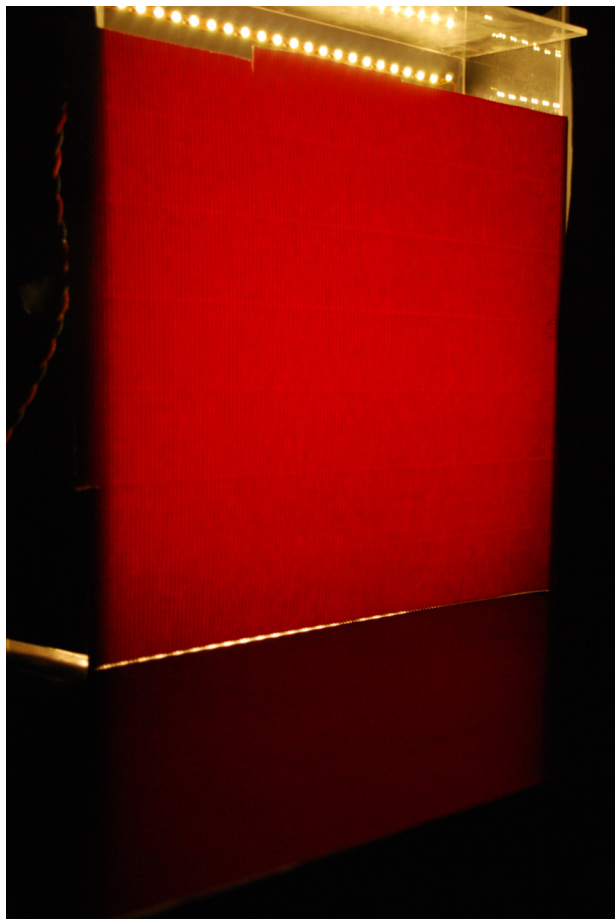
Handmade paper with light.



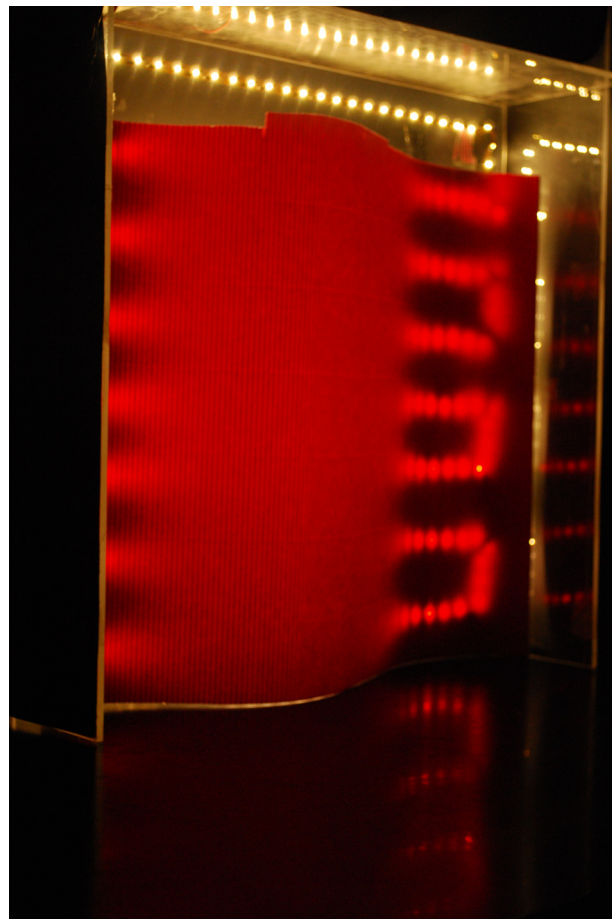
Jute cloth with light.



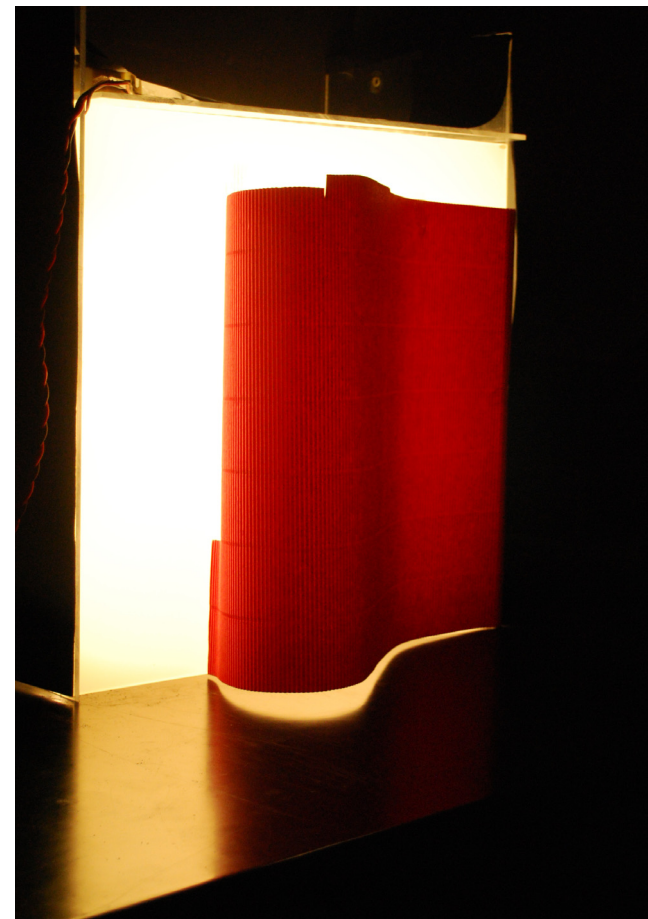
Jute cloth with acrylic at the back.



Red corrugated sheet as a filter



Wavy red corrugated sheet to vary the distance from the light source



Wavy red corrugated sheet with white acrylic sheet at the back

19. Concepts

The concepts are grouped into 3 groups based on certain similarities in operation.

Group 1.

In this group of concepts, the position of the modules is changed like a combination of pixels

Concept 1.

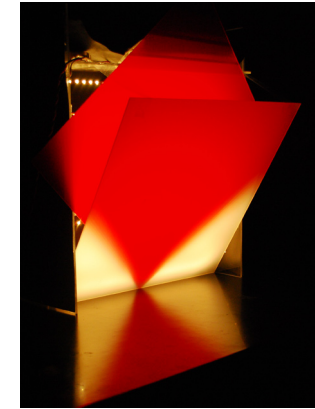
Here there is basic frame which is mounted on the wall. There are multiple components which can be removed and fixed onto the basic frame with the help of sticks. These components can be oriented in different ways to create different moods as shown along side. Spacers are provided which can be put between 2 screens incase there is an overlap. There are 2 basic forms of components but provided in multiple colours and textures.

Energetic- Desired effect per tile is given alongside. Achieved by overlapping of acrylic surfaces

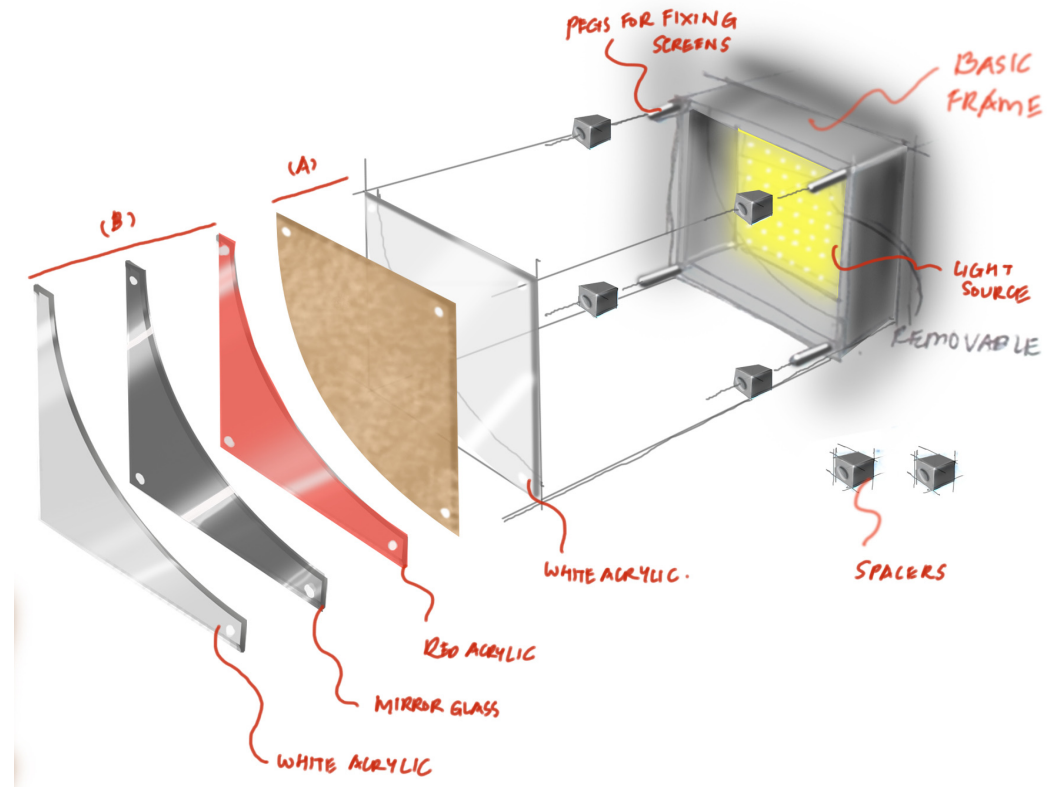
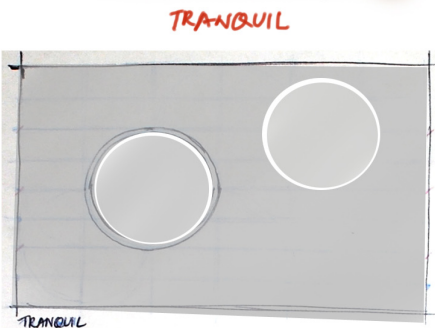
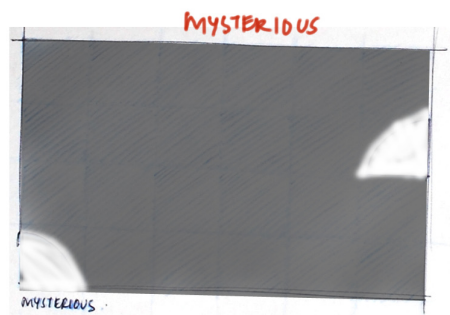
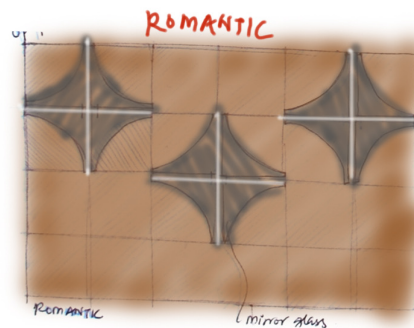
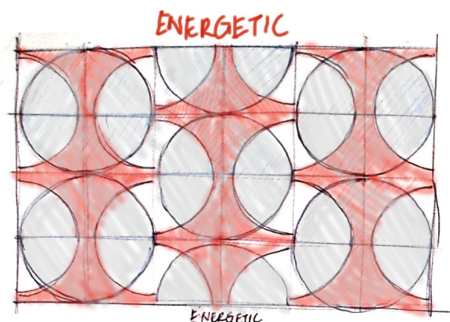
Romantic- The brown panels act as diffusers for light. a diamond shape is created with mirror glass surfaces which gives little light from the gaps and the movement of the mirror glass surfaces creates an enchanting feeling

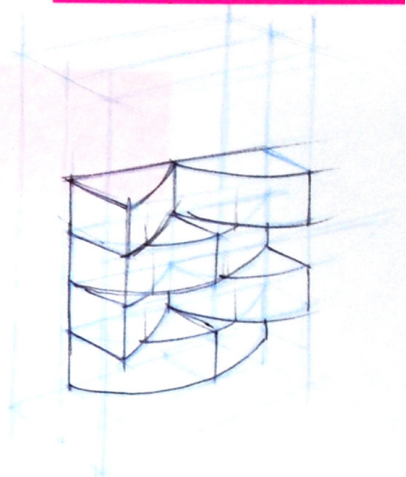
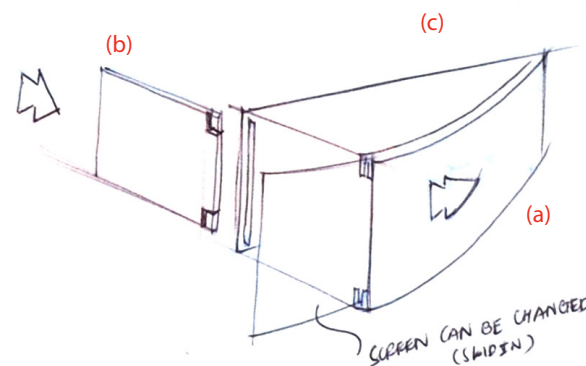
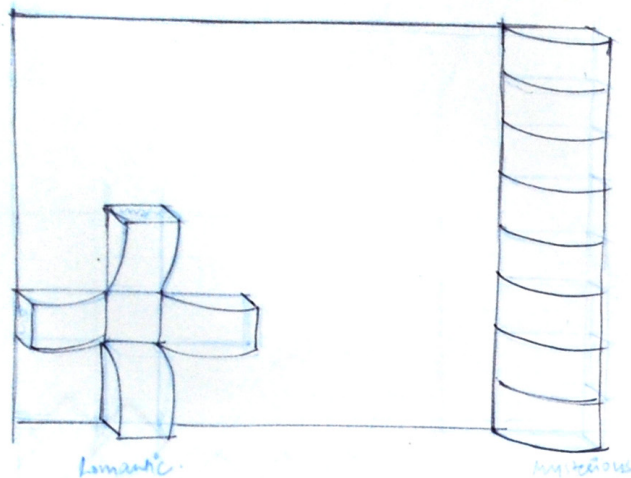
Mysterious- The entire wall is covered with opaque square panels provided, with keeping some panels in white to give out very little light.

Tranquil- the entire wall is covered with white acrylic that diffuses the light with some circular panels created by panels which are quarters of a circle



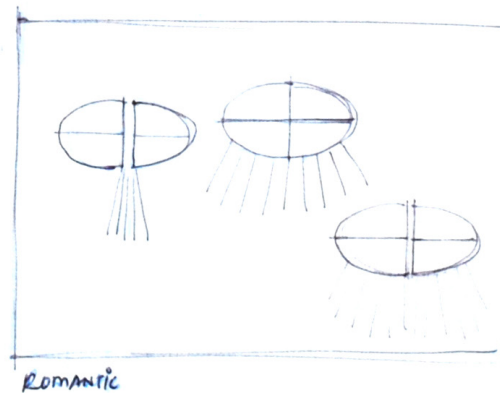
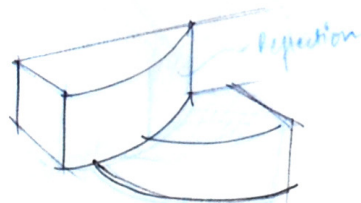
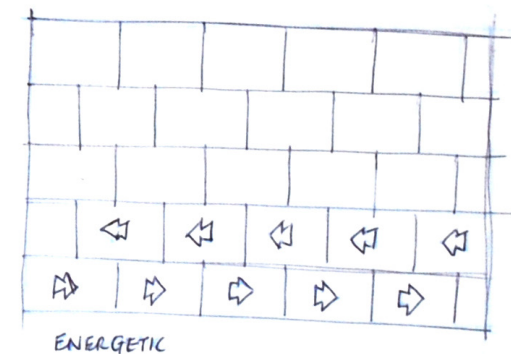
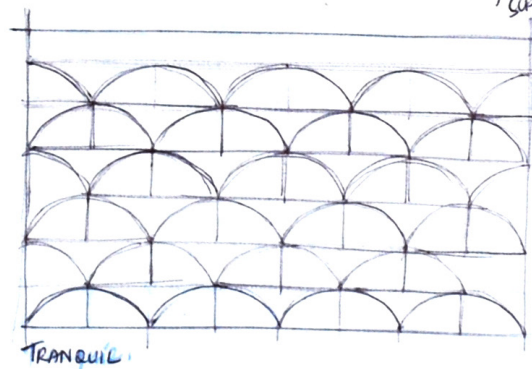
Sample of energetic.
Double layered acrylic.



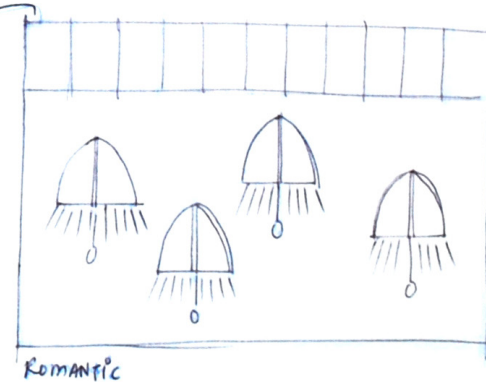


Concept 2.

Here the basic module has a basic frame such that different screens can be inserted on different surfaces. (a,b,c). The wall is composed of multiple of these modules. These modules can be oriented in different ways. Each surface of this module renders a different light quality owing to different surfaces hence creating a variety of effects for different moods.



Reflection
on
ceiling

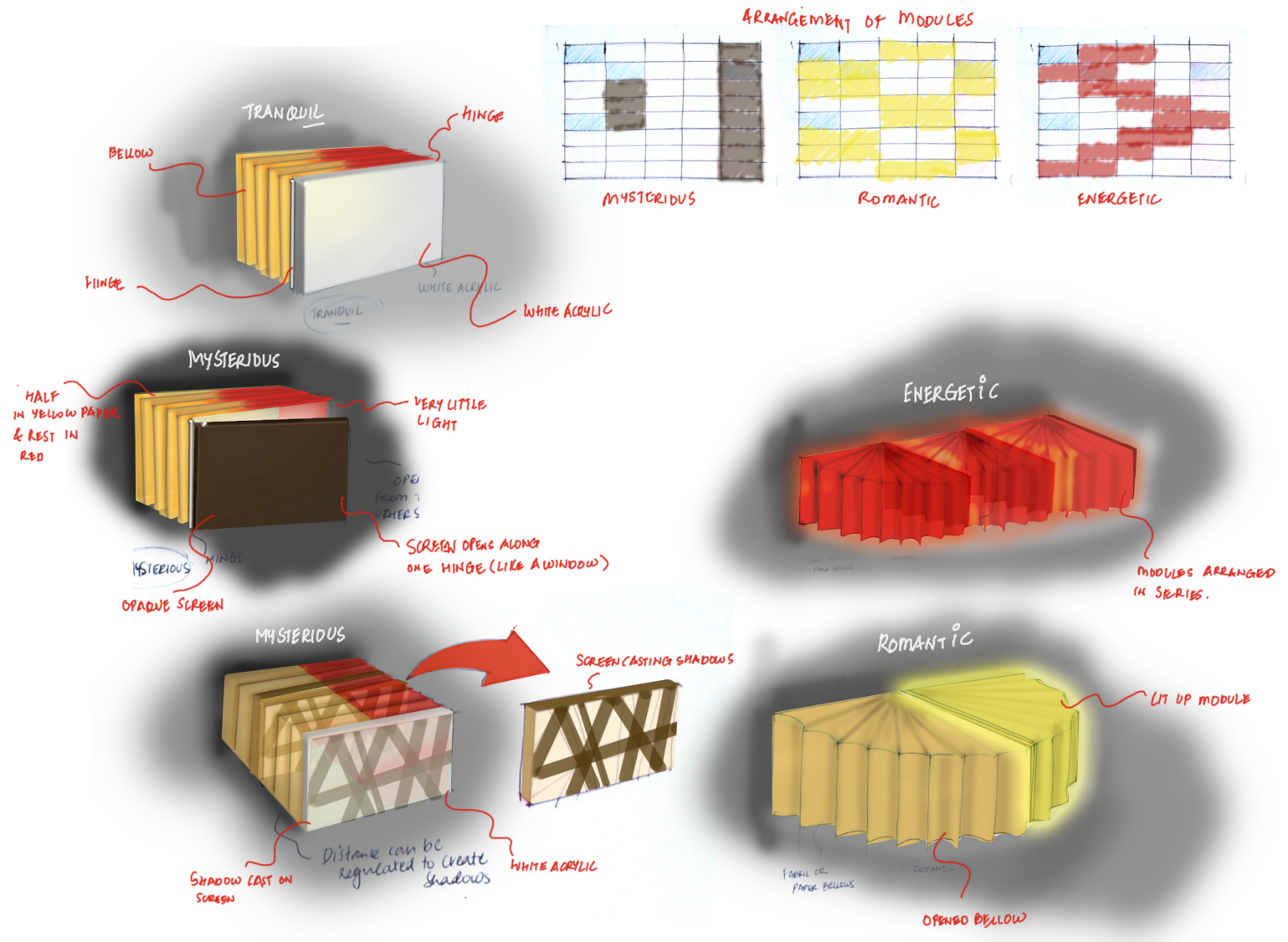


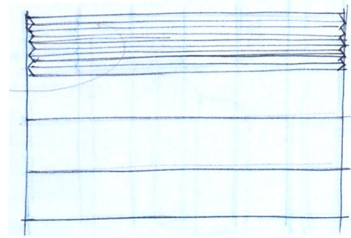
Group 2.

Members of this group require minor changes on the spot. Some of them become selectively active as per need.

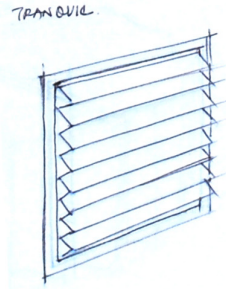
Concept 1.

This concept works on the mechanism of a bellow. The modules are fixed on the wall. The bellow is partly red and partly yellow. Since it can be opened from both sides incase of the romantic mood or the energetic mood. The front surface has a hinge on one side such that it could open as a window. The front surface can be replaced with another surface as per need. In this concept, not all the modules need to be changed to create moods. They can be changed selectively. The bellow can be pulled out to create shadows on the front surface in the case of the mysterious mood. The bellow has a provision for the insertion of a screen along its length. In the case of romantic and energetic moods, Two or three modules get clubbed together to create an effect. The wall pattern on the top shows the arrangement of active modules in each mood. In the tranquil mood the bellow is compact and the white acrylic surface gives soft diffused white light.

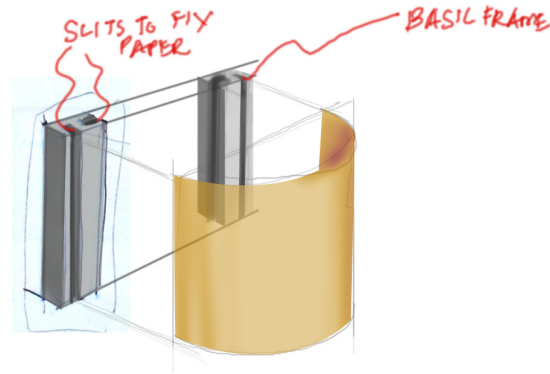




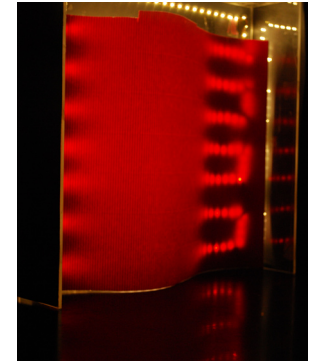
TRANQUIL



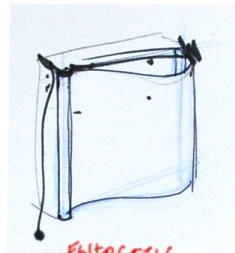
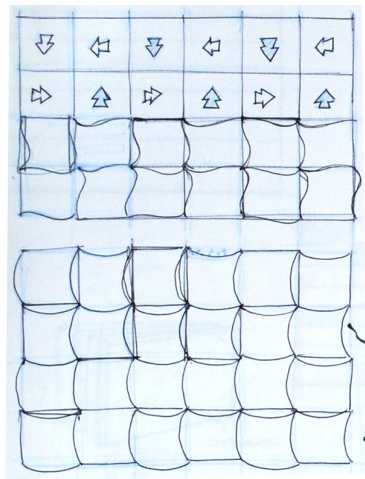
TRANQUIL



Tranquil



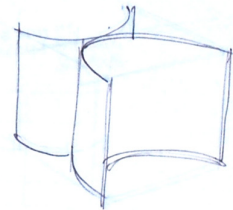
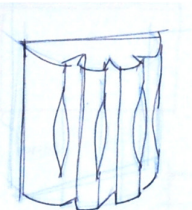
Energetic



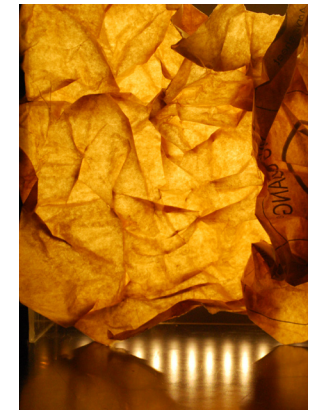
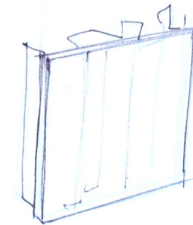
ENERGETIC



ROMANTIC



MYSTERIOUS



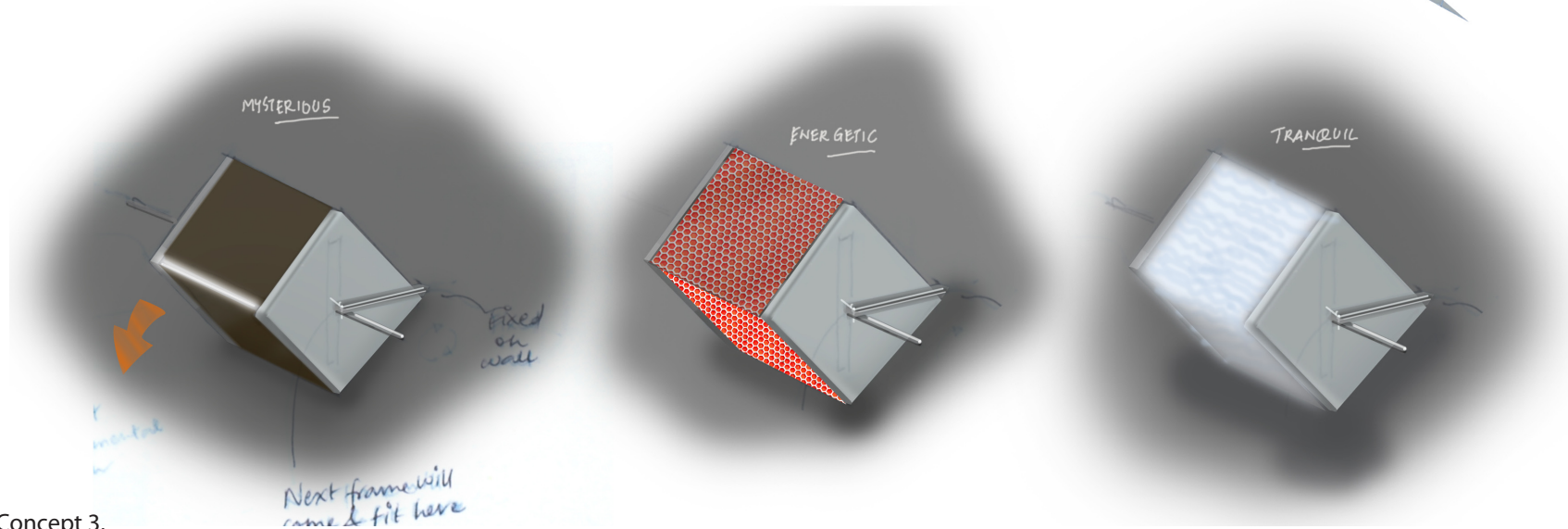
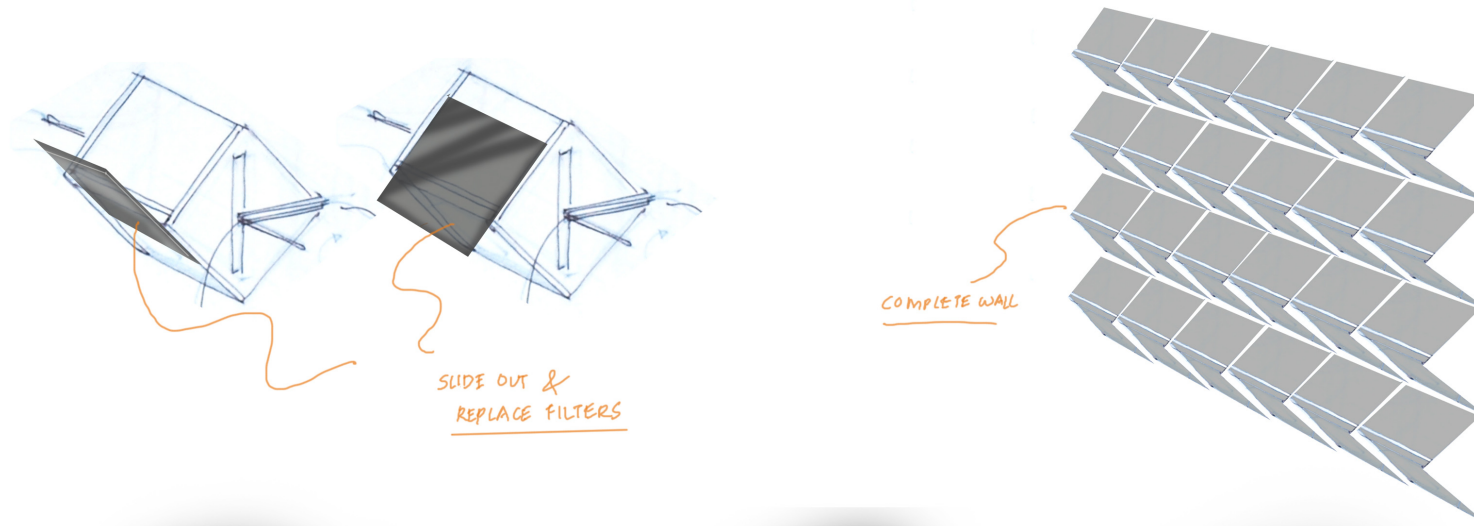
Mysterious



Romantic

Concept 2.

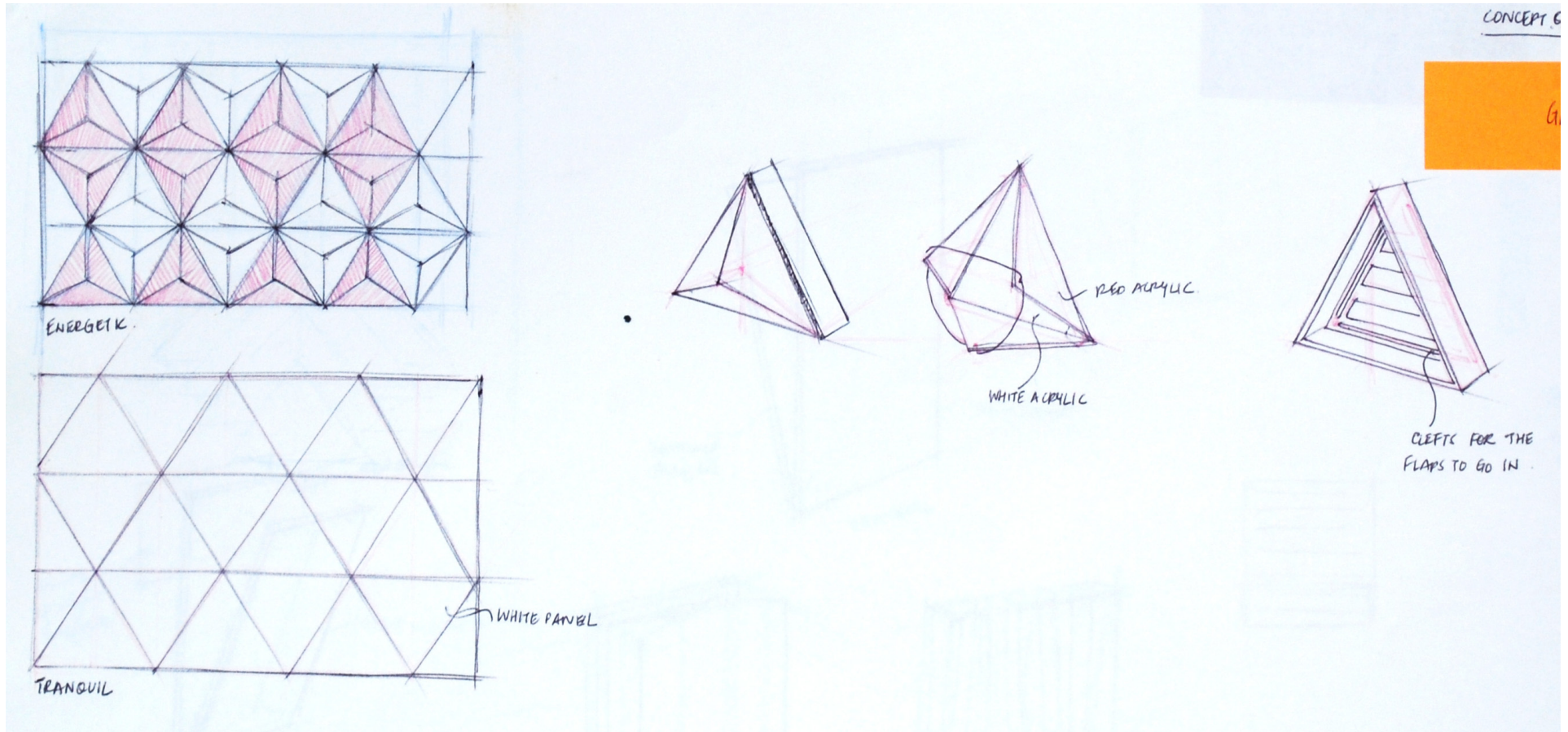
In this concept the basic frame is fixed on the wall. The frame has slits on the either side which helps one to attach filters in multiple ways. To the left one can see how these filters can be arranged in each mood.



Concept 3.

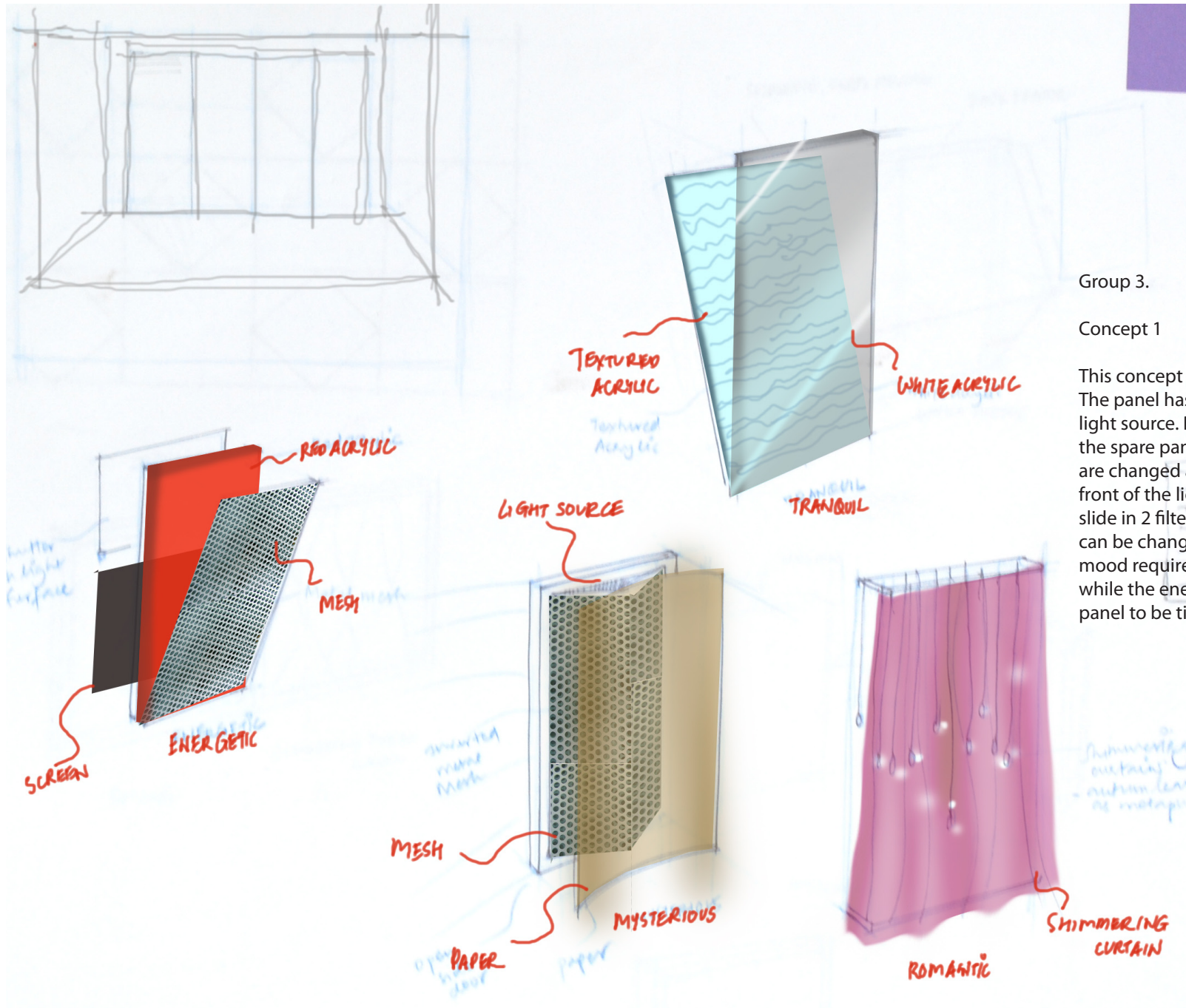
This concept has a cuboid which is centrally pivoted along an axis such that its capable of rotating around the pivot. Only the outer cube rotates, while the light source inside the cuboid remains stationary. Each surface of the cuboid has a different filter. Hence as per the mood, the cuboid is rotated. There is also a provision of removing and replacing surfaces. In the mysterious mood, the panel is opaque and gives out very little light between the panels. With the energetic mood, the top

surface of the cuboid has a mirror while the bottom surface has a mesh with red acrylic. Hence when the tiles are arranged on the wall, the mesh surface casts a reflection on the mirror surface. in the tranquil mood, the panels are white textured acrylic.



Concept 4.

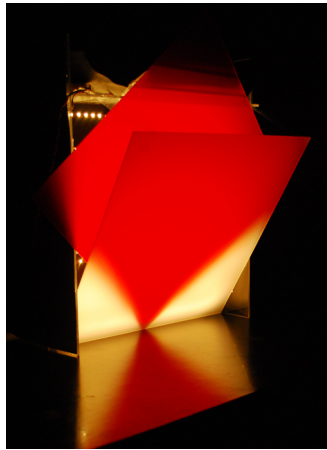
This concept has triangular panels which have a base frame which is fixed on the wall. This frame has the light source within. The filter is made up of 4 surfaces. The main triangular base and smaller petal like surfaces which form a pyramid when closed. These petals can be opened or closed with the help of pulling a string which holds them together. The petals are made in Red acrylic and the main base surface in white. The petals when open, can be inserted into the base frame such that a plain white acrylic surface is achieved. In a tranquil mood, all the modules are in this form. In an energetic mood, this panel cover is inverted such that the petals are facing the user and close into a pyramid which is red in colour.



Group 3.

Concept 1

This concept has tall panels that form a wall. The panel has a basic frame which has the light source. Behind this light source panel, the spare panels are kept. These spare panels are changed as per the required mood. In front of the light panel, there is a provision to slide in 2 filters. The inclination of these panels can be changed as per need. eg. Tranquil mood requires the back panel to be tilted while the energetic mood requires the front panel to be tilted forward.



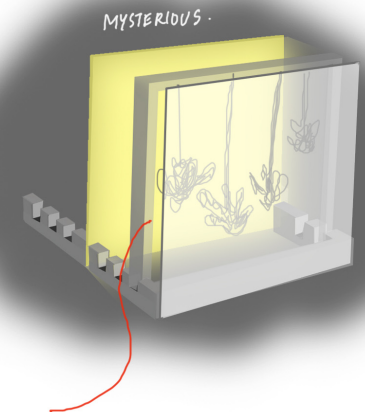
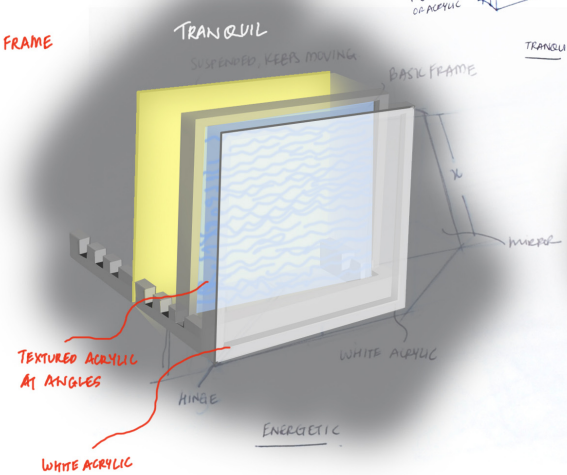
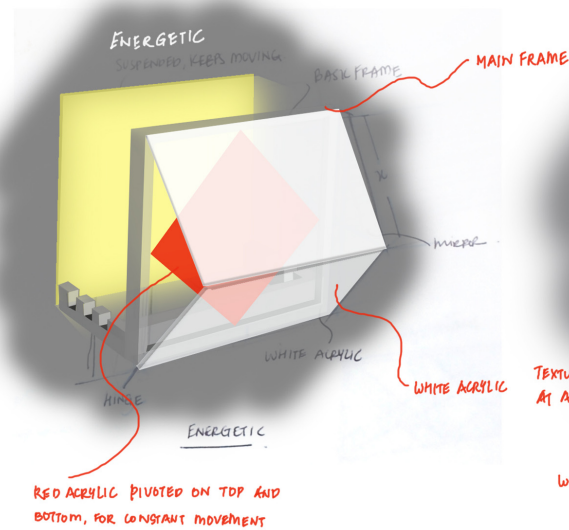
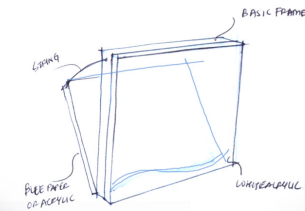
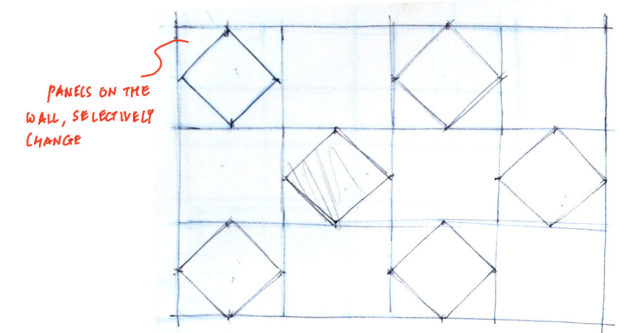
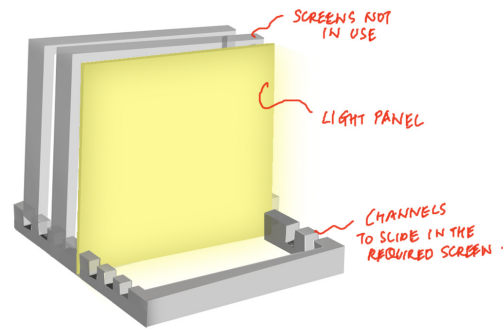
Energetic



Tranquil

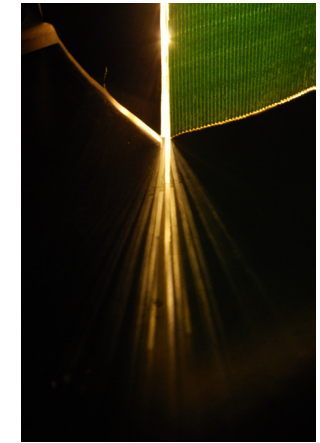
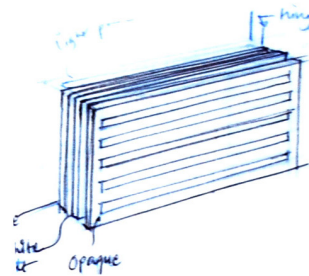
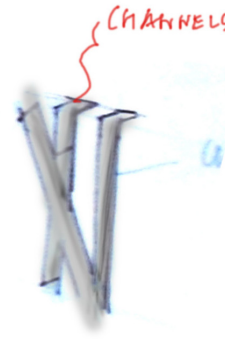
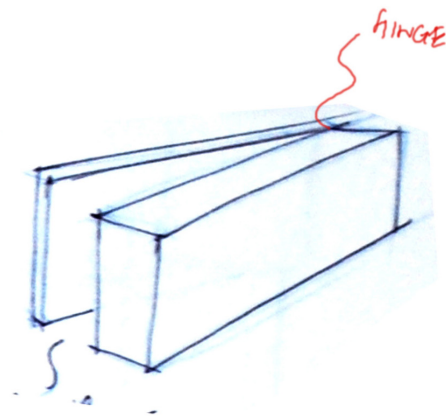
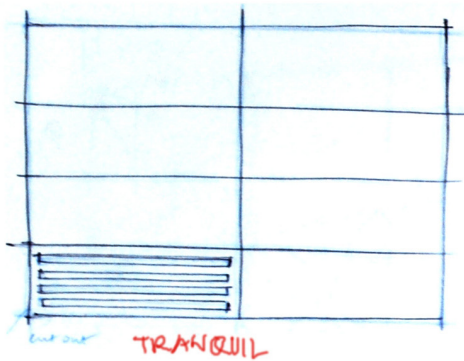
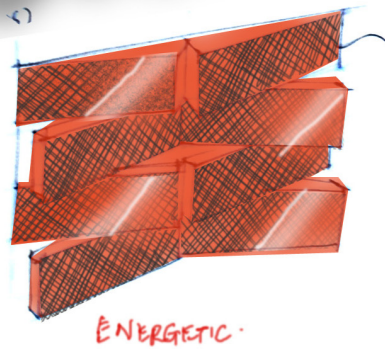
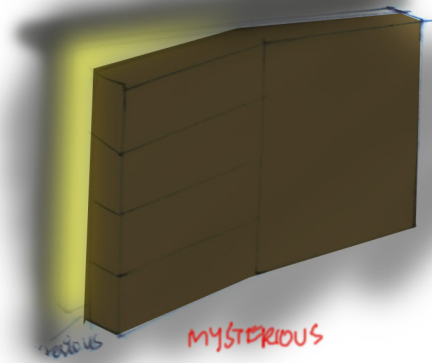


Mysterious



Concept 2.

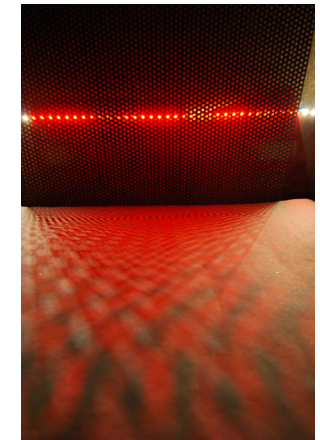
The module has bottom frame that gives provision to position different screens in front of the main light panel. The position of the light panel is fixed. In an active condition, all the modules are compactly next to each other and they form a uniform surface. When a change is needed. The required module is pulled out and the frame in front is replaced by another frame which is kept behind the light panel. The first panel towards the user is a white acrylic sheet which is pivoted at the bottom. The angle can hence be changed.



Mysterious



Tranquil



Energetic

Concept 3.

Here we have a rectangular module with a hinge at the back such that the module can be rotated along an axis. Filters and surfaces can be changed because of the channels provided in the basic frame.

20. What is next?

Final concept
Concept detailing
Testing
Prototyping
Conclusion

References

Image 1- <http://patriotgetaways.com/images/miracletheater003.jpg>
Image 2- <http://photogallery.indiatimes.com/photo/3129018/Play-performance-.jpg>
Image 3- <http://www.bizbash.com/content/editorial/StoryPhoto/big/e14591three.jpg>
Image 4- http://www.eou.edu/theatre/images/Pirates_024.jpg
Image 5- <http://www.blackfootcrossing.ca/images/theatre.jpg>
Image 6- http://wiki.answers.com/Q/What_is_the_relationship_between_color_and_light
Image 7- <http://www.thej.com.au/images/Venue/J%20Theatre%20colour.JPG>
Image 8- <http://performingarts.ufl.edu/wp-content/uploads/2007/05/st-petersburg-ballet-theatre-carmen-cropped.jpg>
Image 9- <http://www.creighton.edu/fileadmin/projects/ccas/finearts/images/rotator-theatre/theatre-a-flea1.jpg>
Image 10- <http://www.mts.net/~william5/sld/sld-100.htm>
Image 11- http://www.diane-malone.com/yahoo_site_admin/assets/images/SSIIES-WEb.40190919_std.jpg
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Image 14- <http://www.rfdesigns.org/ghosts.htm>
Image 15- <http://wskg.typepad.com/.a/6a00d834bff11969e201053497e5e1970b-500wi>
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Image 17- <http://wskg.typepad.com/.a/6a00d834bff11969e201053497e5e1970b-500wi>
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Image 19- <https://www.trustedpartner.com/images/library/000198/THeatre%20interior,DROP1.jp>
Image 20- http://farm4.static.flickr.com/3549/3420005988_fbc304d993.jpg
Image 21- http://www.nationalyouththeatre.com/images/arab_childrenofeden28a.jpg
Image 22- <http://www.tavistockwharf.com/images/photos/theatre-500px.jpg>
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Image 30- http://farm4.static.flickr.com/3549/3420005988_fbc304d993.jpg
Image 31- <http://www.mts.net/~william5/sld/sld-100.htm>
Image 32- http://farm4.static.flickr.com/3590/3419181849_9e42648257.jpg?v=0
Image 33- <http://www.corbisimages.com/Enlargement/Enlargement.aspx?id=42-23926525&caller=search>
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Image 35- <http://www.mgis.in/wp-content/uploads/2009/09/picture-022.jpg>

Image 36- <http://ou.media.clients.ellingtoncms.com/img/photos/2008/11/16/prideBIS.jpg>
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Image 42- http://images.broadwayworld.com/columnpic2/tn-500_ruined279r.jpg
Image 43- <http://www.tavistockwharf.com/images/photos/theatre-500px.jpg>
Image 44- <http://www.mts.net/~william5/sld/sld-100.htm>
Image 45- http://farm4.static.flickr.com/3590/3419181849_9e42648257.jpg?v=0
Image 46- <http://bighollywood.breitbart.com/files/2009/02/lesmis.jpg>
Image 47- <http://www.gizmowatch.com/entry/philips-presents-livingcolors-a-multi-hued-led-lamp/>
Image 48- http://www.youtube.com/watch?v=_TWq1v4Wbil
Image 49- <http://www.youtube.com/watch?v=uu7p9vcBFMc&NR=1>
Image 50- <http://z.about.com/d/phoenix/1/0/5/D/2/BroadwayPalm42street.jpg>
Image 51- <http://wskg.typepad.com/.a/6a00d834bff11969e201053497e5e1970b-500wi>
Image 52- http://www.aolcdn.com/red_galleries/club-theater-drama-400a061207.jpg
Image 53- <http://www.creighton.edu/fileadmin/projects/ccas/finearts/images/rotator-theatre/theatre-a-flea1.jpg>
Image 54- <http://www.washingtonlife.com/issues/june-2006/performing-arts/images/performing-arts01.jpg>
Image 55- <http://www.thej.com.au/images/Venue/J%20Theatre%20colour.JPG>
Image 56- http://farm4.static.flickr.com/3549/3420005988_fbc304d993.jpg
Image 57- http://www.diane-malone.com/yahoo_site_admin/assets/images/SSIES-WEb.40190919_std.jpg
Image 58- http://www.radioregen.org/mcast/publicrelations/files/images/perf_arts.JPG
Image 59- <http://www.music.ucla.edu/blog/wp-content/uploads/2009/02/marriage-of-figaro-1.jpg>
Image 60- http://www.eou.edu/theatre/images/Pirates_024.jpg
Image 61- http://farm4.static.flickr.com/3590/3419181849_9e42648257.jpg?v=0
Image 62- <http://www.mgis.in/wp-content/uploads/2009/09/picture-022.jpg>
Image 63- <http://www.corbisimages.com/Enlargement/Enlargement.aspx?id=42-23926525&caller=search>
Image 64- <http://performingarts.ufl.edu/wp-content/uploads/2007/05/st-petersburg-ballet-theatre-carmen-cropped.jpg>
Image 65- http://www.nationalyouththeatre.com/images/arab_childrenofeden28a.jpg
Image 66- <http://www.creighton.edu/fileadmin/projects/ccas/finearts/images/rotator-theatre/theatre-a-flea1.jpg>
Image 67- <http://www.bizbash.com/content/editorial/StoryPhoto/big/e14591three.jpg>
Image 68- <http://www.mts.net/~william5/sld/sld-100.htm>
Image 69- <http://www.rfdesigns.org/ghosts.htm>
Image 70- http://emmagriffin.net/wp-content/uploads/2009/04/dsc_43611.jpg
Image 71- <https://www.trustedpartner.com/images/library/000198/THeatre%20interior,DROP1.jp>
Image 72- <http://www.creighton.edu/fileadmin/projects/ccas/finearts/images/rotator-theatre/theatre-a-flea1.jpg>
Image 73- <http://www.blackfootcrossing.ca/images/theatre.jpg>
Image 74- <http://wskg.typepad.com/.a/6a00d834bff11969e201053497e5e1970b-500wi>
Image 75- <http://www.tavistockwharf.com/images/photos/theatre-500px.jpg>

Books

Better photography

The technique of lighting for television and motion pictures

Neufert 3rd edition

Wikipedia

Colour and moods

Concept Evaluation

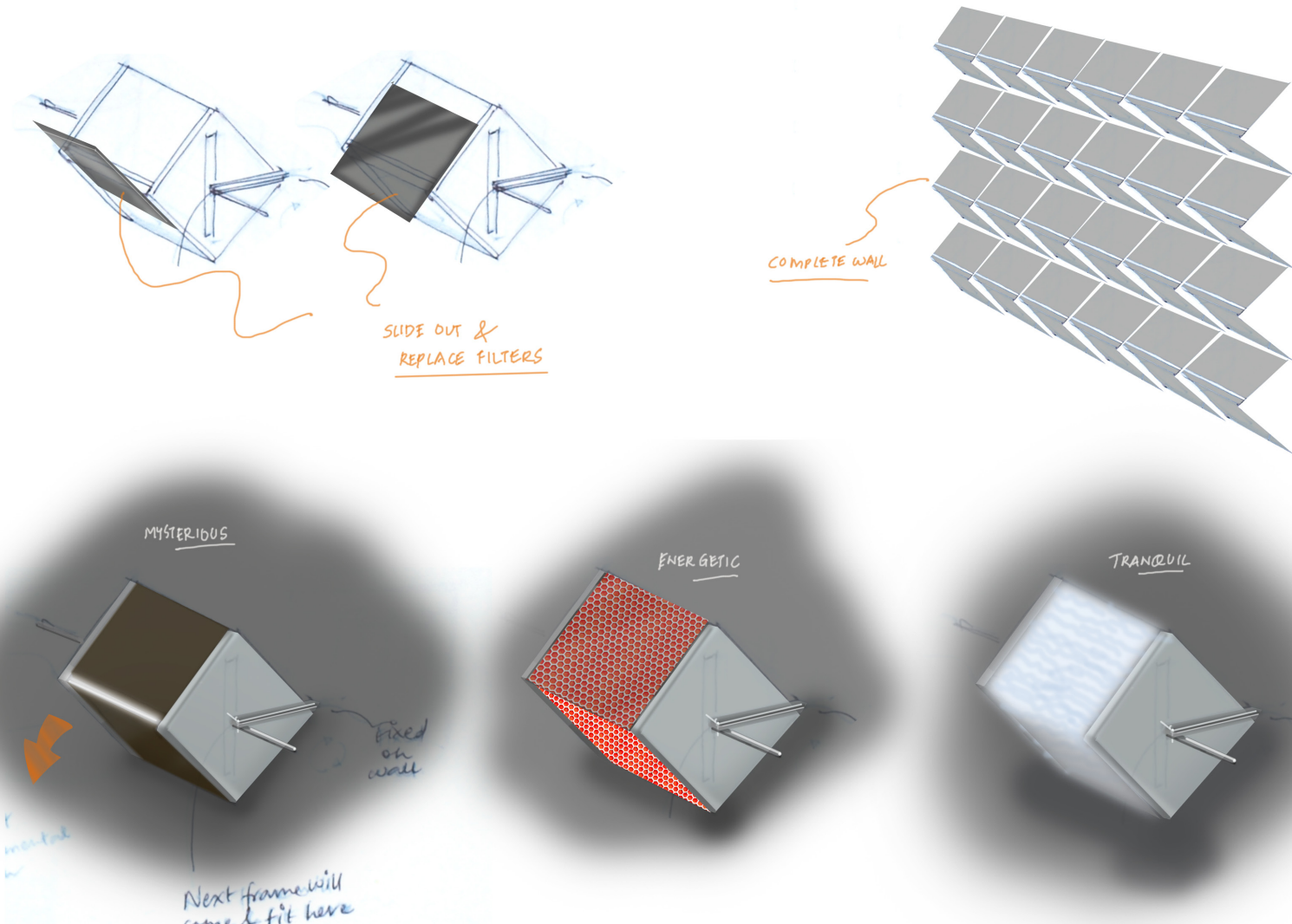
The concepts were evaluated on the following parameters.

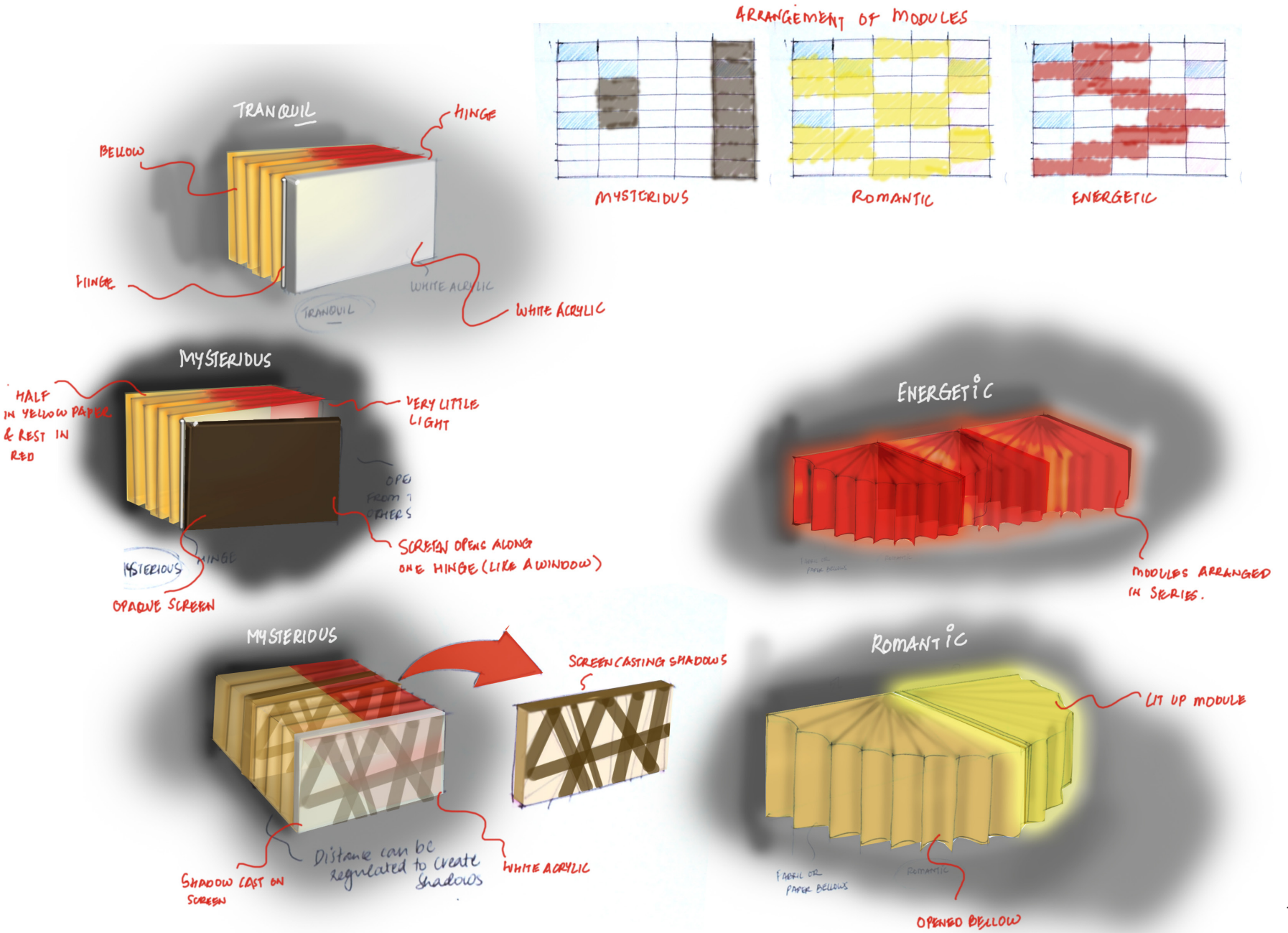
- Effectiveness of expression of moods
- Ease of use.
 - Accessibility of the product
 - Memory needed for changing the modules
 - Number of changes required to create all the moods

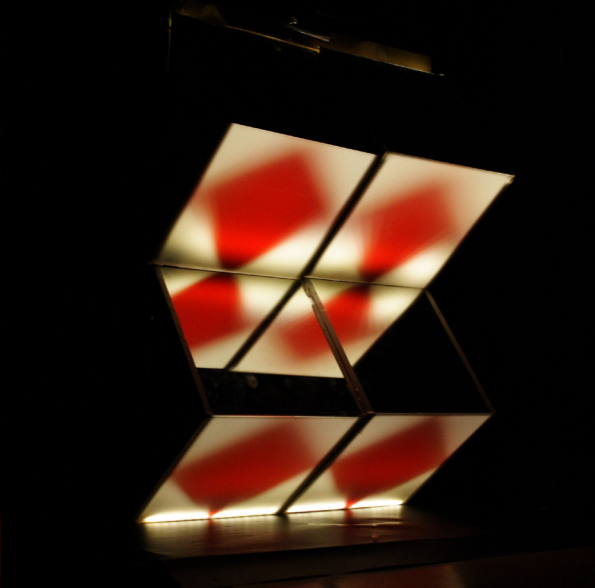
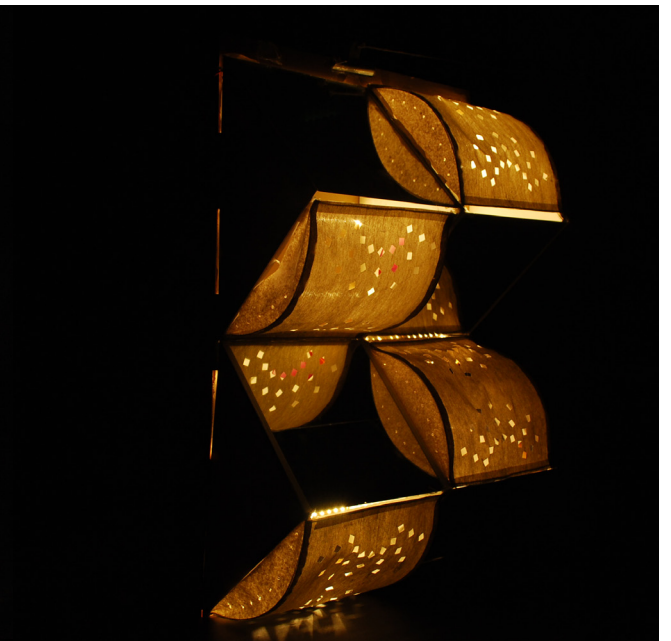
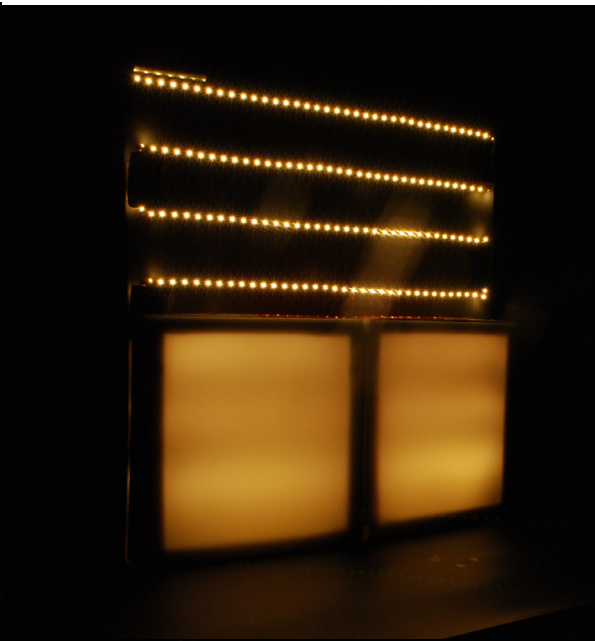
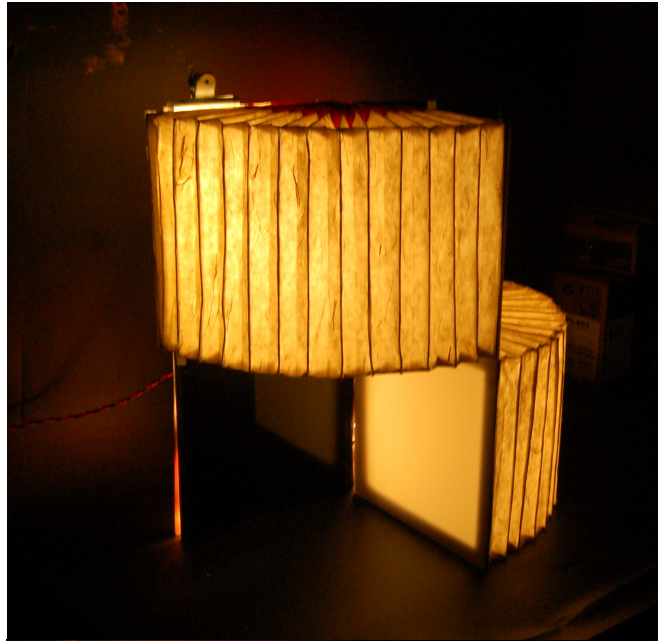
Short listed concepts

Out of the numerous concepts, 2 concepts were shortlisted for final testing so that an accurate decision could be taken towards the final concept.

Group 2 . Concept 3

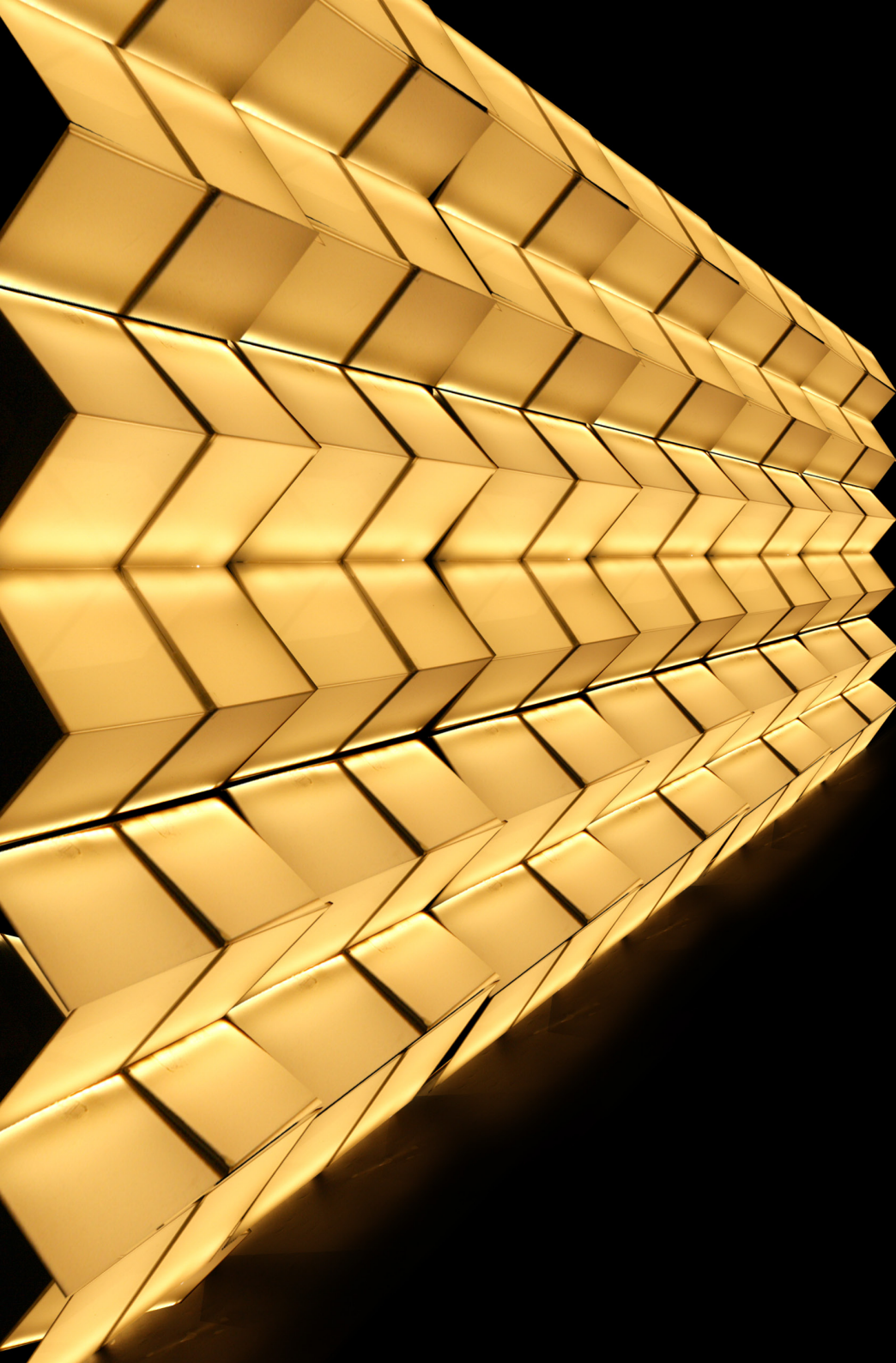






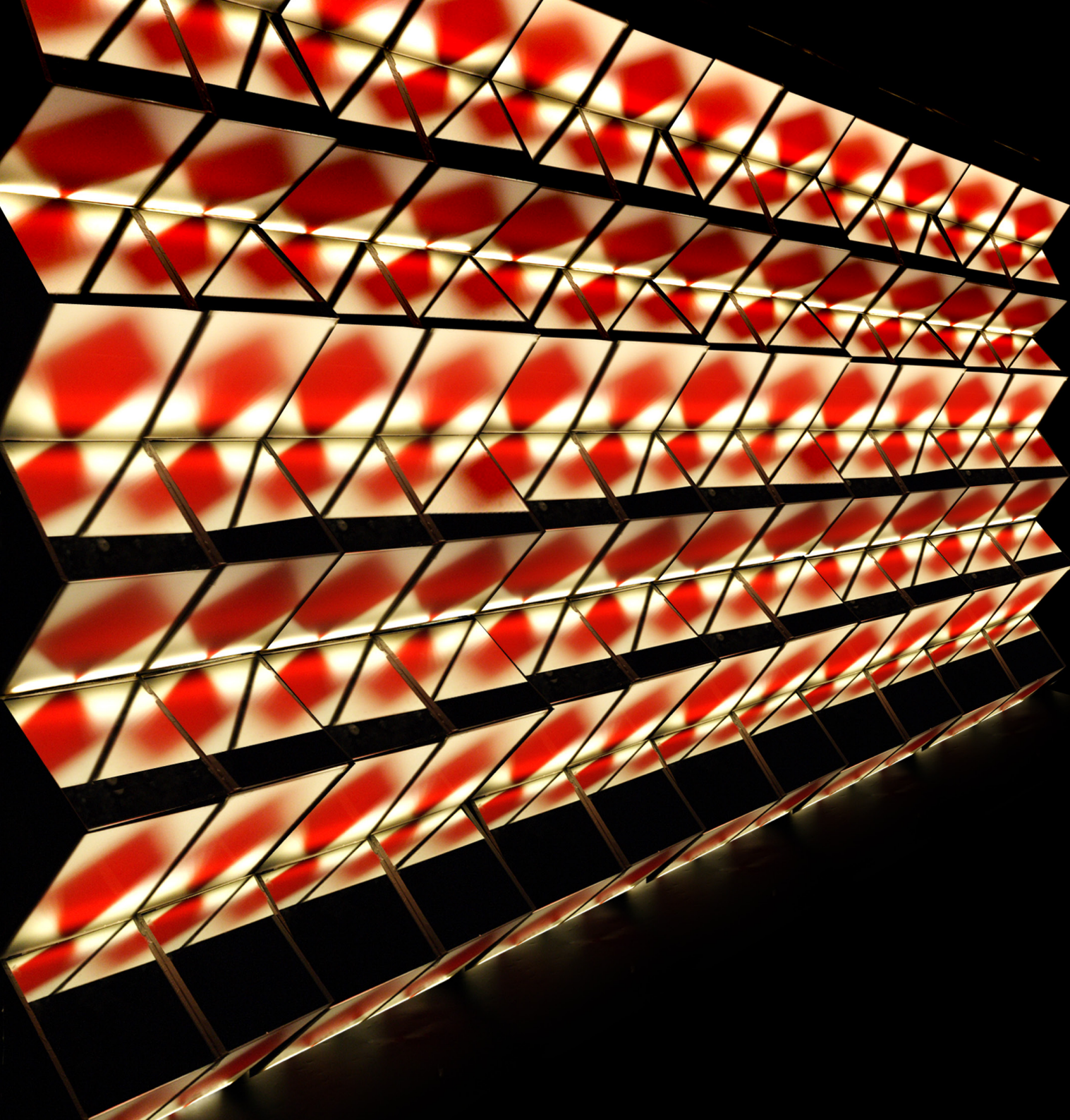
Testing effects created by concepts

After short listing the concepts, the concepts were modeled in almost the actual materials. They were tested with lights and the results were compared.

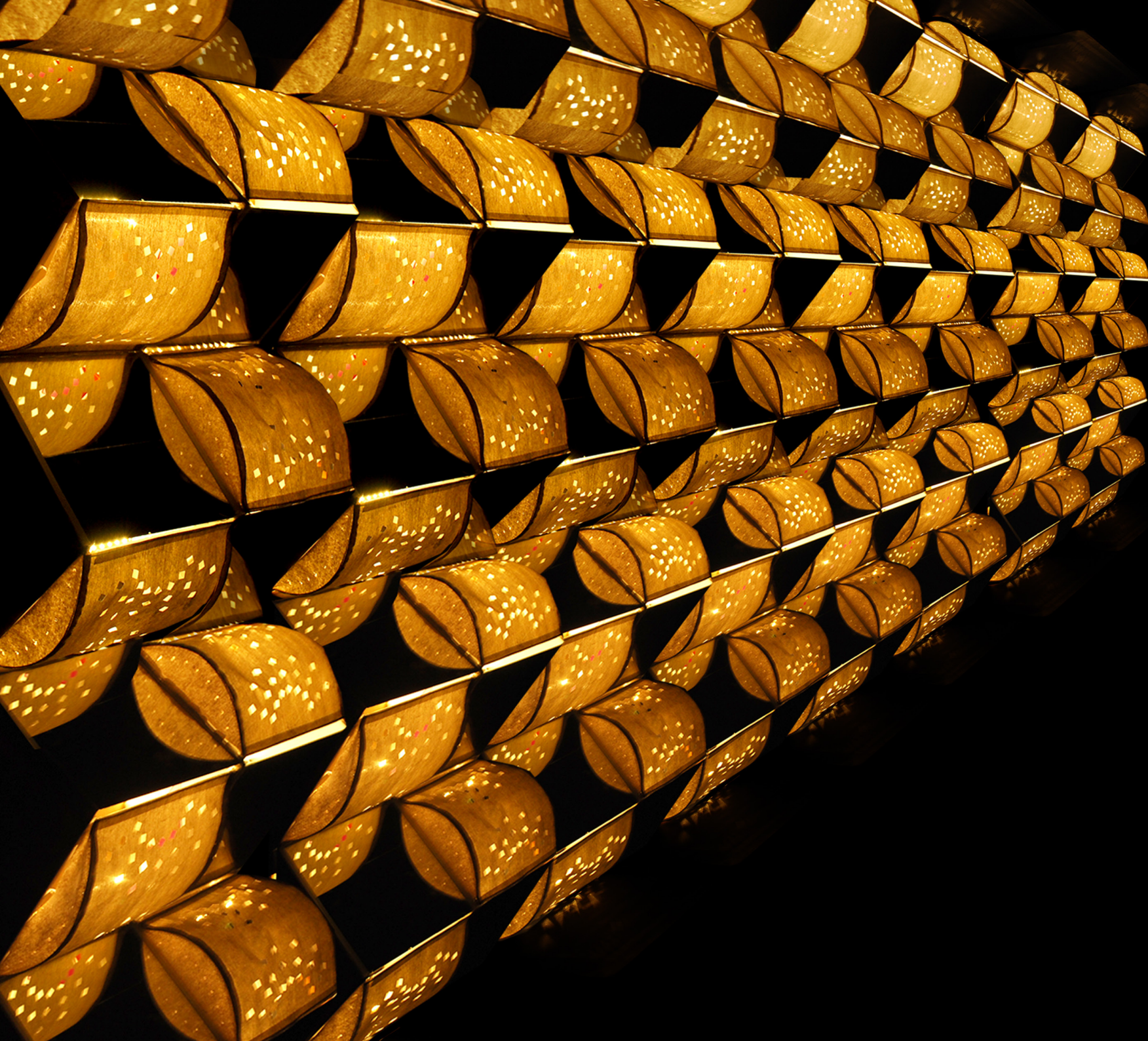


Concept 1.

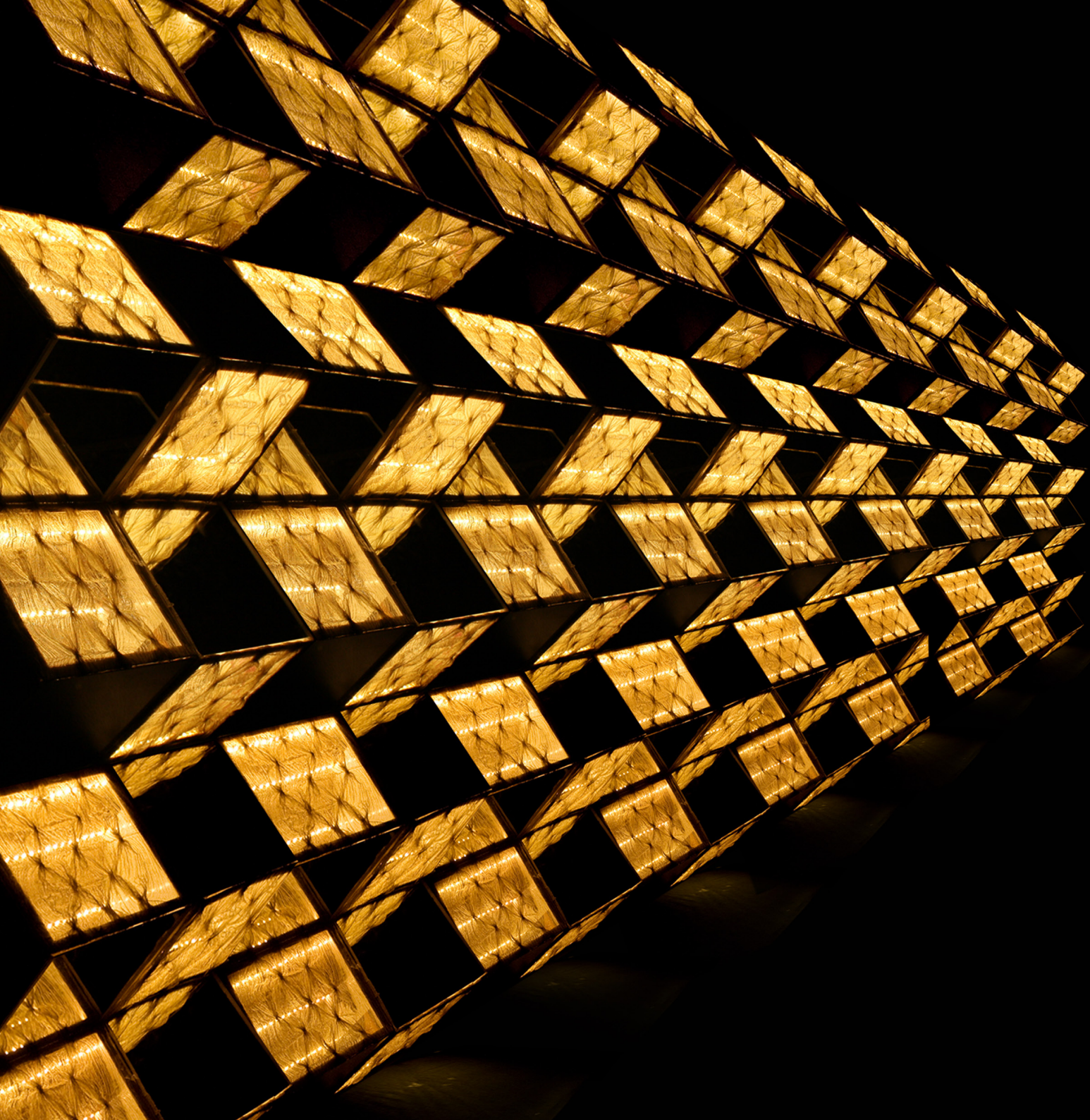
Tranquil



Energetic



Romantic 1.



Romantic 2.

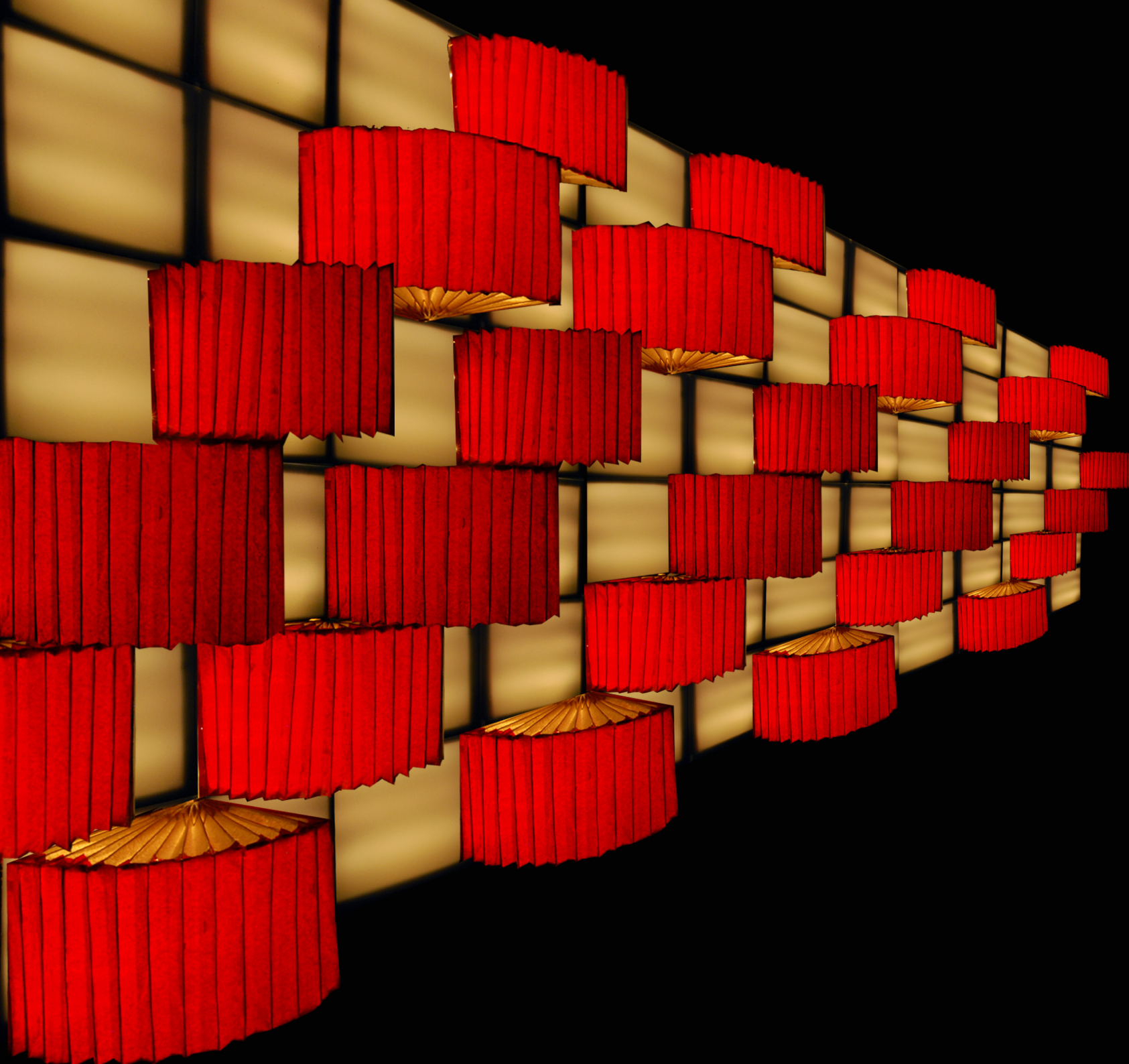


Mysterious



Concept 2.

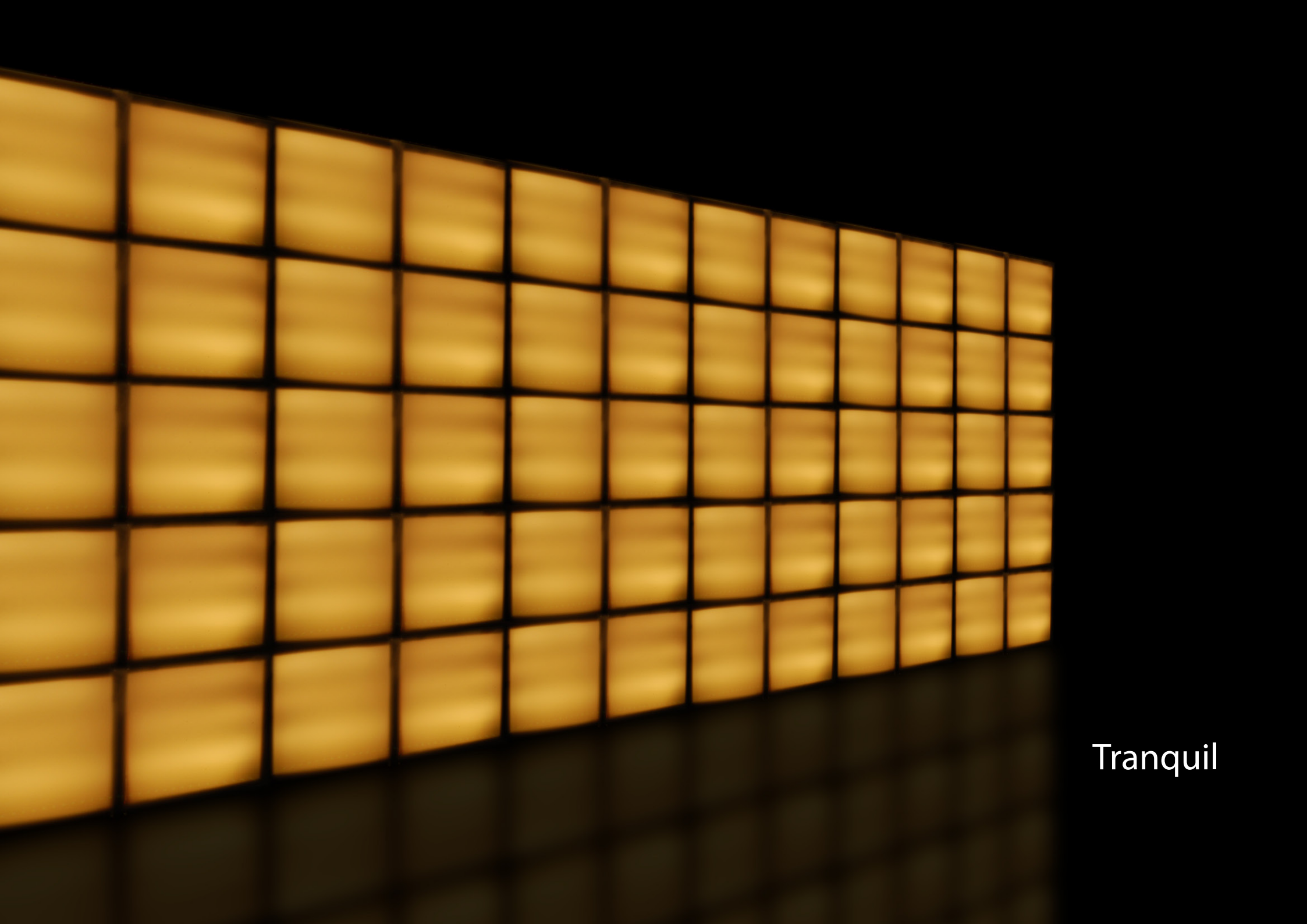
Romantic



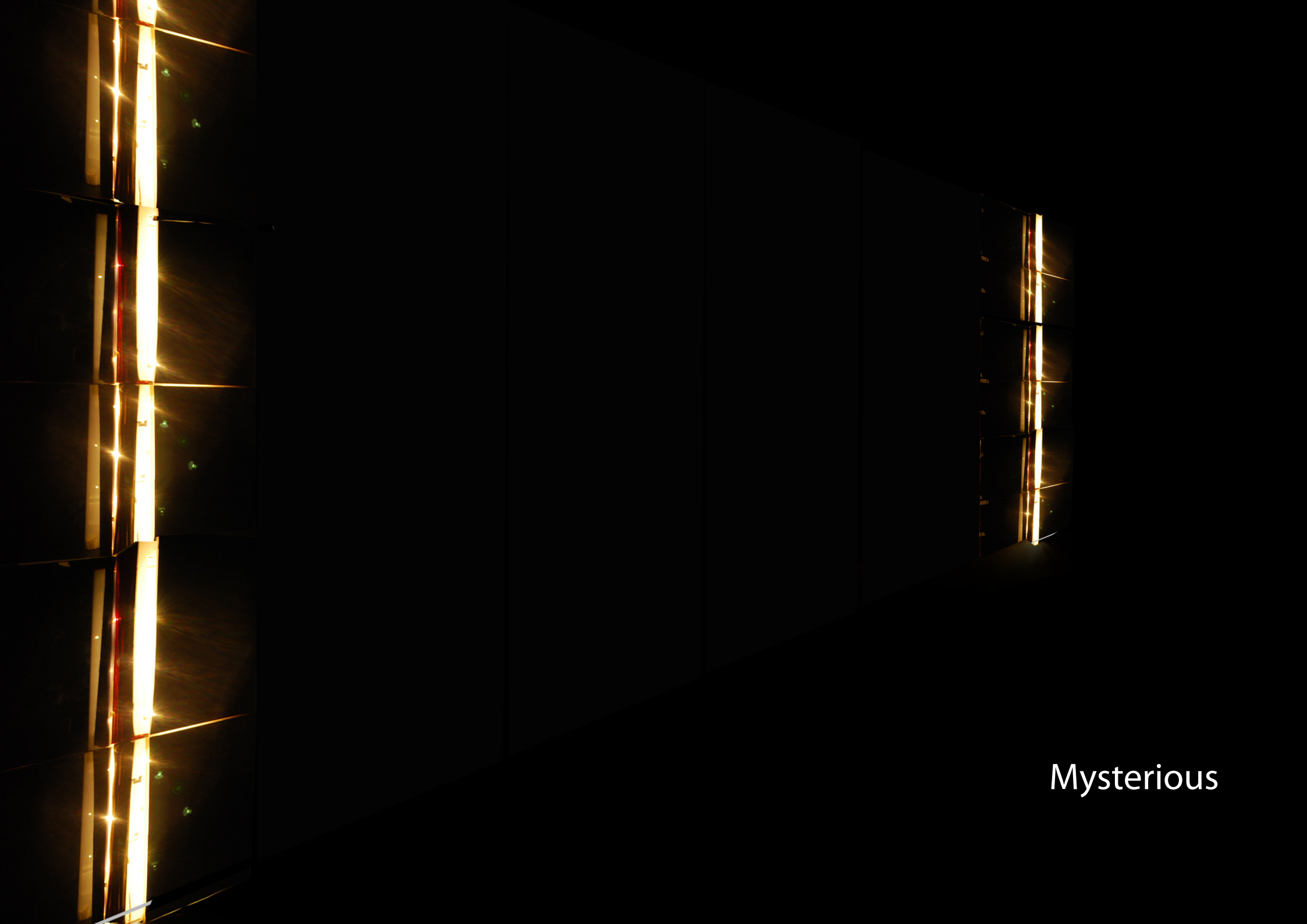
Energetic 1



Energetic 2



Tranquil



Mysterious

Concept Evaluation

The concepts were evaluated on the following parameters.

1. Extent of expression of moods
2. Ease of use

10 people were interviewed and asked to evaluate.

Analysis of evaluation

Chosen concept is Concept 2.

Other inferences

- The energetic mood seems more like romantic as Red is associated with romance too.

Final concept- MOODify

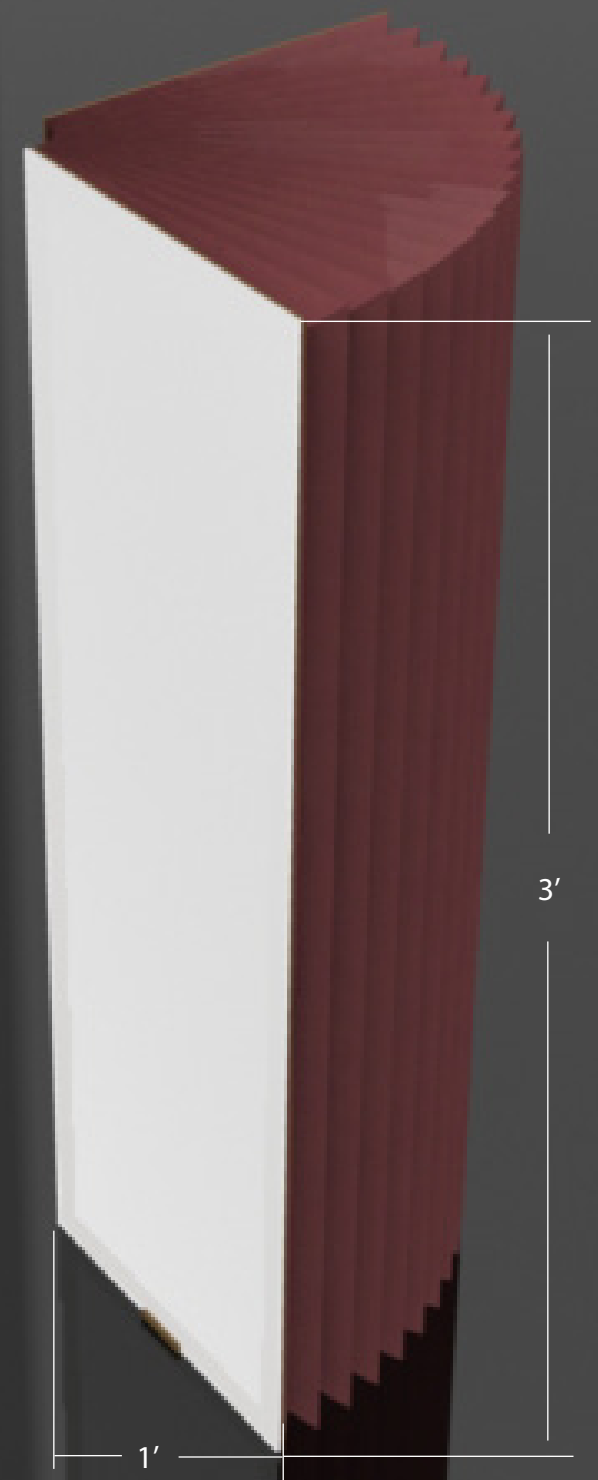
Moodify is a module which MODIFIES into different MOODS. Hence the name MOODify. This product is designed for a restaurant space which needs variable moods time and again. The changes required will be a service provided by the manufacturer of the product. It can create 4 moods. Tranquil, Romantic, Energetic and Mysterious.

Module dimensions were changed to 1' x 3' for

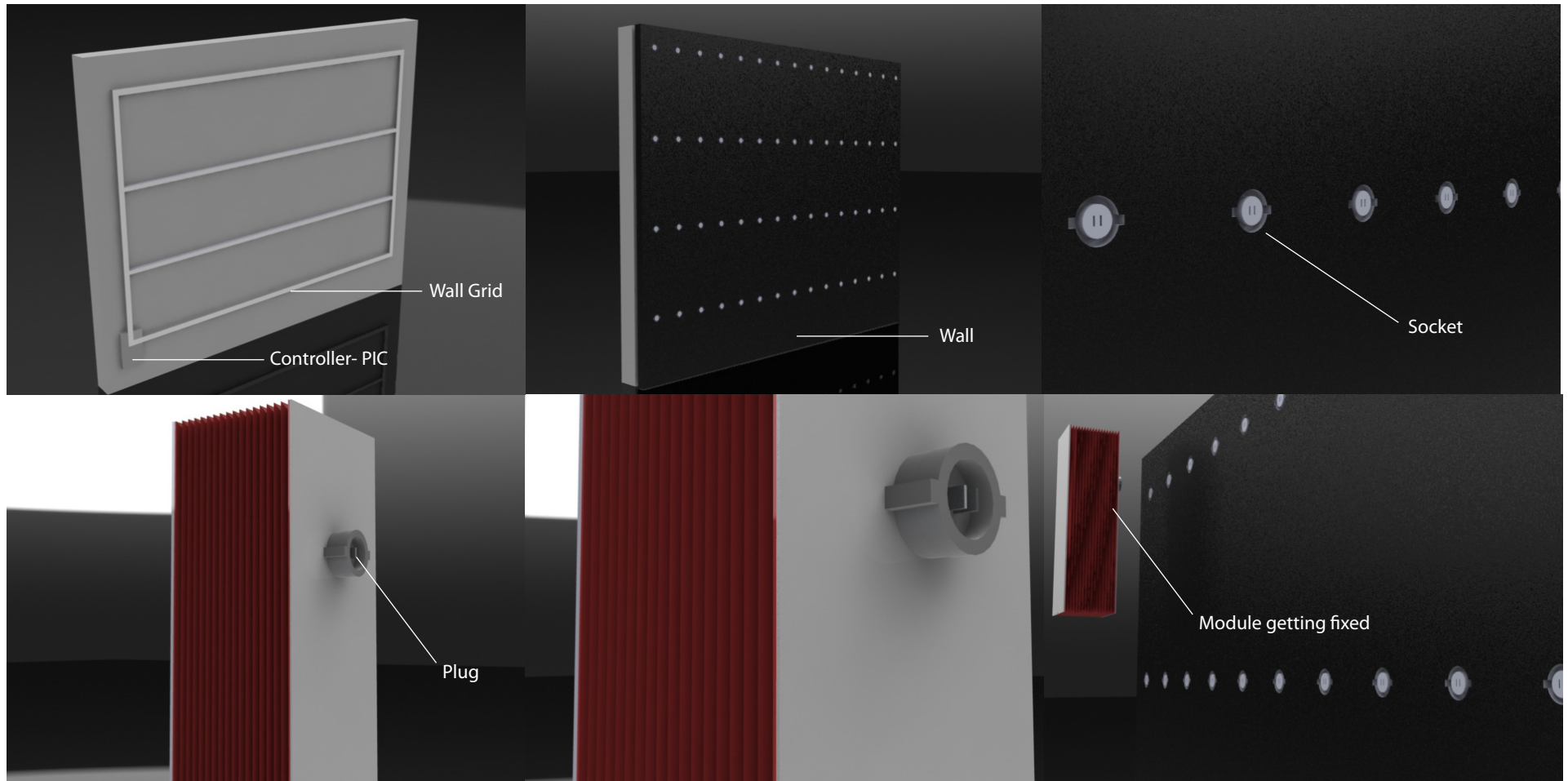
- Better Accessibility
- Change required in less number of modules
- One can reach almost the top module. (3 modules in height=9')

Product attributes

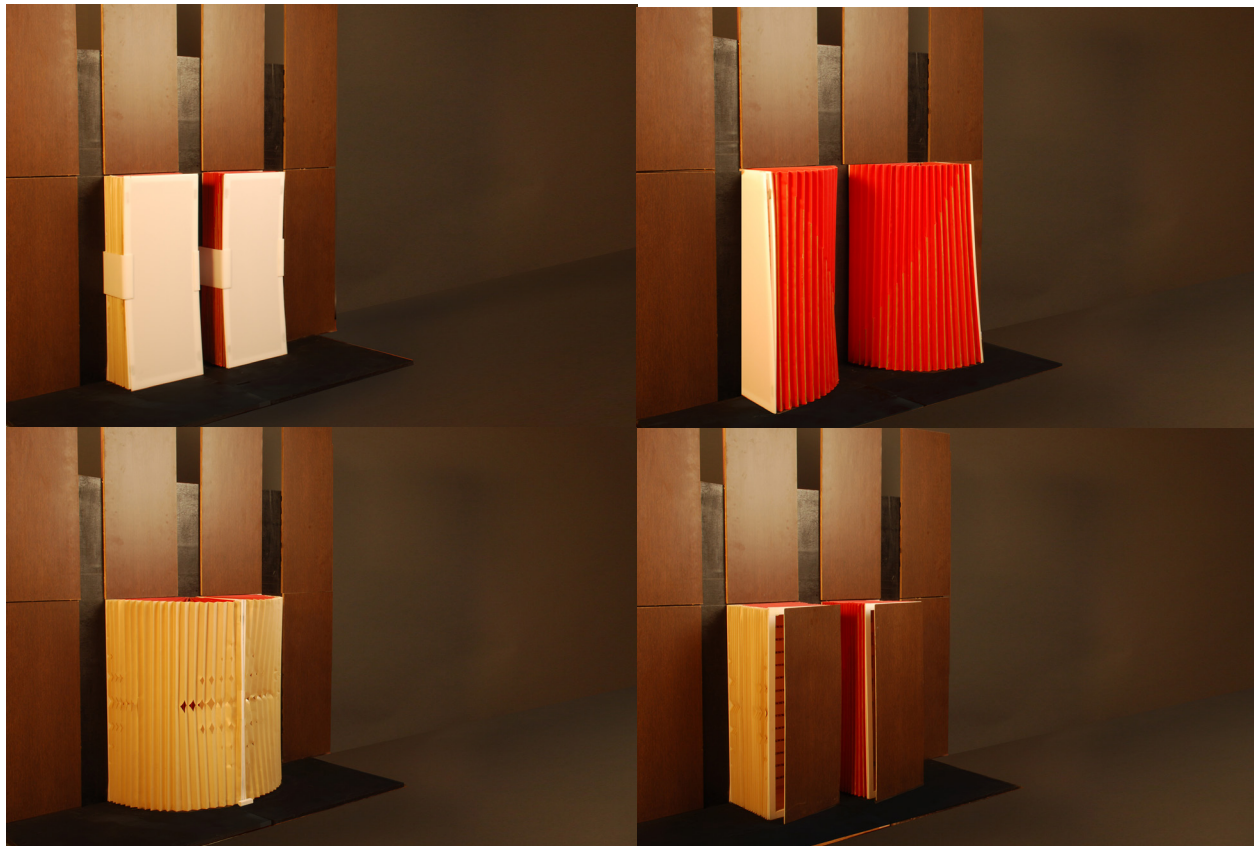
- Modular
- Easy to change
- Light
- Gives freedom to the user to explore various combinations
- Collapsible
- Easy to carry
- Programmable



How it works?



The module has a plug on the back which attaches it onto the wall. the wall has a socket. The plug and the socket fit into each other. This attachment on the wall, provides it with electricity and supports the panel on the wall as well. There are multiple of these sockets on the wall. Hence there can be a number of these modules on the wall. These sockets can be programmed with a universal controller (programmable PIC) to switch on or switch off any of these modules as per need.



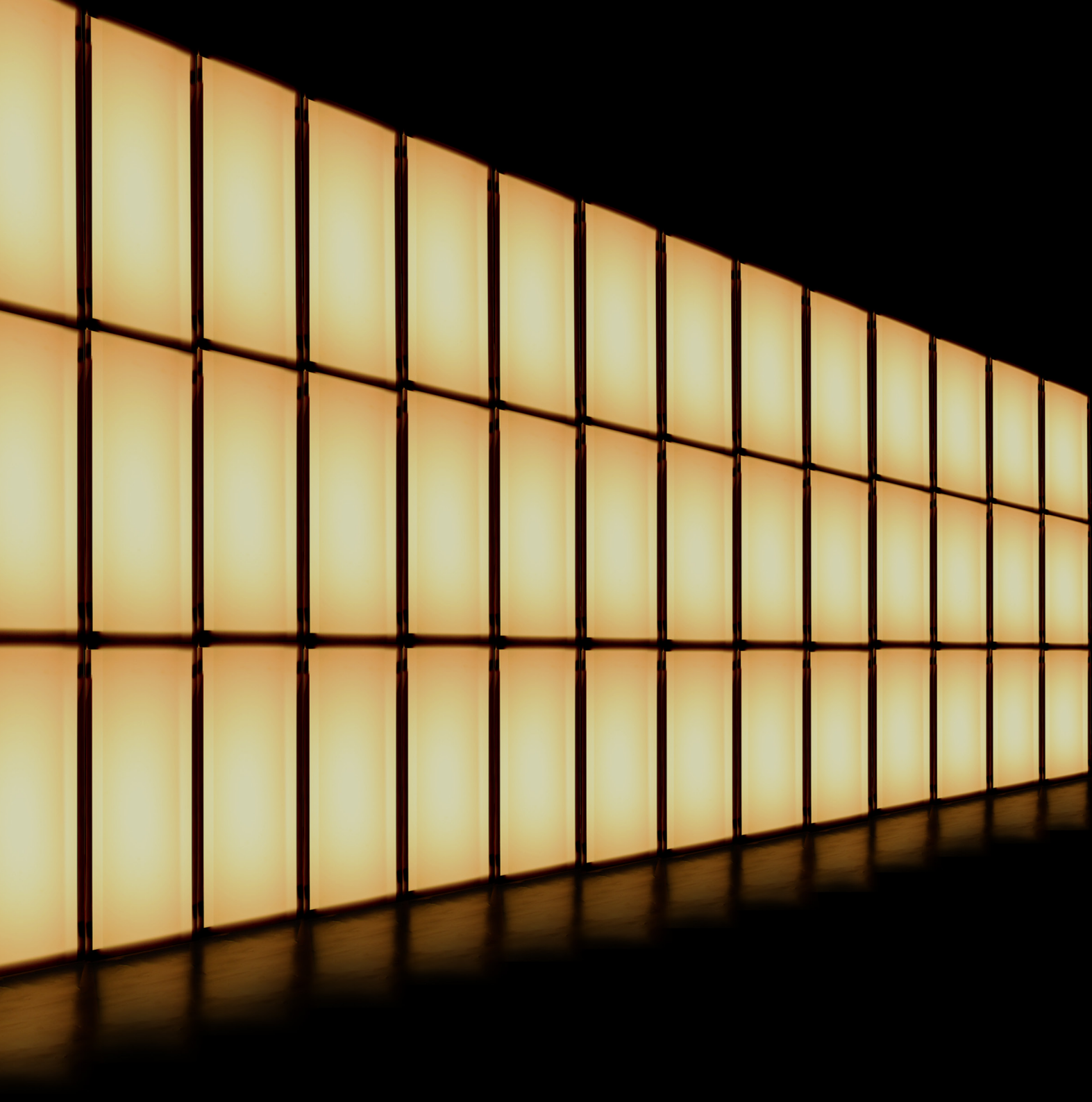
Model Making

The model was primarily made in two materials. The front panel in acrylic and the bellows in gateway paper. Since these modules interact with each other, 2 modules were made to demonstrate the usage and the effect. The light sources used were LED strips. Each of the modules required 3 metres of LED strips to achieve the right amount of luminosity.



Tranquil

In the tranquil mood, the panels are in their most neutral state. The panels are adjacent to each other and the lights are just switched on.



Tranquil

Seamless

White or blue

Water

White diffused light, Uniform light

Uniform gradient

No disturbances.

Food- salads and soups

Music- Jal tarang

Furniture- natural materials

High ceiling, low seating, open spaces,



Romantic

The transition takes place between the tranquil to the romantic mood. The modules are just turned to join two modules with the help of snap fit joints. The lights are just switched on.





Romantic

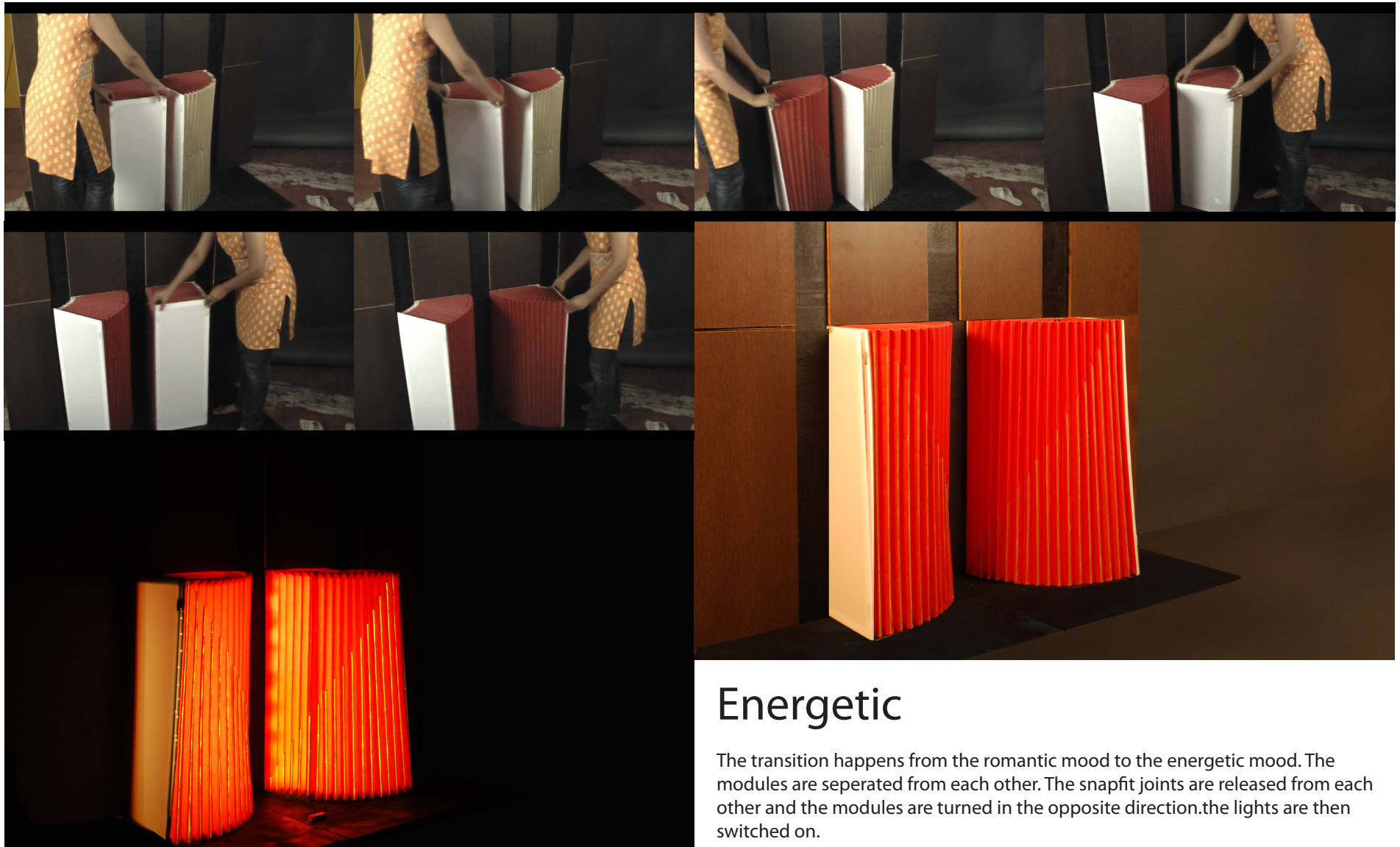
Multiple light sources
Soft yellow diffused light
Non uniform light
Ornamental patterns
Layers and reflections
White, Red, Purple,
Flowy lines

Metaphors- stars, beach, autumn, moon,

Music- Spanish guitar

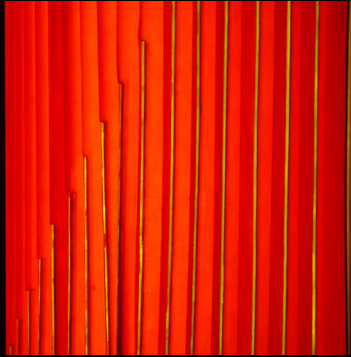
Food- Continental

Furniture- wooden



Energetic

The transition happens from the romantic mood to the energetic mood. The modules are separated from each other. The snapfit joints are released from each other and the modules are turned in the opposite direction. The lights are then switched on.



Energetic

High contrast in colour or light that brings out high contrast

Geometric patterns

Red, green- contrasting colours

Sudden streaks of light

Movement in light or form

Glossy textures

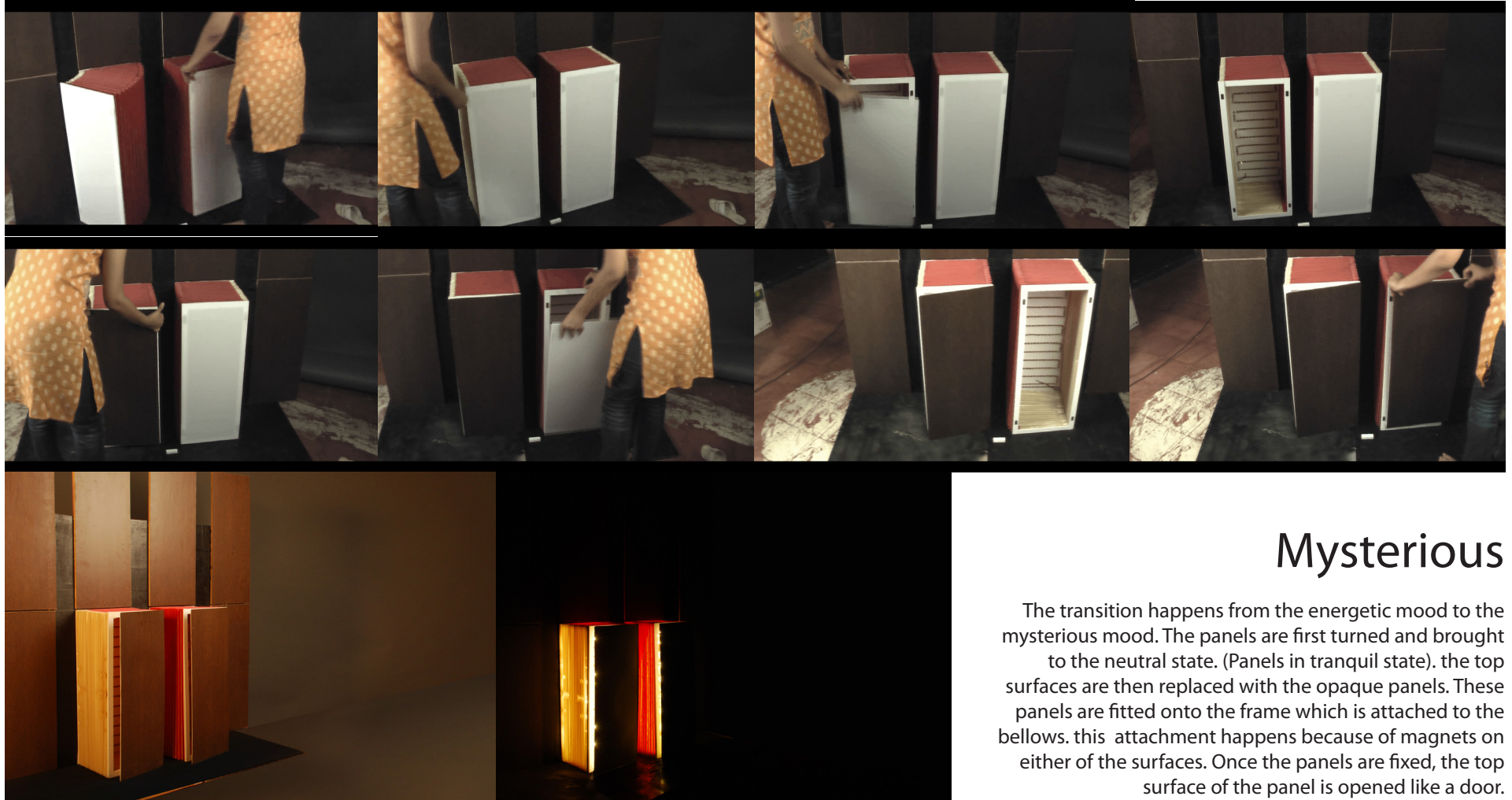
Metaphors- waves, trapeze artists

Music- trance, drum and bass

Food- spicy and tangy

Furniture- plastic, mirrors





Mysterious

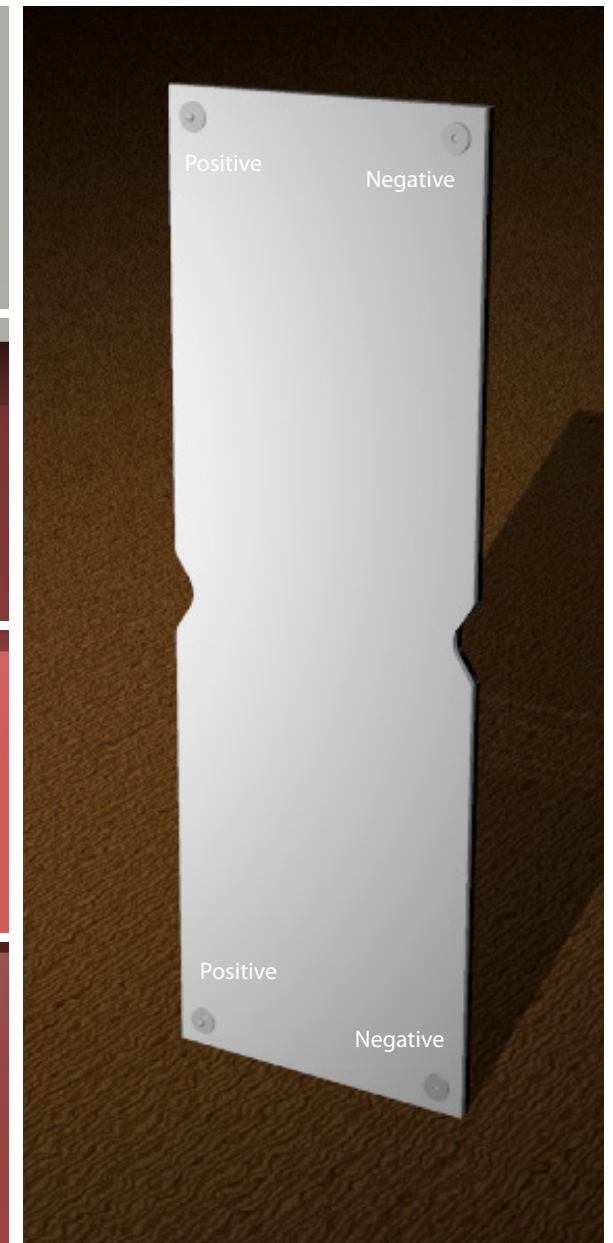
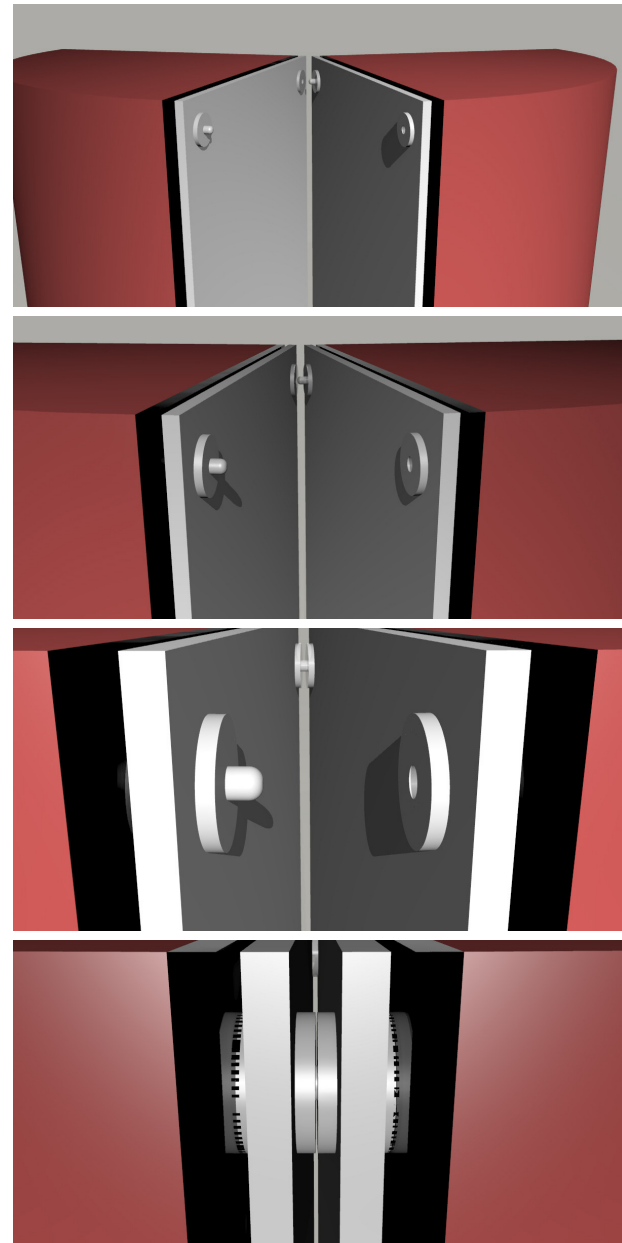
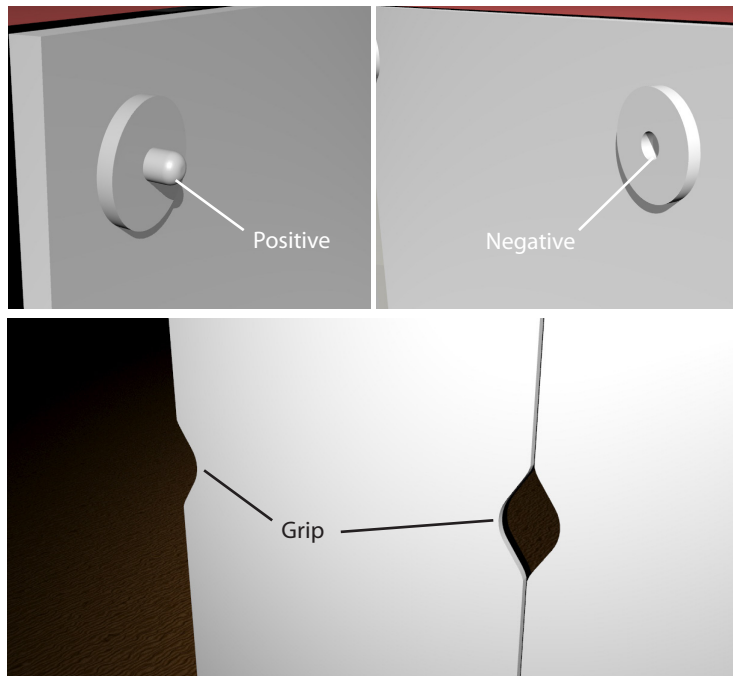
The transition happens from the energetic mood to the mysterious mood. The panels are first turned and brought to the neutral state. (Panels in tranquil state). the top surfaces are then replaced with the opaque panels. These panels are fitted onto the frame which is attached to the bellows. this attachment happens because of magnets on either of the surfaces. Once the panels are fixed, the top surface of the panel is opened like a door.



Mysterious

Very little ambient yellow light
Unidirectional light
Classical, old and brick structures
Secrecy, and context

Furniture- wrought iron, wooden antiques.

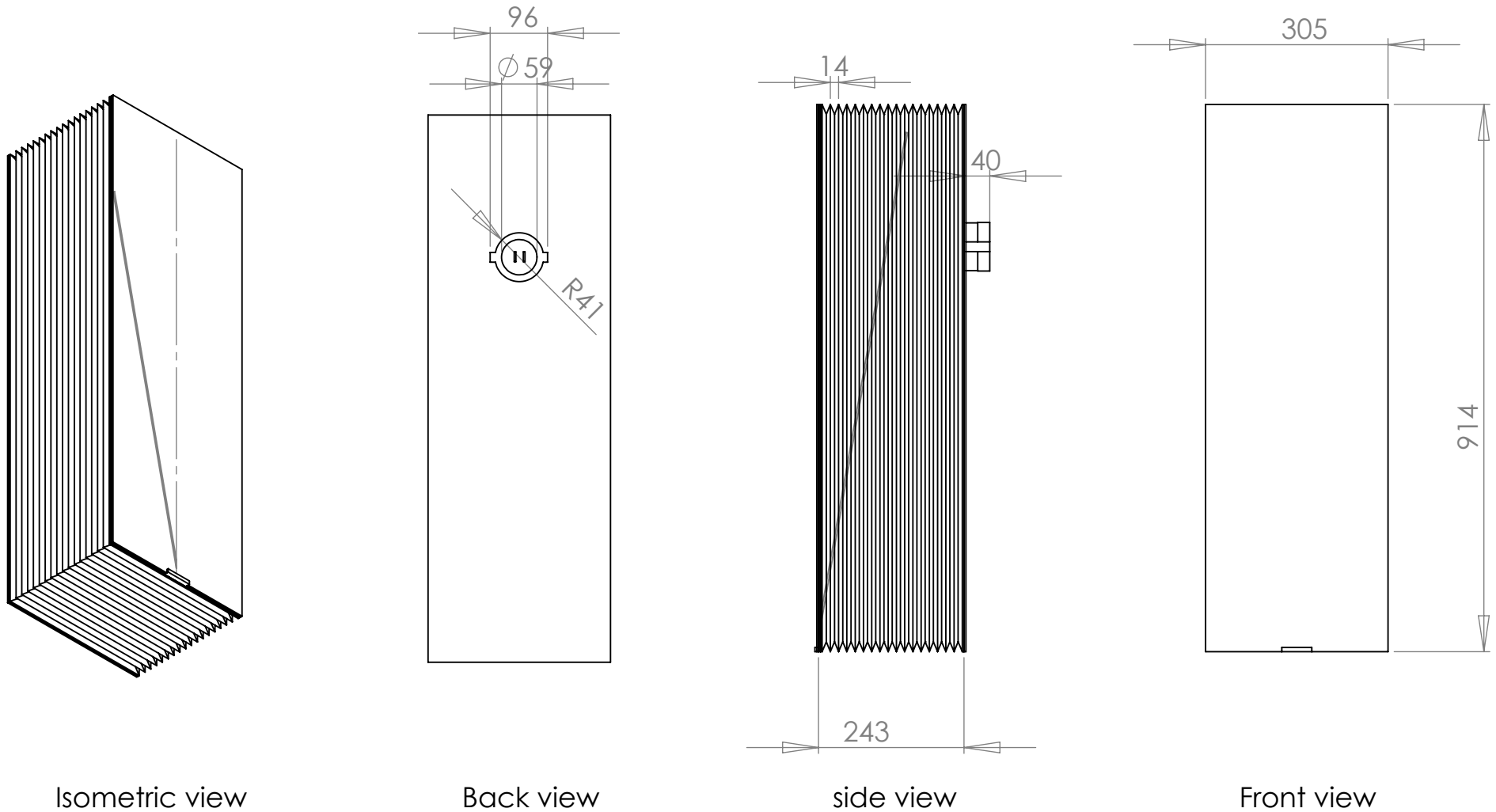


Detailing

Fixing the panels to each other in the romantic and energetic mood happens with the help of snaps. Each surface has 2 positive and 2 negative snap fit fixtures such that when 2 panels are placed on the top of each other they fit compactly. The positive of the snap is a projection which is coated with rubber for a tight fit.

The panels are provided with cut outs on the sides which forms a grip for the opening and closing of the panels in the energetic and romantic mood.

Engineering Drawing



Light Module
Scale: 1:10
All Dimensions are in mm

Project 3
Lighting for variable moods in a Restaurant
Guide: A.G.Rao

Priyanka Marawar
Roll no 08613801
Industrial Design 2008-10
IDC IITBombay

Conclusion

Light is one of the greatest inventions of all times. It is a medium which has immense potential to express. Through this project I tried to understand this excellent medium and made my attempt to use light to create moods. Moods are a part and parcel of everyone's daily life, through this project I looked at Moods in a completely different light. I tried to understand the different complexities and variables of light by playing and experimenting with it and various materials. This play of light, materials and form was an enticing experience and proved as an important tool to create the different moods and hence providing people with interesting experiences.