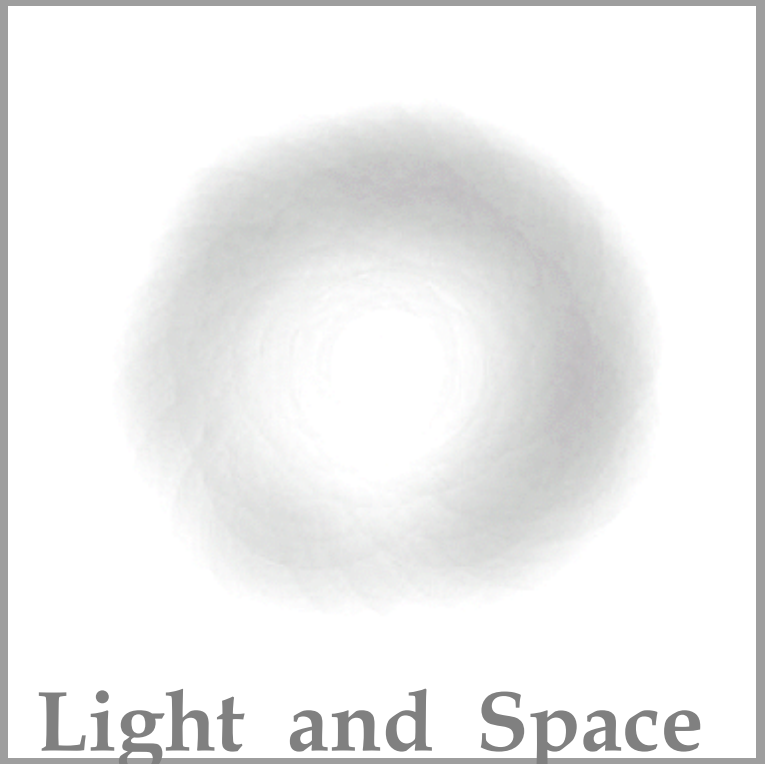

Light and Space

natural and artificial light in spaces

Guided by : Prof. Suresh Sethi
Project presented by : Vidya Joshi
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IDC, IIT Bombay

The world of light: changing perspectives

different cultures have interpreted light in their own unique ways.

how light has been seen and interpreted over the times and where do we see ‘designing with light ‘ going in future.

The Sun- universal source of light

Hindu mythology
Classical mythology

Sun as space

Sun temples of India
Pantheon

Light in culture

Festivals of light-Deepavali
Deepashastra
Astrological sciences
Floor designs- rural culture

Light in art

Vermeer, Henry-de-Toulouse

Gas lighting

First form of mass lighting

Electric lighting

Advanced technology
mass public lighting

transform and re-interpret the exterior environment after dark in various ways.

natural light

there but not there…

natural light

light as light…

Natural light entering a space through an opening forms pockets of brilliant, shaded and dark areas in the space.

natural light

people identify a space with a specific feel or character of it and light plays a major role in defining it.

natural light

light characterizes space

The character of light in a space depends on

the position and nature of the light source

the 'formal character of the space- (the play of light and shadow in a columned corridor would be distinctly different than in a dome structure with a skylight on top.

artificial light

lighting design

General purpose and task lighting

Brilliant Illumination

Light and Space art

General purpose and task lighting

http://www.foley-group.com/PhotosFromFoleySite/betacalco.jpg

Brilliant illumination

What is lighting design?

Art

Science

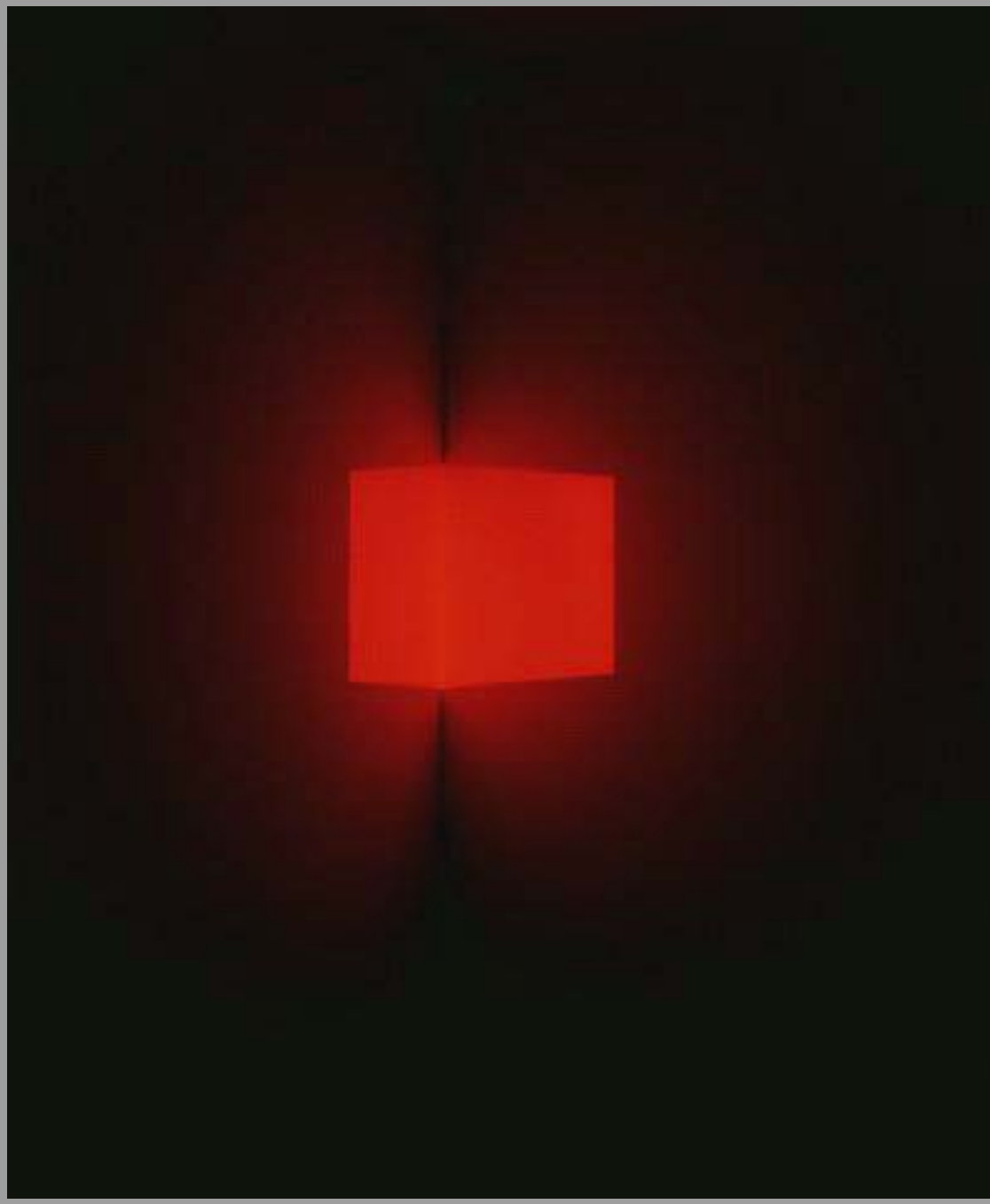
Space

Chandelier in Kawasaki civic plaza, Kanagawa
Source: My world of lights, Motoko Ishii, published by Libro Port Co. Ltd.

Light and space art:
the minimalist approach

experiments made exclusively with Light and Space.

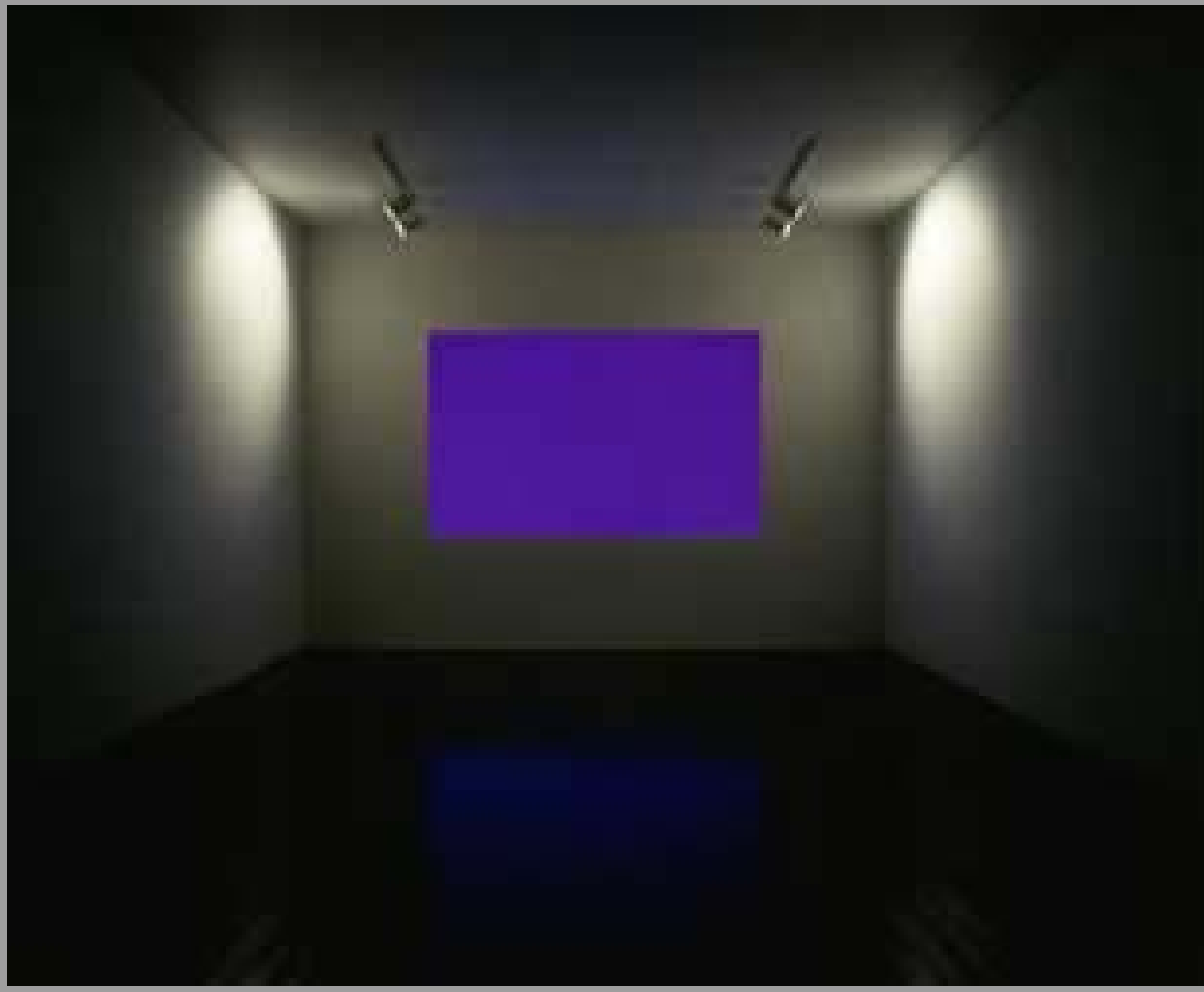
offer a situation on which the onlooker could inscribe his or her specific experience.



James Turrell, Catso, 1967
Drywall, paint, Xenon Projector
from permanent collecion of The Mattress Factory, Pittsburgh

The participant in a work of Light and Space slowly lets go of rational, structured reality and slips into an altogether different perceptual state.

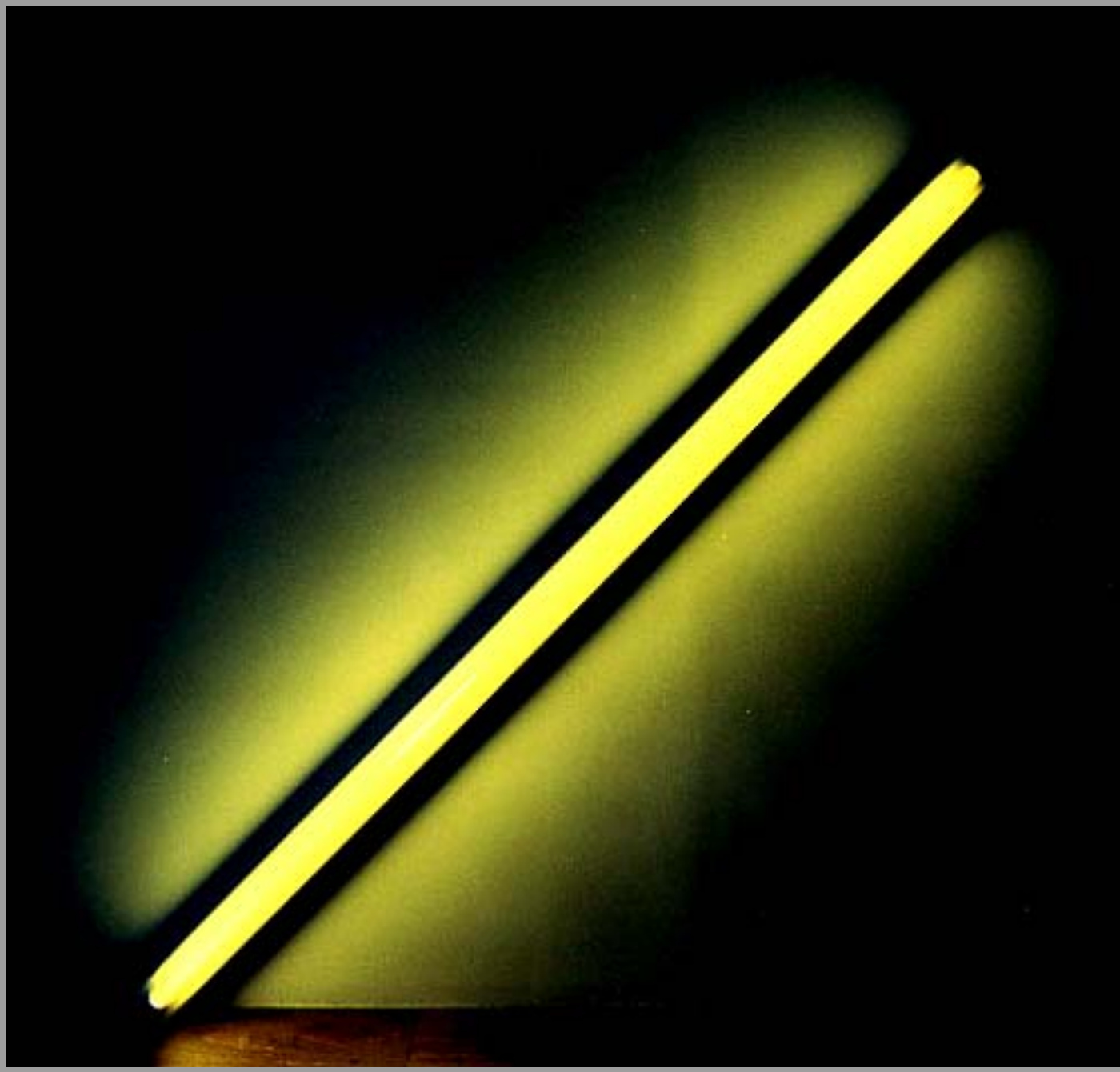
The presence of light, the sense of colour, and the feel of space merge to create an experience



Danaë, 1983
Permanent Installation
Drywall, paint, ultraviolet & incandescent light
500 Sampsonia Way, 2nd floor

Light and Space artists are concerned not with colours itself but with the perception of colour.

Colour is used, not only as visual information, but as a physical presence



The diagonal of May 25 (to Constantin Brancusi),, 1963
Col. Dia center for the Arts

Light and space art : Most of these works are temporary or permanent installations built specifically as works of art.

In other forms space lighting or monument lighting light is used as a tool to highlight certain characters of built structures or space. Though these works tend towards it, they are far from creating an 'experience' with light and space.

Intention of this project…

This project looks at what role light plays in day-to-day spaces and how these spaces can be given an enriched experiential quality by using artificial light.

Corridors, lobbies, passages, foyers, staircase blocks, entrances to buildings, terraces, semi-open spaces, etc.

These are transition spaces: spaces through which people pass many times and at different times.

These spaces are a part of every built environment and interact most actively with natural light.

Methodology

Certain day-to-day spaces were chosen (idc foyer, idc passage, corridor).
The following aspects were documented:
Nature of space- closed space, transition space, semi open
Highpoints of spatial organization
Activities happening through out the day and night
Behavior of light in these spaces

Documenting natural light in the corridor at different times of the day

Inferences based on responses from regular users of the corridor

Enlisting variable parameters in artificial lighting

Simulating coloured light in space and exploration of its effects

Corridor,
IDC, IIT Bombay

Case study: Institute corridor, IIT Bombay

Institute corridor, IIT Bombay

Documentation natural light in the corridor at different times of the day

12th Jan, 9.30 a.m

12th Jan, 10.00 a.m

12th Jan, 10.30 a.m

12th Jan, 11.00 a.m

12th Jan, 11.30 a.m

12th Jan, 12.00 p.m

12th Jan, 12.30 p.m

Day time	Night time
Bright	Dark
Lively	Dull, eerie, scary
Lots of people	Hardly any people
Activity	Dead space, monotonous,depressing
Structure open to surrounding	Every thing around structure is dark
Greenery all around	Space confined to the structure
Dull buildings	Dull buildings
Noise of birds	Silence , no sound
Reflected light	Light from fluorescent tubes
Play of light and shadow	No play of light and shadow
Visual excitement	Darkness and white light
Shade	with no control or order
Structure dull, boring but feeling of comfort	Boredom because of no visual excitement

How do people perceive these spaces?
What is their experience of these spaces at different times of day and night?
What do they see when they recall their experience of that space.? Why?
What role does light play in this perception of a space?

pause and talk
continuously changing shadows
avoid the harsh sun
parking vehicles

dull, boring, depressing

Responses from regular users of the corridor

people don't prefer to use the same space during the night because the character and 'feel' of the space changes drastically during the night.

People form distinct images of the spaces that they experience in terms of the striking character of that space be it an architectural feature or colour of walls.. or light in that space.

Light plays key role in people's perception of spaces. Most people's lasting image of the corridor is around 10.00 – 11.00 am or 4.00 – 5.00 pm (why?)

Whenever people are in transition spaces, they are in a passing phase, that is, they are between tasks

Sensitively designed lighting. would make such spaces much more refreshing and give them a new meaning … may be also a distinct identity.

designer's role

The ability of light to create a certain mood and atmosphere is not emphasized in most works of space lighting.

Sensitive modulation of coloured light in spaces - give an experiential quality to lighting design of day-to-day-spaces.

Designers should be sensitively go beyond the norms of ‘ sense and respond’ nature of any form of design- be it visual, auditory and any other. Design should provide an integrated experience to the user.

Variable parameters in lighting

Location-
Relative location of light source and the space

Intensity –
Soft wares available to convert these observations into measurable quantities
Technology available to control light – dimmers, etc

Material-
Different materials are used nowadays to control, modulate and enhance the quality of light.

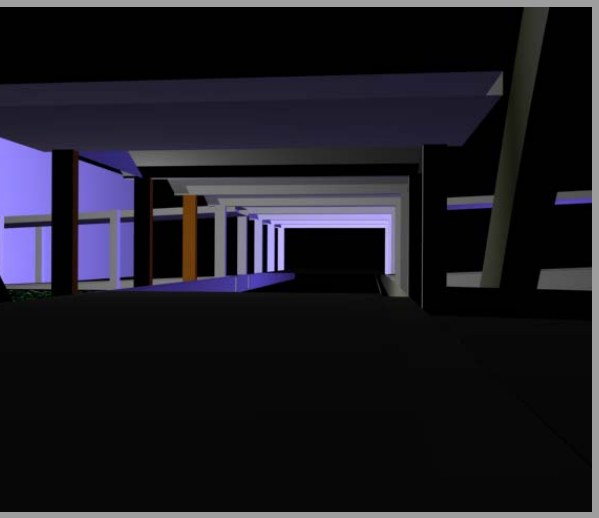
Colour –
what kind of feelings do different colours evoke
mixing of colours
retinal effect
coloured light falls on coloured surface

Type of illumination-
Incandescent (tungsten halogen), fluorescent, neon, metal halide, high-pressure sodium.
For the purpose of the project, only fluorescent light was used.

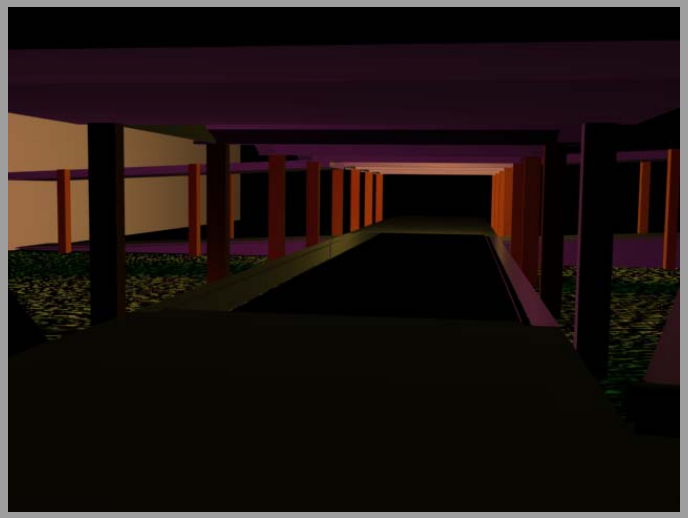
Explorations

These are attempts to create an expression to the space inside the structure, and make walking through it a subtle but enriching sensory experience for the onlooker.

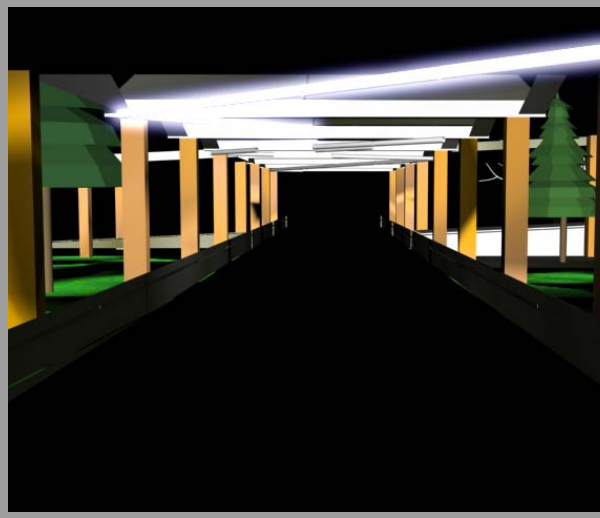
subtle
arousing curiosity, not visual disturbance
going beyond the boundaries of built space
seen as a growing experience for the passerby
gradual revelation of mystery
light seen in the form of space



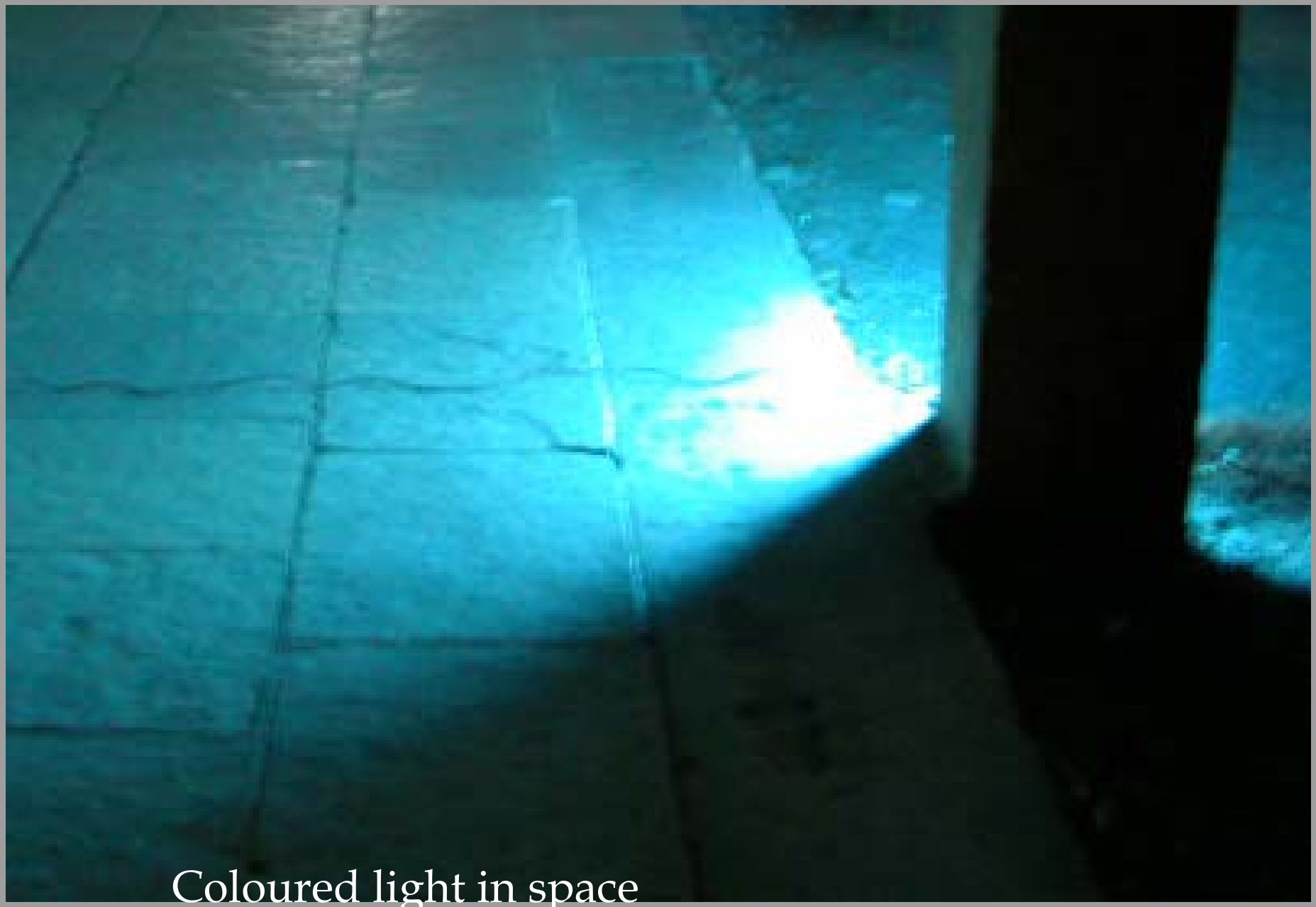
Destroying the boundaries of between
The built and the open



Light as Space markers



Follow the diagonal



Coloured light in space

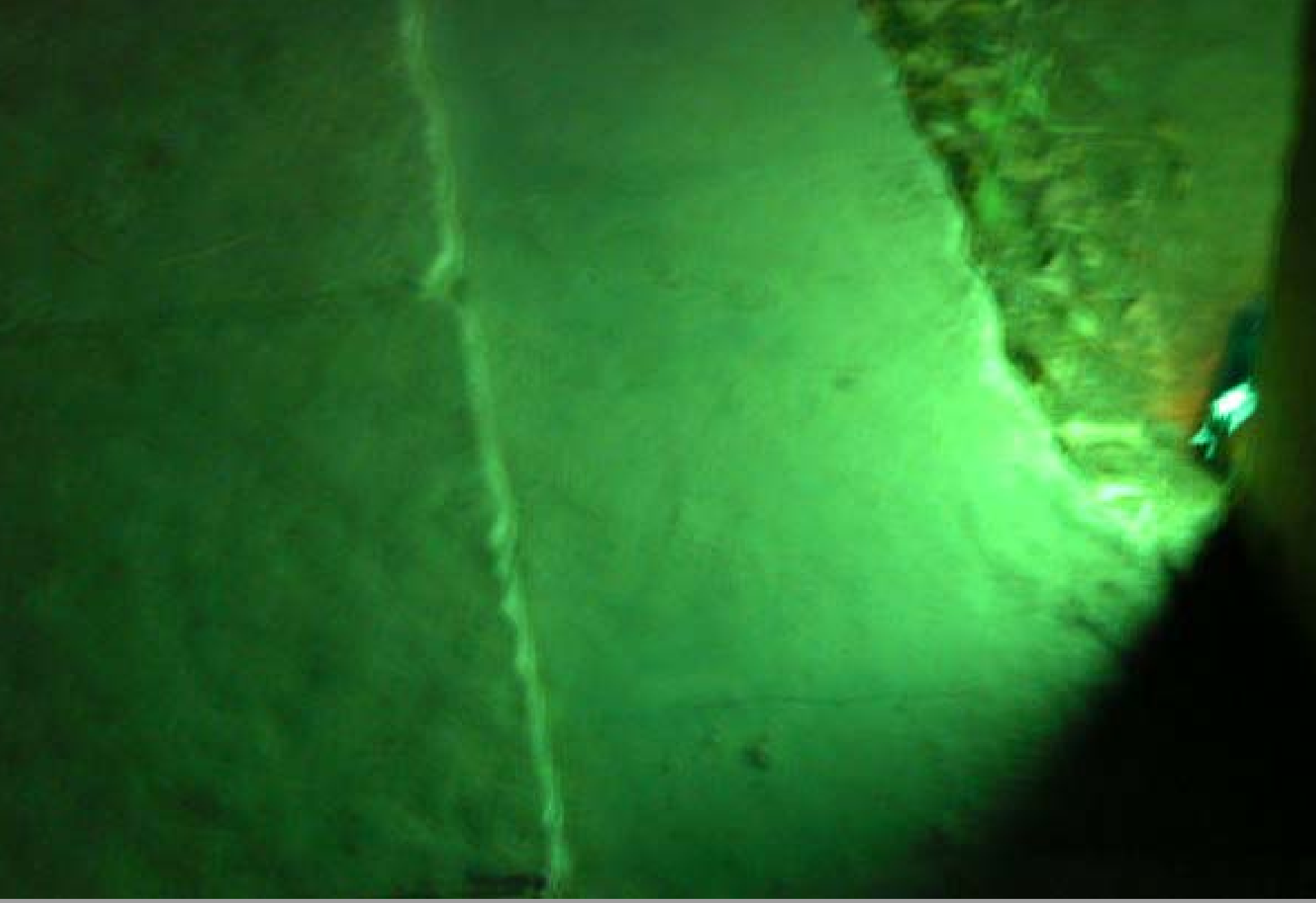
Step 1: fluorescent light of a single colour

Blue light

Meditative, mysterious, gloomy, scary, ghost like, claustrophobic, satanic, caves, evil spirits, not comfortab

Purple light

Disturbing because unnatural, not as uncomfortable as blue, exciting (reminded people of discos, firecrackers- past experience)



Green light

Unnatural (cant relate to natural light), if very intense then creates disturbance, if less intense then soothing, negative energies, scary and destructive

White light

Directly hits the eye – irritating but not unusual, taken for granted because people are used to seeing it.

Step2: source of light is seen directly

Step3: creating ‘locations’ of white and coloured light

Step3: creating ‘locations’ of white and coloured light

Step5: creating ‘spaces of light’

Step 6: Mixing of coloured light

The walk through experience

Creating patterns of light
Installations as a part of spaces

Summing it up…

To give an experiential quality to an inherently dull space like the corridor the following points are essential to be considered:

satisfying biological information needs (stimulation, sustenance, security and safety)

colour -The way light affects perception of colour, and the way colour affects perception of space, is critical in lighting design of spaces.

more appropriate foci for visual attention (location of light sources to create interest to a passerby)

shadows from directional light which 'emphasize' or 'destroy' the nature of its three dimensional forms (the corridor structure is very poor in terms of size and scale of form. In this case, it is required to dissolve the boundaries of the space and sort of merge it with the open space around)

dramatic luminance (pools of light highlighting certain areas.)

Sensitive modulation of coloured light in spaces would open up a wide area of possibilities for designers to give an experiential quality to lighting design of day-to-day-spaces.

Thank you