

LIGHTING BOX

learning objectives and outcomes

OBJECTIVES

The lighting box project is an exercise in identifying and utilizing light to create artful play and additional texture to an interior environment. Students will research a variety of existing lighting conditions and construct diagrams and form ideas as to how the lighting conditions were created.

TASK ONE

- RESEARCH - find five to ten examples of inspirational lighting in existing environments
- IDENTIFY - identify the reasons why you chose the imagery
- ANALYZE - utilizing hand drawing techniques, choose two of the selected works, diagram and annotate the lighting concepts

TASK TWO

- CREATE - using the conceptual drawings studies, build a 3d physical model that creates similar lighting qualities in an interior environment
- CONCLUDE - reflect on the lighting qualities and creative methods utilized throughout this exploration

ASSIGNMENT

Find five to ten images of lighting effects in the built environment. These images should be predominantly of shadow and light and can be found in architectural periodicals or photographed from your surroundings. Create a collection of the imagery and a brief explanation for each selection.



A. The dappled lighting effect caused by the near miss alignment of the exterior boards.



B. Small but vivid patterns of light create a secondary layer of texture on an otherwise plain tile surface.



C. Movement and atmosphere created when light passes through structure.



D. An example of how materiality can change the play of light.



E. Here light from multiple directions imprints a woven pattern onto an otherwise bland surface.

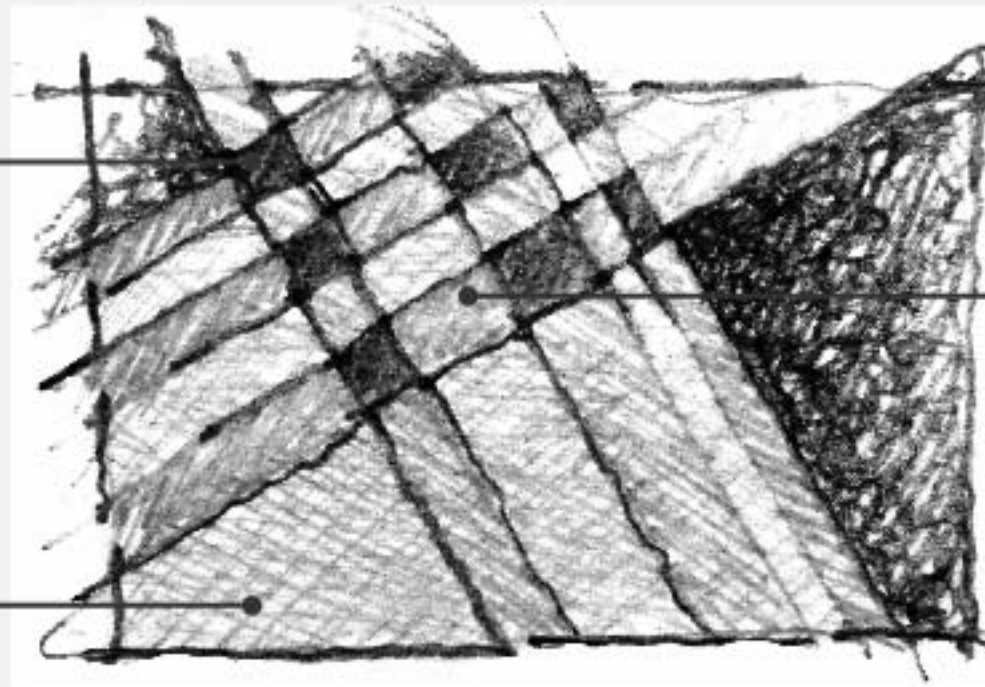
ASSIGNMENT

Construct, using hand rendering techniques, a two dimensional representation of similar lighting quality to a selected image from those you collected. Explore the possibilities of combining two or three lighting techniques.

Parti sketch after Image E

overlapping and weaving layers of light and shadow create a palette or range of color

all areas seen by the naked eye are in fact illuminated. to what extent is the variable that defines and separates space. note that if we see it, light is present, even if the space seems dark



this parti sketch identifies a unique ability for light to create pattern and texture in a space that is otherwise devoid of character

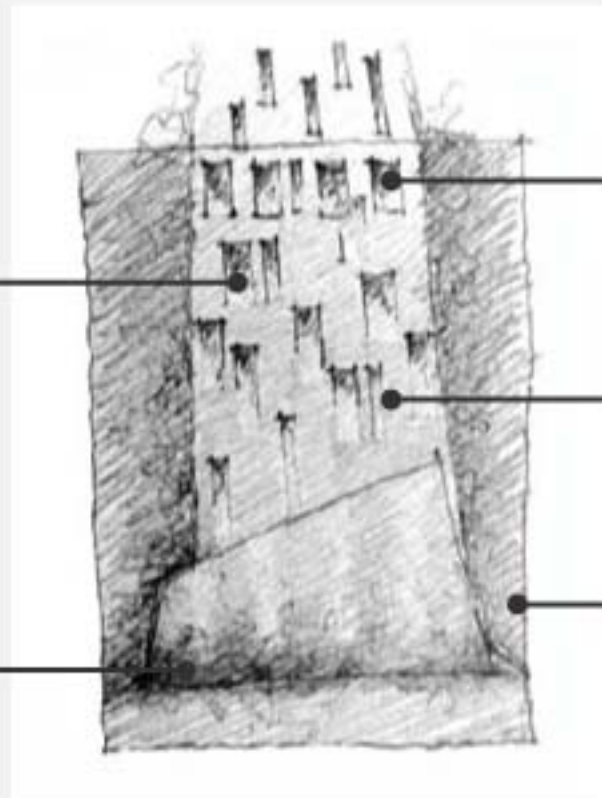
ASSIGNMENT

Construct, using hand rendering techniques, a two dimensional representation of similar lighting quality to a selected image from those you collected. Explore the possibilities of combining two or three lighting techniques.

Parti sketch after Image B

each individual geometric moment of light is created through gradient, some moments are more vividly defined than others

a sharp edge created by the absence of light draws attention to the dappled lighting effect



the parti sketch highlights the clear edges of light and defined geometry that occurs when the light is in more perfect alignment to the void it passes through

as the angle of light to void greatens, not only does the shape elongate but the wash of light tends towards a softer gradient

when light is used as pattern, not only do the illuminated spaces serve to create interest, but they are heightened by the lack of illumination in others. Interest is created through contrast of light and shadow

ASSIGNMENT

Using a non-translucent white material, construct white model boxes with one end having a viewing hole, roughly the size of your eye, to view and document the interior lighting effects. The other sides should be developed in a way that that will result in lighting qualities reminiscent of your parti sketch from Task One. Remember to focus on the view inside the white box. Do not be concerned with the outside appearance of the box but rather adjust the box form to achieve the desired interior lighting effects. Provide visual documentation of your lighting schemes and reflect on the visual qualities portrayed.

OPTION ONE: Response To Image E Parti Sketch



LIGHTING DIRECTIONAL STUDIES

- Position the light source 1' away from the light box. Moving the light source in equal increments, take 4 photographic 'readings' until the light source is 1' away from the lighting box on the opposite side from the initial position.
- Document the visible differences with photographic evidence and note any changes.

LIGHTING INTENSITY STUDIES

- Position the light source directly next to the light box and make an observation. In equal increments move the light source farther and farther away from the light box and document.
- Document the visible differences with photographic evidence and note any changes.

LIGHTING DIFFUSION STUDIES

- Place the light source in a fixed position. Make two observations, one with trace paper covering the openings and one without.
- Document the visible differences with photographic evidence and note any changes.

LIGHTING COLOR STUDIES

- Place a colored piece of paper over the light box openings. Then make three observations, placing the light at equal increments away from the light box.
- Document the visible differences with photographic evidence and note any changes.

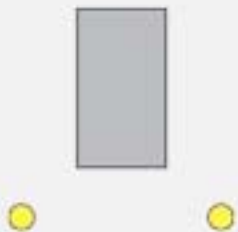




Study A



Study B



The light position, represented by the yellow dots, was in its farthest distance from the light box.

This created an elongated and tapered lighting gradient at a sharp angle.



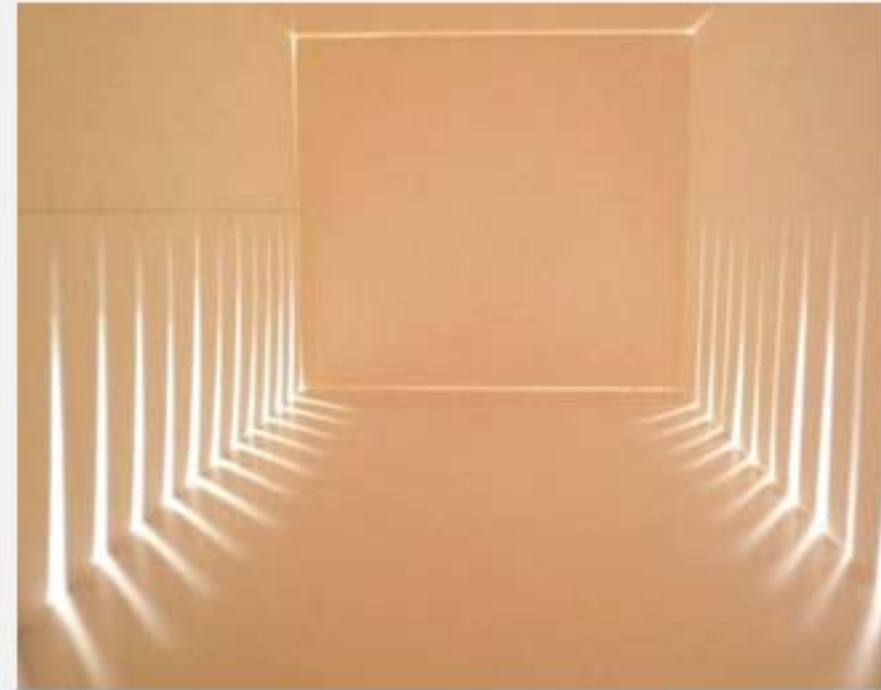
The light position, represented by the yellow dots, was moved to a closer position than previously.

This created a shortened lighting pattern with more intensity.

The gradient witnessed in the first light reading was not as prominent in this study.



Study C



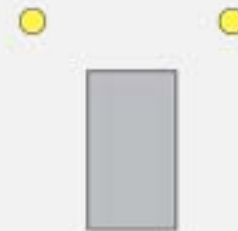
Study D



The light position, represented by the yellow dots, was moved to a closer portion than previously.

This created a shortened lighting pattern with more intensity.

The directionality of the pattern changes with the light position.



The light position, represented by the yellow dots, was in its farthest distance from the light box.

This created an elongated and tapered lighting gradient at a sharp angle.

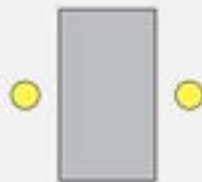
The distance of the light pattern is greatly reduced from the previous study.



Study A

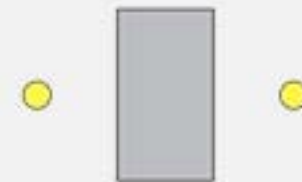


Study B



The light position, represented by the yellow dots, positioned 4 inches away from the light box.

This created an environment to light too bright to identify space, texture or form.



The light position, represented by the yellow dots, positioned 8 inches away from the light box.

This created an environment with a comfortable level of luminosity and a significant aesthetic pattern created by light passing through the facade openings.

The light patterns are short and vibrant.



Study C



Study D



The light position, represented by the yellow dots, positioned 12 inches away from the light box.

This created an environment with a comfortable level of luminosity and a significant aesthetic pattern created when light passes through the facade openings.

The light patterns are long and we begin to see the start of a soft gradient developing.



The light position, represented by the yellow dots, positioned 18 inches away from the light box.

This created an environment with a comfortable but reduced level of luminosity. A significant aesthetic pattern is created when light passes through the facade openings.

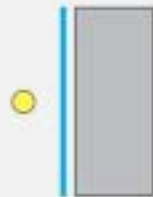
the light patterns are long and we begin to see the start of a soft gradient developing.



Study A: Diffused Light



Study B: Direct Light



The light position, represented by the yellow dots, remained constant in this investigation.

The trace paper film, represented by the blue line, served to diffuse the direct lighting effect witnessed in previous explorations

The environment is well lit but with an absence of lighting patterns on the floor of the interior surface.



Here the trace paper film was removed and the light source, represented by the yellow dots, remained constant.

As we can see, the environment is slightly brighter and exhibits lighting patterns on the floor of the box.



Study A: Color Wash



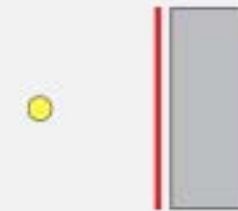
Study B: Color Wash



The light position, represented by the yellow dots, was positioned very close to the light box.

A piece of red construction paper was placed over the facade openings and an image was taken.

With the light close up, the intensity of light counteracts perception of the red color.



The light position, represented by the yellow dots, was moved farther from the exterior surface of the light box.

A piece of red construction paper was placed over the facade openings and an image was taken.

We begin to see that as the light intensity is lessened, more of the red color is transferred onto the interior environment.



Study C: Color Wash



The light position, represented by the yellow dots, was again moved farther from the exterior surface of the light box.

A piece of red construction paper was placed over the facade openings and an image was taken.

The distance of the light source from the object was too great to allow ample lighting penetration through the construction paper. A light wash of red is detected and the openings appear just as red walls.

ASSIGNMENT

Using a non-translucent white material construct white model boxes with one end having a viewing hole, roughly the size of your eye, to view and document your interior lighting effects. The other side should be developed in a way that that will result in lighting qualities reminiscent of the parti sketch from Task One. Remember to focus on the view inside the white box. Do not be concerned with the outside appearance of the box but rather adjust the box form to achieve the desired interior lighting effects. Provide visual documentation of your lighting schemes and reflect on the visual qualities portrayed.

OPTION TWO: RESPONSE TO IMAGE B PARTI SKETCH



repeat all studies for second
light box option

CREDITS

The Lighting Box assignment is adapted from a project developed by John Humphries for beginning design studio.

All images excerpt from student project by J.B. Hamill.