

Case Study #1

The first case study includes the process and product of a male student age 20. This student was an academic sophomore and a first year interior design student enrolled in Design Fundamentals I in the fall semester of 2001. This student had taken an architectural drafting class but had no fine art training in drawing skills.

During the interview the student expressed how he started drawing as soon as the class instructor began presenting the project parameters. This was clear in Figure III where the sketches appear on the project hand out. From the very beginning the student felt strongly that the light needed to be contained and had to “move to get out”.

The two ideas that the student developed at the very beginning of the project were based on overlapping planes or perforation. This follows his initial thinking that the light needed to be contained so that it was forced to move in order to get out. His very first idea was utilizing planes. This idea remained with the student through out the design process. The student also expressed an interest in pursuing the perforation idea in future projects.

Because of his experience in architectural drafting, many of his drawings express the loose conventions and language of section and elevation. His later sketches served to refine his ideas of planes concealing the light bulb forcing the light out through linear spaces between planes. The student said that the final design change came about during production.

Journal Process Discussion

The student started with the sketch labeled A (Figure III). In this first sketch, the student is already starting to think about the form of the product. This is evident because of the drawing's primitive three-dimensional quality. It looks as if he drew an elevation and then projected the top of the object into the third dimension. This form thinking from the very beginning of the project was rare in the journals that were examined for this research.

The second sketch, B, is a leveling, or simplification, of sketch A. The disappearance of the stepped base and a simplification of the overall form evidence this simplification. As the instructor read through the project requirements it seems the student started immediately to consider materials. Next to the heading, "Materials" is the written entry, C. The student questioned the use of (light) bulbs and then materials such as wood, metal and "milar" (mylar) sheets for his project.

Sketch D, a section drawing, sharpens or adds features back to the idea found in sketch B. Additionally, the student returned to explore the stepped base that appeared in sketch A. In sketch D the student appears to be toying with the idea of the light having to move to get out of the fixture as he talked about in the interview. Sketch E is another section drawing exploring the enclosed light source and is a further sharpening of sketch D, although it diverges from sketch A except for the trapezoidal shape for the base of the fixture. The annotation with sketch E is referring to the light bulb ("night light green")

Sketch F is another section that explores the containment of the light and having the form control the light's output. This sketch appears to be a leveling of

the previous sketch (Sketch E). Details are removed maybe in the hope of clarifying the idea of how the light could be contained and how the student could force the light to move through the form. This idea is supported by the annotation “(mirrored surfaces)”. Mirrored surfaces would indeed bounce and “move” the light out of the enclosed area.

Sketch G is the first sketch that illustrates the idea of perforation that the student referred to during the interview. The previous sketches dealt mostly with planar elements containing the light source. This sketch is an abrupt departure from all of the earlier considerations. Sketches that abruptly depart from the streaming idea path will be referred to as tangents. Sometimes students will explore a tangent idea and then abandon it for another idea and other times the tangent idea will be the idea that is developed into the solution.

Sketch G is an elevation drawing. The point-down triangle is capped with a curve and supported on a triangular base. Based on the idea that the student wished to “move” the light out of the form, the dots in the point-down triangle must be the perforations that he wished to explore. At this point there is another material consideration for the finished product, the sketch is annotated “perforated surface w/ milar”.

PROJECT 11 FEED BACK

- CONCEPT, MOVING PLANES, REPETITION.
- BARCELONA PAVILION
- GREEN - Houses Interaction WITH NATURE
- MOVING PLANES = CONCEPT, REINFORCED BY REPETITION
- COLOR OVERLAY.

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Project Description

You are to create a light fixture using one of the five assigned stories from Alan Lightman's book, *Einstein's Dreams*. Your concept will evolve from the story you select. The resulting project **needs to maximize the third dimension**. That means, designing for all visible sides. Furthermore, your project will be evaluated on the following:

1. Your ability to manipulate the principles and elements of design to establish total design unity.
2. Your ability to conceptually represent the story of your choice and adapt its message to the function of emitting light.
3. Your proficiency in craftsmanship.

This light fixture may be wall mounted, table mounted, suspended from the ceiling, or extended from the floor. In the end, you will have an interior element that has never existed before and is uniquely yours.

Project Requirements

Constraints:

Function: Your project must have the capability of emitting light from a light source. If the light source is electrical, consider carefully how the bulb, socket, cord, and switch will integrate with your design. Be prepared to answer how each element, design or functional, works together to establish unity. Additionally, we must be able to replace bulbs or batteries without disassembling the fixture.

Size: predicated on the ability to maximize the light source.

Materials: Any material may be used (do not limit your vision of the final product by the materials we have used to date!) You may employ **one** accent color. You supply the light source (maximum wattage: 25, for safety reasons) and whatever is necessary to function (extension cord, battery, etc.).

Project Duration: 1½ weeks.

- Mon - Project 12 introduction. Revisit assigned stories and establish a concept for the one you are drawn to most. Work on design sketches.
- Weds - Concept and preliminary design sketches due. Work on design process in class. Work on preliminary model.
- Mon - Preliminary model due. Design process in class.
- Weds - Project due last day of class. Journals due last day of class.

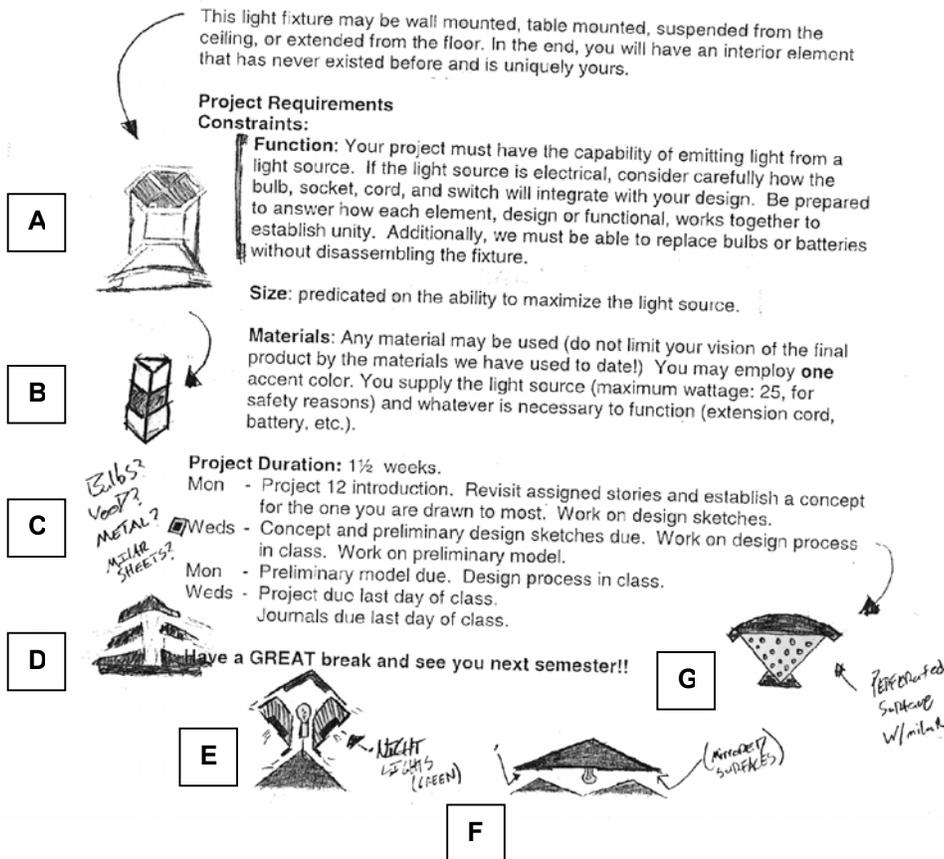


Figure III Case Study #1, Journal – Page 1

The second page of the journal continues with the student's process of problem defining and problem solving. Sketch H is paired with some annotations. While the annotations refer to design elements and principles, the sketch appears to be unrelated to anything that has been explored previously and is not explored any further within the process for this project. This could simply be a doodle of no importance to the student's process. The possibility exists though, that even this doodle could trigger another idea or series of ideas. This does not appear to be the case.

Annotations labeled I, refer to the inspiration source, Alan Lightman's Einstein's Dreams (1993) and the short stories they were to read for the project. The students were to develop a design concept from one of the stories and use that concept to help guide critical decisions in product design. Typically a concept statement will help students to clarify (or organize) their thinking and make reasoned decisions in the areas of design elements and principles.

In sketch J, a pyramid form, the student appears to have started thinking in three dimensions again moving back into a general idea phase and away from the detailed thoughts that were explored previously. Then in sketch K, jumping across the page, the student explores the effects and appearance of a fixture utilizing repeating planes. These three little sketches grouped together exhibit form and structure thinking. Again the student has utilized a quick perspective sketch, a section and an elevation. All of these drawings indicate his prior experience in architectural drafting.

Sketch L bears a little resemblance to sketch E on the previous page although is a very different take on the same basic forms and seems to have a

leveling effect. In sketch M the student has brought back into consideration the idea of utilizing mirrors and perforated materials to move light. This is not as complex a form as previous sketches.

Sketch N appears to lead the student directly into sketch O which is a deeper exploration into sketch D of the previous journal page. Here in these three sketches (sketch N and two sketches in O) form is being explored again with a section that allows the student to think simultaneously about form and function.

Sketch P seems to illustrate the desired effect of perforations with light radiating out as shrapnel from an explosion. This leads him to explore perforation and radiation in the next series of sketches, Q and R. In these sketches, he has decided to think of the light fixture as a wall mounted fixture instead of a table lamp. This is evidenced in the elevation type drawings showing a possible wall behind the fixture and the light's effect on that wall. During the interview, the student corroborated this supposition. Sketch Q appears a little simpler in thought and detail than sketch R. It is interesting to look back and see the student's manipulation of two triangles. On some occasions they collide and become a more complex form, in others the triangles become pyramid forms and in yet others the triangles are solids in simple proximity to each other.

The last sketch on this page, sketch S shows two overlapping planes that hide the actual light bulb but direct and force the light out in a particular direction. Sketch S is actually two sketches, one side elevation and one front elevation. This fixture also appears to be a wall mounted style. The last annotation (T) is a consideration again of materials and now of schedule.

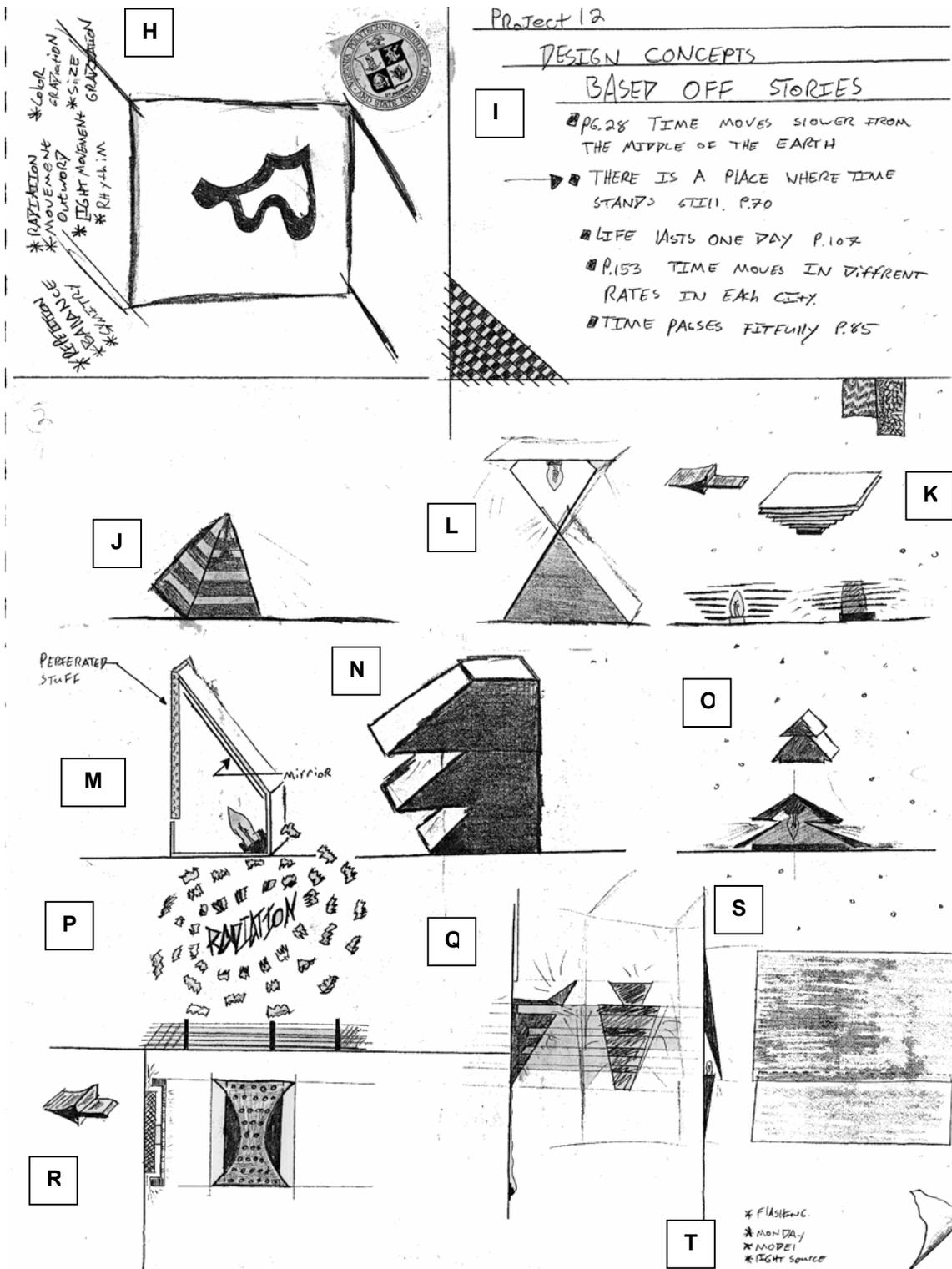


Figure IV Case Study #1, Journal – Page 2

This last page of idea development has two very connected and related series of sketches. The first grouping consists of sketches U through Z. These sketches find their origin in previous thinking (see sketches D and L). Sketch L is the first place where this idea is explored. Now, in this series of sketches, the student is really at the point of normalizing the idea. Normalization is defined as the drawing process of working out the final details of a proposed solution. In these drawings, the student is thinking about the plan view, perspective views and a more detailed section. In the last sketch of this series, Z, the student has started to assign construction notes and details (predicted measurements).

Sketches AA through EE appear to be following the same process of normalization for the perforated wall sconce that was explored earlier in sketch R. Again through the use of plans, sections, elevation and perspectives, the student appears to be solving detailed issues as to structure and size. Apparently after sketch BB, the student decided to manipulate the final form a few more times before settling on a final solution.

Annotations at FF appear to be a consideration of possible materials and details about the light bulb. While the student considered materials throughout his design process, this time he is able to really start defining materials as he has defined many of his final design decisions.

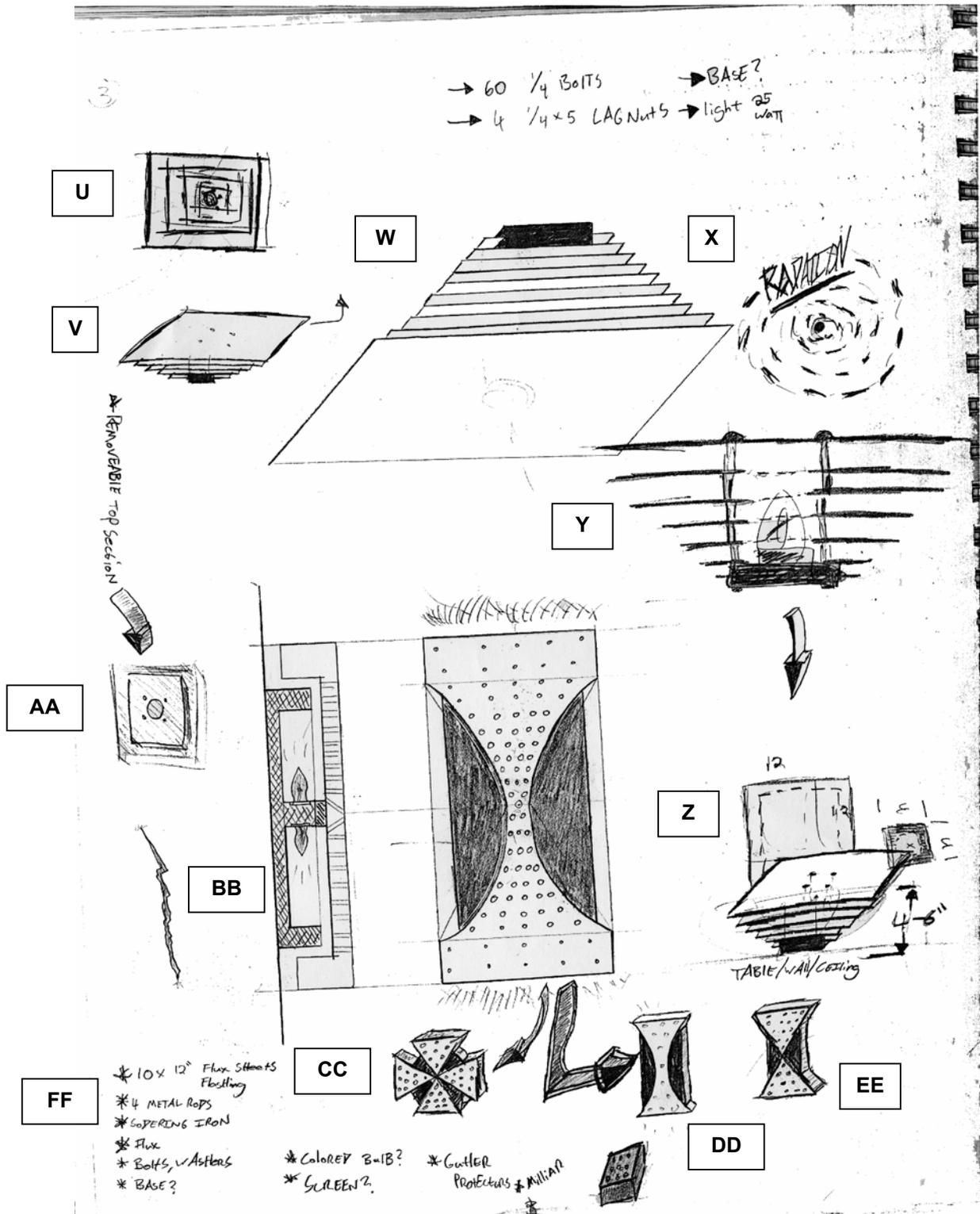


Figure V Case Study #1, Journal – Page 3

As the student was progressing toward completion of the final product, the last page in the journal (annotations GG) showed his outline of conceptual development. While this was kept in mind while the project was being developed, the student likely wrote these down in order to present and defend his project during critique.

PROJECT 12

LIGHT SOURCES (TIME)

GG Concept = LIGHT RADIATING OUTWARD FROM A CENTRAL POINT.

| = WANTED TO GUIDE THE LIGHT AWAY FROM THE SOURCE IN A PROGRESSING WAY.

IDEAS = USED REPETITION OF PARALLEL PLANES TO GUIDE THE LIGHT OUT.

= CREATED A SENSE OR RYTHM USING CONCENTRIC SQUARES AND PARALLEL LINES.

= CREATED A SENSE OF UNITY THROUGH REPETITION AND RYTHM.

= CENTER FILTER UNIFIES COMPOSITION.

Figure VI Case Study #1, Journal – Page 4

In the final solution, the student utilized the solution that appeared in sketches U-Z. During the interview the student related that he made one large change to this idea during construction. Once he had assembled the Pyramid form from flat planes, he decided to have the two pyramid shapes interact together. The first pyramid, or base, sits point-down on the table and base turned up while the second pyramid is stacked base to base on top of the first pyramid. This created a more three dimensional final product (See Figure VII).

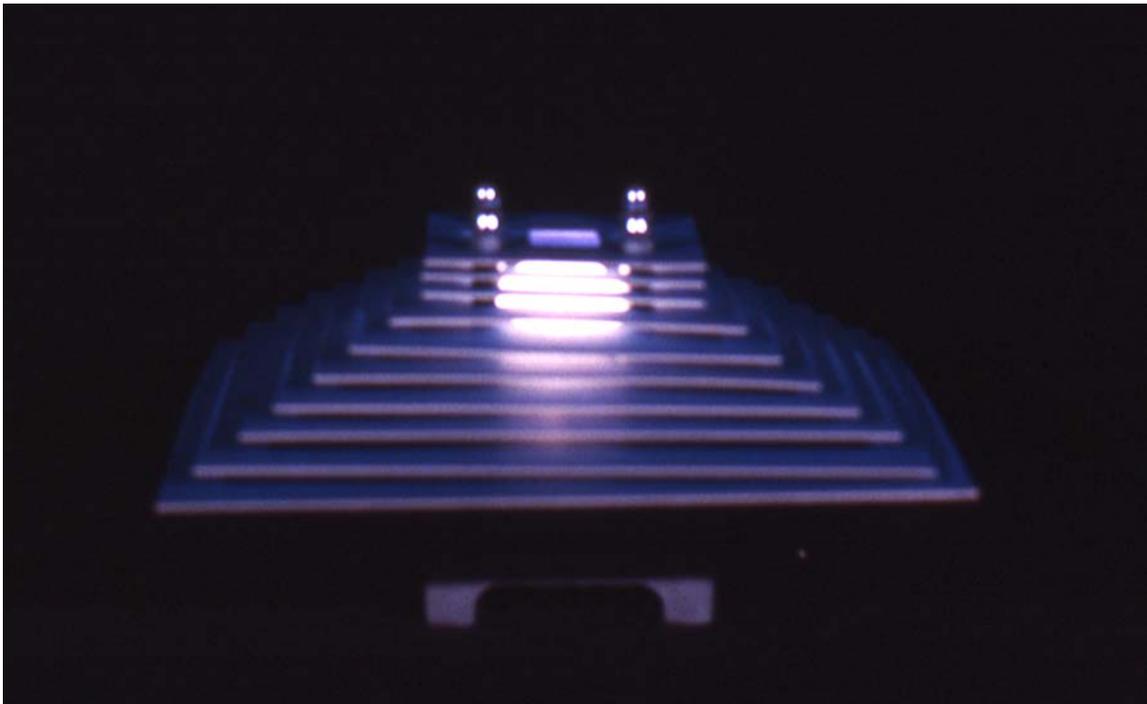


Figure VII Case Study #1, Final Project

Analysis

In conclusion, through the annotations and the sketches it is evidenced that the student is in fact involved in a “conversation” with himself. Each drawing

seems to bring up new considerations or ideas. The annotations externalize his material considerations. The viewer can almost “hear” the student talking himself through his process (visualize, draw, consider implications, visualize and draw again).

His process is not linear. Evidenced by the path of the drawings, the student does not draw across the journal in a left to right, top to bottom fashion. Additionally he was often sidetracked into tangent ideas and then returned to the original idea potentially with ideas discovered during the tangent. It would seem that all the drawings were necessary to define the problem and thus solution. Additionally, all of the sketches related in some fashion to the student and thus to the final product.

Finally, the students’ prior experience in architectural drafting is visible. Perhaps this previous experience helped him in this project to clarify his thoughts and explore his visualizations more thoroughly. While prior experience in drafting is not a requirement for this class, his ability to sketch in drafting conventions aided his communication with his instructor during project development. Also the fact that these drawings occur in a widely accepted drafting language added to his ability to communicate with the researcher as well.