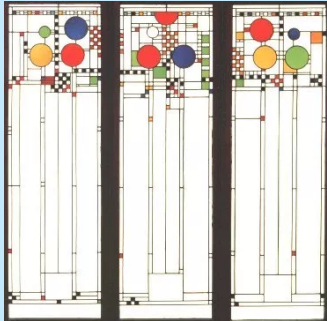


Design and Fabricate a Laser Cut Wood Luminary



Frank Lloyd Wright's
Coonely Playhouse Windows

Design Constraints

Constraints are the rules or limitations through which design is conceived and created.

In this project you will continue to apply the design process to creatively solve problems as well as further develop concepts studied in your foundation class. As you develop the design for your luminary, you will select an authentic personal subject matter and then express it in an **abstracted** form. Using the principles of design, you will create a visual relationship between the four sides of the lamp. Also, you will continue to explore creative uses of the digital fabrication equipment while further developing your understanding of the Rhino 3D software.



1. Define the problem

- How do you define the problem?

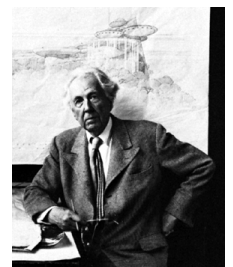
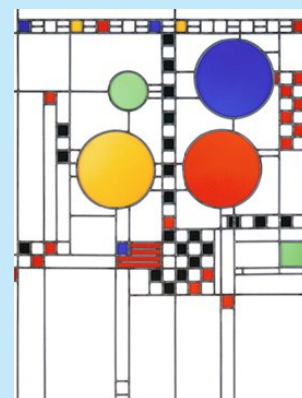
Problem definition is in many ways an exercise in discovering **constraints**. **Constraints** are the rules or limitations through which design is conceived and created.

- What are the constraints of the luminary design project?

2. Explore and understand the problem through observation and background research

- Explore the window designs of Frank Lloyd Wright

"Designed soon after Wright returned to Chicago from after more than two years in Europe, the windows indicate the influence of modern art movements he saw there, including Vienna Secession, Cubism and Futurism, but their design [the Coonely Playhouse Windows] is unlike anything that had been seen before in art, graphic design or stained glass. Gone are pendant chevrons and the warm, sunbaked colors of the Prairie Style that featured in his work before 1910, replaced by vivid primary and secondary hues. From a key turning point in Wright's unique approach to abstraction, the windows represent not only his personal artistic reinvention but also a pivotal moment in the development of modernism." - Sotheby's



Legendary American architect and interior designer Frank Lloyd Wright was the pioneer of what came to be called the Prairie School Movement in architecture.

Challenge # 2

- Understand abstraction in art and design.



Wassily Kandinsky
Cossacks 1910–11

Abstraction Art

Art that does not attempt to represent an accurate depiction of a visual reality but instead use shapes, colours, forms and gestural marks to achieve its effect.

Brainstorming

Brainstorming ideas before you build is one way to make your final product better.

Iteration (n)

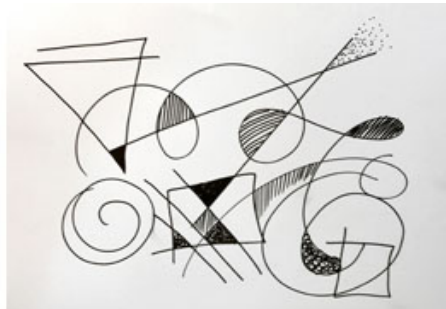
A version of a design in a series of designs.

3. IDEATE – Generate concept solutions through brainstorming.

- On three 8.5" x 11" pieces of paper, create 6 sketches for your own luminary using Frank Lloyd Wright's window designs as your inspiration.
- Now, on three 8.5" x 11" pieces of paper, create 6 more luminary sketches, but this time make them **asymmetrical** compositions.
- Next, select an authentic personal subject matter and express it in an **abstracted** form. Sketch a minimum of 8 original luminary compositions. Experiment and try different design ideas.

4. CHOOSE – Determine a final concept.

- Finally, select the design you think is most successful and develop it further with additional sketches. These sketches will be used to create the vector drawings for the laser cutter. Therefore, they should be fairly detailed.



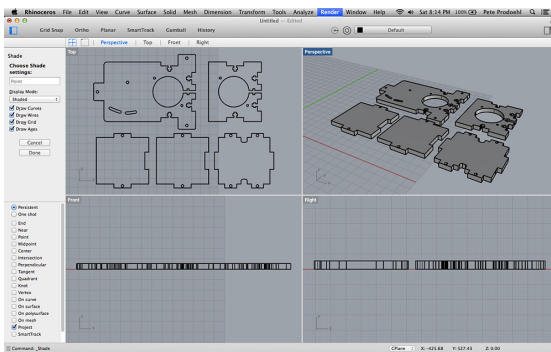
Wassily Kandinsky

5. PROTOTYPE – Conceptualize your design by creating a sketch model.

- Using the Rhino 3D software, translate your sketches into the vector data necessary to laser cut cardboard prototypes of your side panels.
- Once you have laser cut your four side panels, tape them together to create a prototype of your luminary.
- Embrace failure as part of the design process.

6. REFINE - Create a detailed design.

- Use the digital calipers to determine the thickness of the plywood.
- Layout the joinery of the luminary.
- Then, using the extrude command in Rhino 3D, create a 3D virtual model of your design.



7. FABRICATE – Construct your wooden luminary.

- Using the laser cutter, cut out each wooden side panel.
- Hand sand each panel with a wooden sanding block.
- Attach translucent vellum to the inside of each side panel.
- Glue the side panels together using rubber bands as clamps.
- Construct light holder.

Prototype (n): A model of something built to test a concept. Many iterations are created before the final design is determined.

