

Case Study

Elephant Chair

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Product Design, Human Factors
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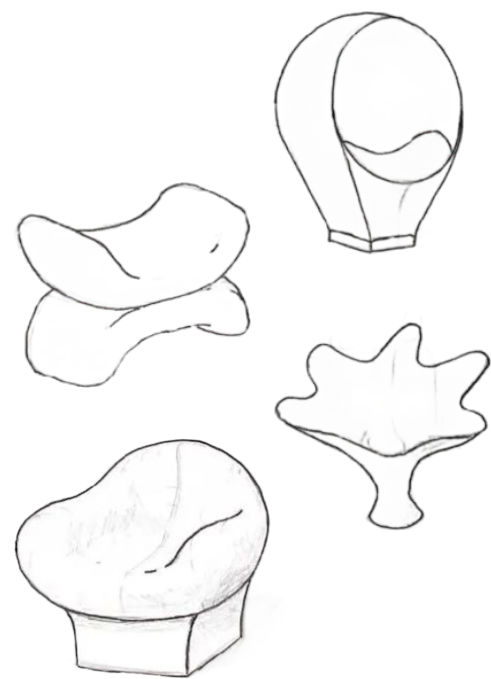


Translating Form into Flat-Pack Construction

Design Challenge

Create a seating solution from a single 4'x8' sheet of material.

- No fasteners
- Minimal material waste
- Flat-pack assembly
- Designed entirely in SolidWorks



Early Form Exploration-

Initial exploration focused on expressive forms before considering manufacturability.

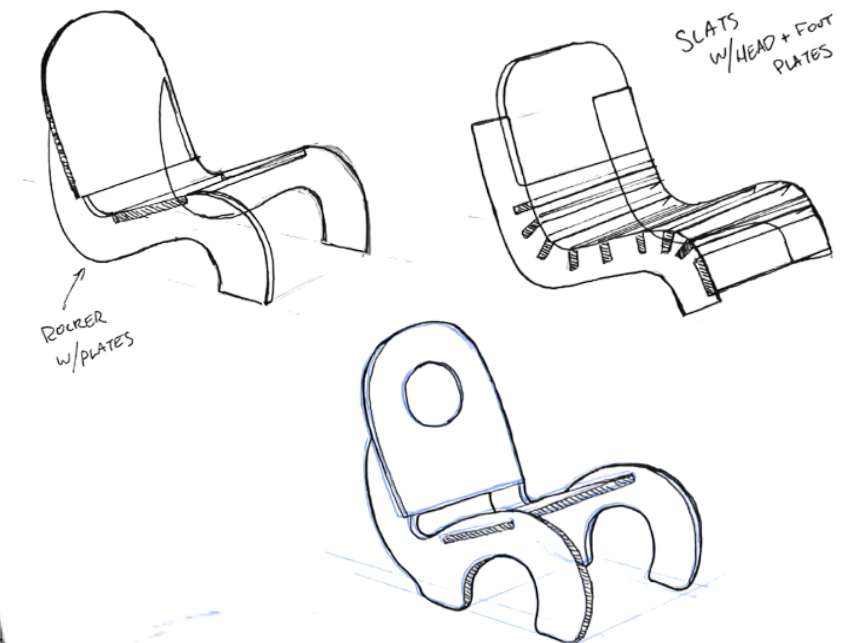
Characters-

Playful Silhouettes
'Impossible' Roundness
Structural Simplicity



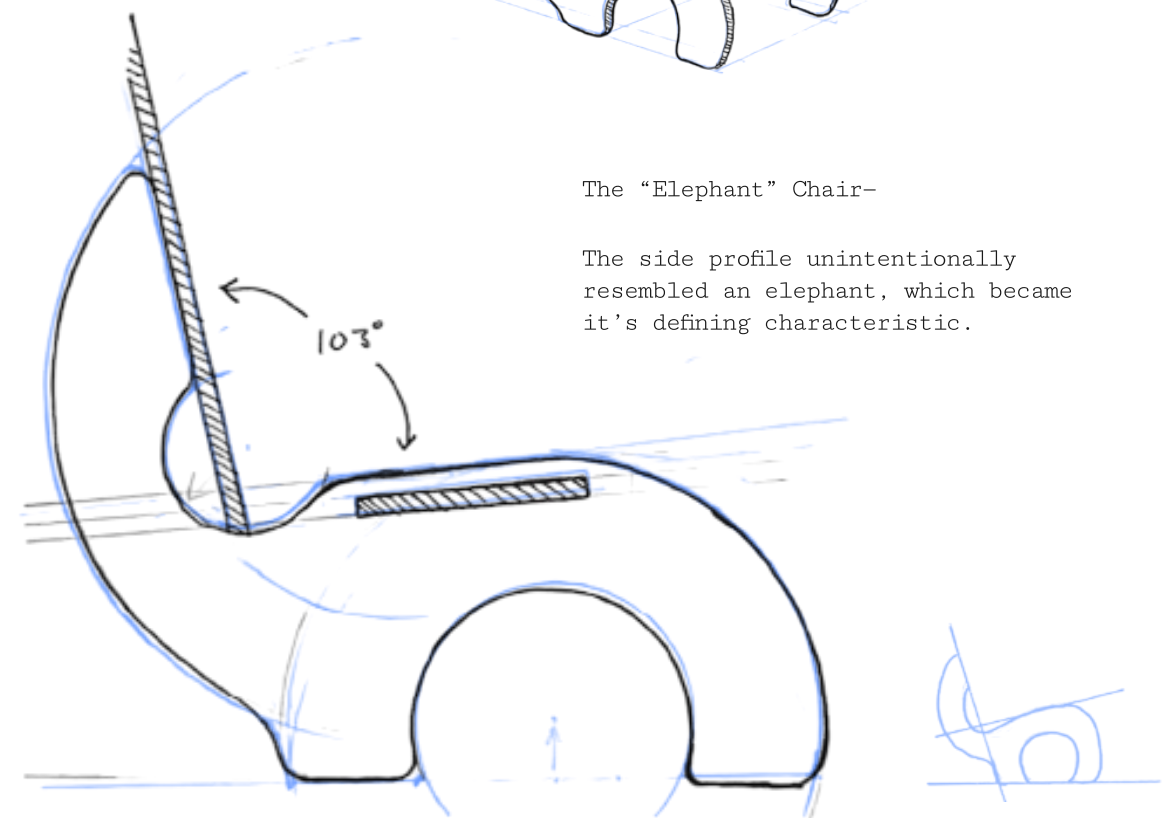
Creating a System

Individual components were simplified into interlocking flat pieces that could be cut from sheet material while maintaining structural integrity and visual playfulness.



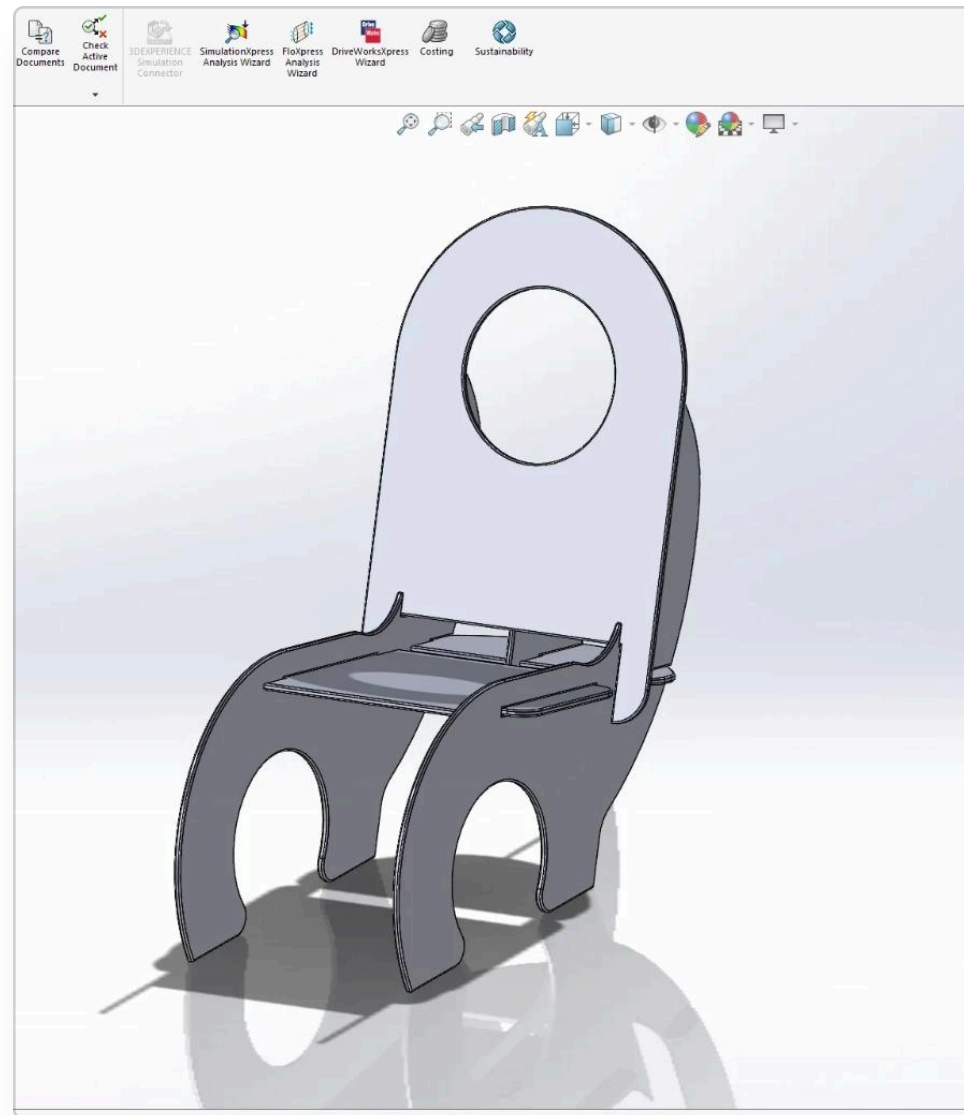
The "Elephant" Chair-

The side profile unintentionally resembled an elephant, which became its defining characteristic.

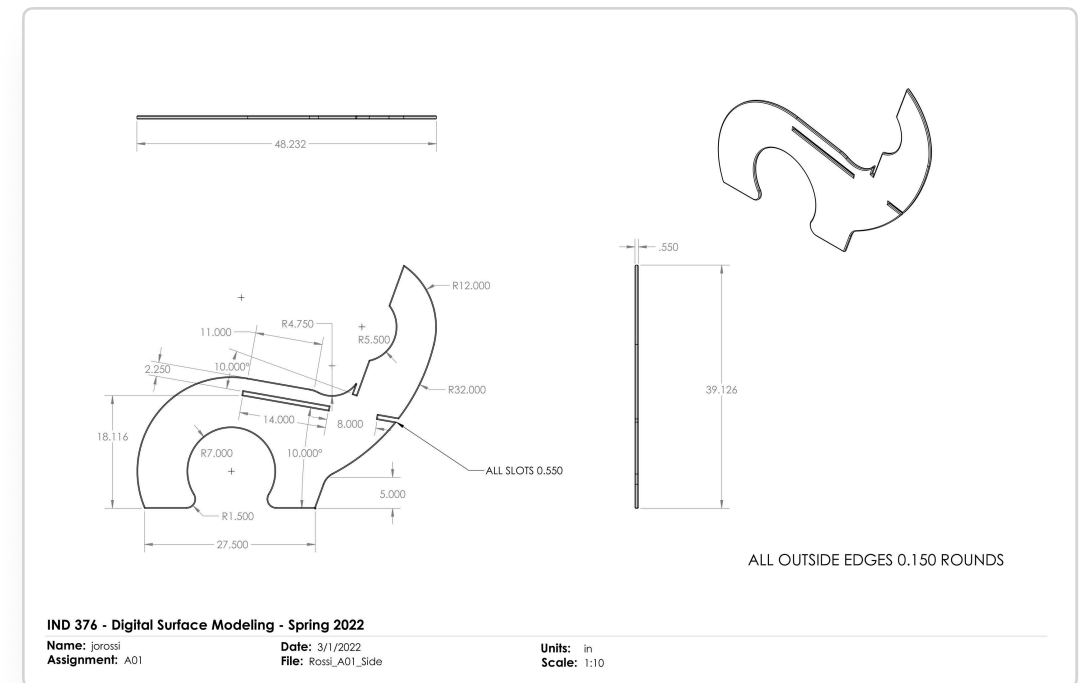


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Engineering the Concept in SolidWorks



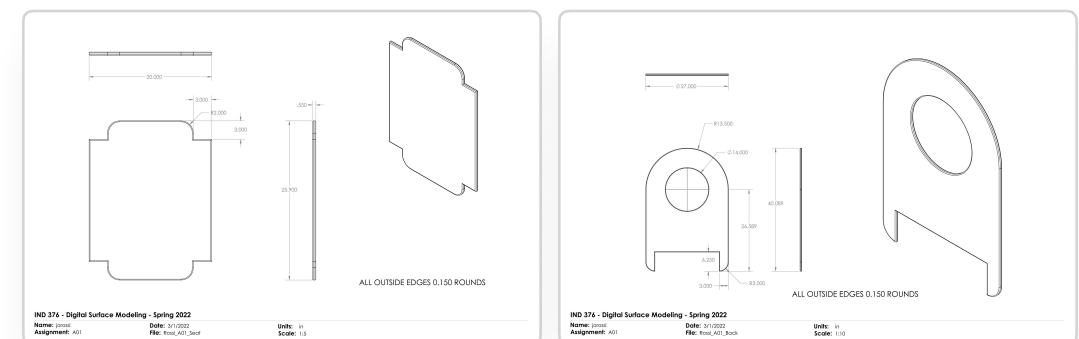
*Assembly in SolidWorks.



*Annotated technical drawings for each part of the assembly.

Realizing Scale in CAD

Designing within **manufacturing constraints and tolerances** helped validate the concept before physical prototyping.



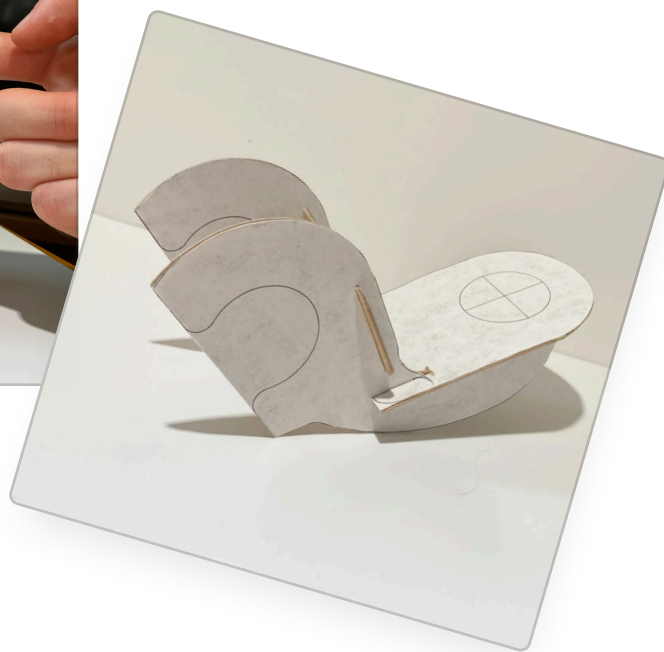
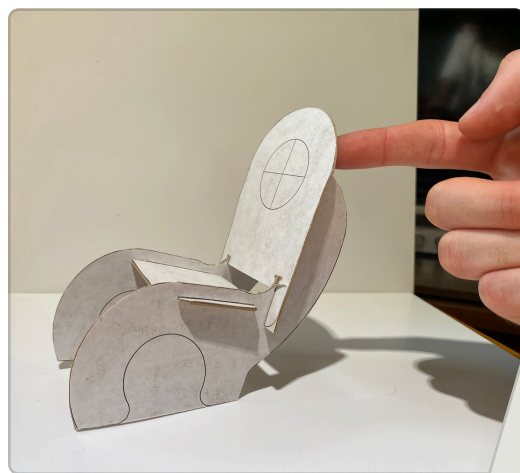
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Testing Revealed an Opportunity For Improvement

Problem

1 Chair tips backward when unloaded.

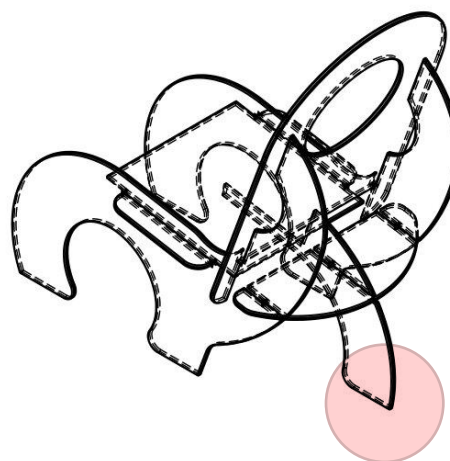
A 1:10 cardstock mockup revealed a serious weight distribution issue that couldn't go unresolved.



Response

2 Added a rear support member.

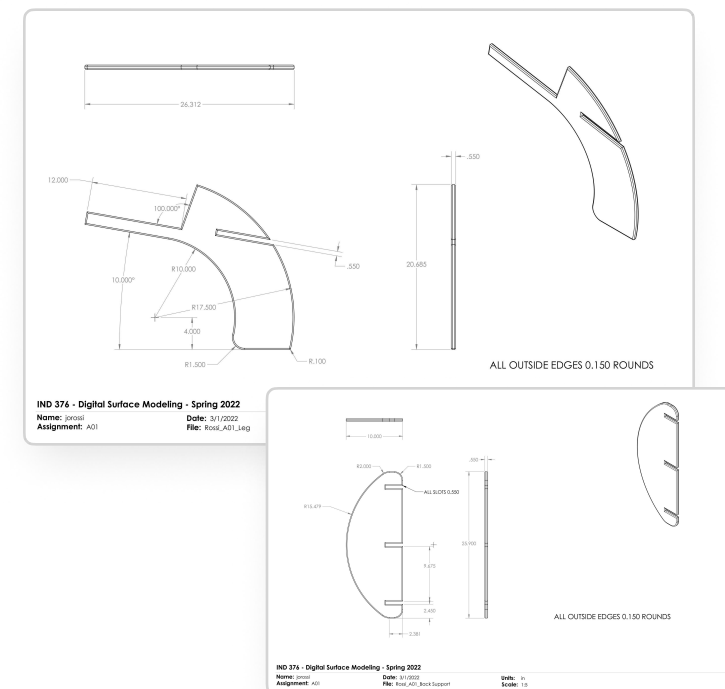
A fifth leg was added along with
it's spacer.



Result

3 Improved stability.

A laser-cut plywood prototype proved the effectiveness of the additional support.



5

Design Living in Playful Environments

Bright colors, geometric forms, and simple construction create a seating concept intended for family-oriented retail and hospitality spaces, like in this cafe scene.



Next Iterations

It's a hard-taught skill learning when a design is 'ready', but it's just as important to keep improving and iterating.

The design is excessively flat-

Some minor curving of seating surfaces could improve ergonomic value.

Improving longevity-

Refine slot geometry and strengthen areas of high-stress before full-scale production.



Playing into it's strengths-

Further explore the elephant-inspired character through audience-specific applications.