■ Ironing Board Cum Chair — My Fabrication Summary

1. My Design Process

I designed the ironing board cum chair in SolidWorks using parametric modeling. Each tab and slot was dimensioned based on the 10 mm plywood thickness I planned to use. Initially, I included dog-bone fillets in the design for CNC milling using a 3 mm tool, but I later removed them due to issues with the router.

2. Fabrication Challenges

I originally planned to cut the parts using a CNC router, but it did not function as expected. As a result, I switched to the PS36 CO■ laser cutter. I attempted to use 20 mm plywood, but the laser couldn't cut it. Eventually, I used 10 mm plywood, which the laser managed to cut successfully at full power and very low speed.

3. Cutting Methodology

Because I used a laser cutter instead of the CNC router, I omitted dog-bone joints from the design. I focused on accurate tab-slot fits based on the kerf and material thickness. Once cut, I sanded the pieces to remove edge burns and improve fit.

4. Assembly Steps

After cutting, I gathered all the parts and manually assembled them using their tab-slot joints. The fit was snug, so I didn't need adhesives. I then installed the hinges and pivot mechanisms to enable the chair-to-ironing-board transformation. I applied only light buffering to the surfaces and didn't use any varnish or paint.

5. Project Summary

Aspect	My Final Choice
Design Software	SolidWorks (Parametric)
Material Used	10 mm Plywood
Cutting Tool	PS36 CO■ Laser Cutter
Max Cut Depth Achieved	10 mm (20 mm failed)
Joint Method	Tab-Slot (No Dog-Bones)
Finish Applied	Buffered Only (No Varnish)
CNC Router	Not used due to malfunction