



Spa Shelf: Design and Construction by Mark Langlois

About the man behind the design and creation of the Spa Shelf:

Name: Mark Bradford Langlois

Status: Married with Children, Grandchildren

Education: B.S. Liberal Arts, Central Michigan University
Sociology, Industrial Technology, Computer Science

Career: Design, Engineering, Product Life Cycle
Management, IT Consultant, Software Development

Music: J.J. Cale, Jackson Brown, Mark Knopfler, Snowy
White, Jazz, Classical

Favorite Book: Catcher in the Rye, by J.D. Salinger

Drink: Oban Single Malt Scotch, Jack Daniels or
whatever you have

Cigar: Rocky Patel Vintage 1990, 1992, Undercrown
Maduro Robosto

Hobbies: Travel, Photography, Music, Art, Creative
Design and Engineering

Book Photography by Mark Langlois

Book Completion Date: December, 2021



Introduction:

The creation of the Spa Shelf was driven by a project that my wife, Marianne, initiated to create a room in our home dedicated to her desire for exercise and fitness.

I participated in the design and development of her "Spa". I selected some of the content and components that went into Marianne's Spa. One of the things on her wish list was an additional shelf to complement the one that she had purchased with her Tonal exercise equipment.

That wish led me to design Marianne's "Spa Shelf". The Spa Shelf is part of a catalog of designs, specifically, Design Iteration Number: ML-ISC-121775-5A.

Certification of Authentication and Registration Of Ownership

Spa Shelf- 1"x 1" Steel Tube And .120" Steel Plate
Original Design By Mark Langlois, Created By Mark Langlois

Purchased By Gifted To Marianne Langlois

Date October 10, 2021

Color Stone Black PPS-1168

Design Iteration Number: 121775-5A

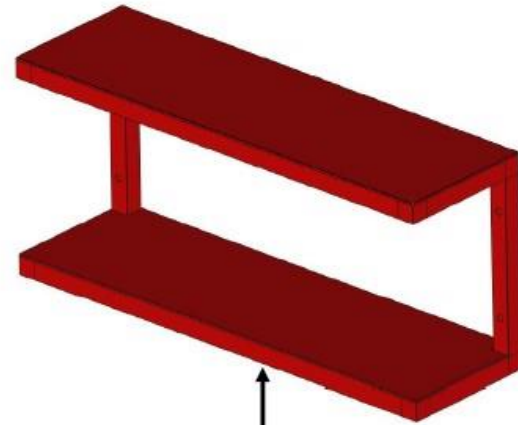
Registration Number: ML-ISC-5A-00001



STONE BLACK

PSS-1168

\$10.02/lb



Signature Plate Located
Under Bottom Plate In Back Center





Marianne's Spa-Room Design: View 1



Marianne's Spa-Room Design: View 2



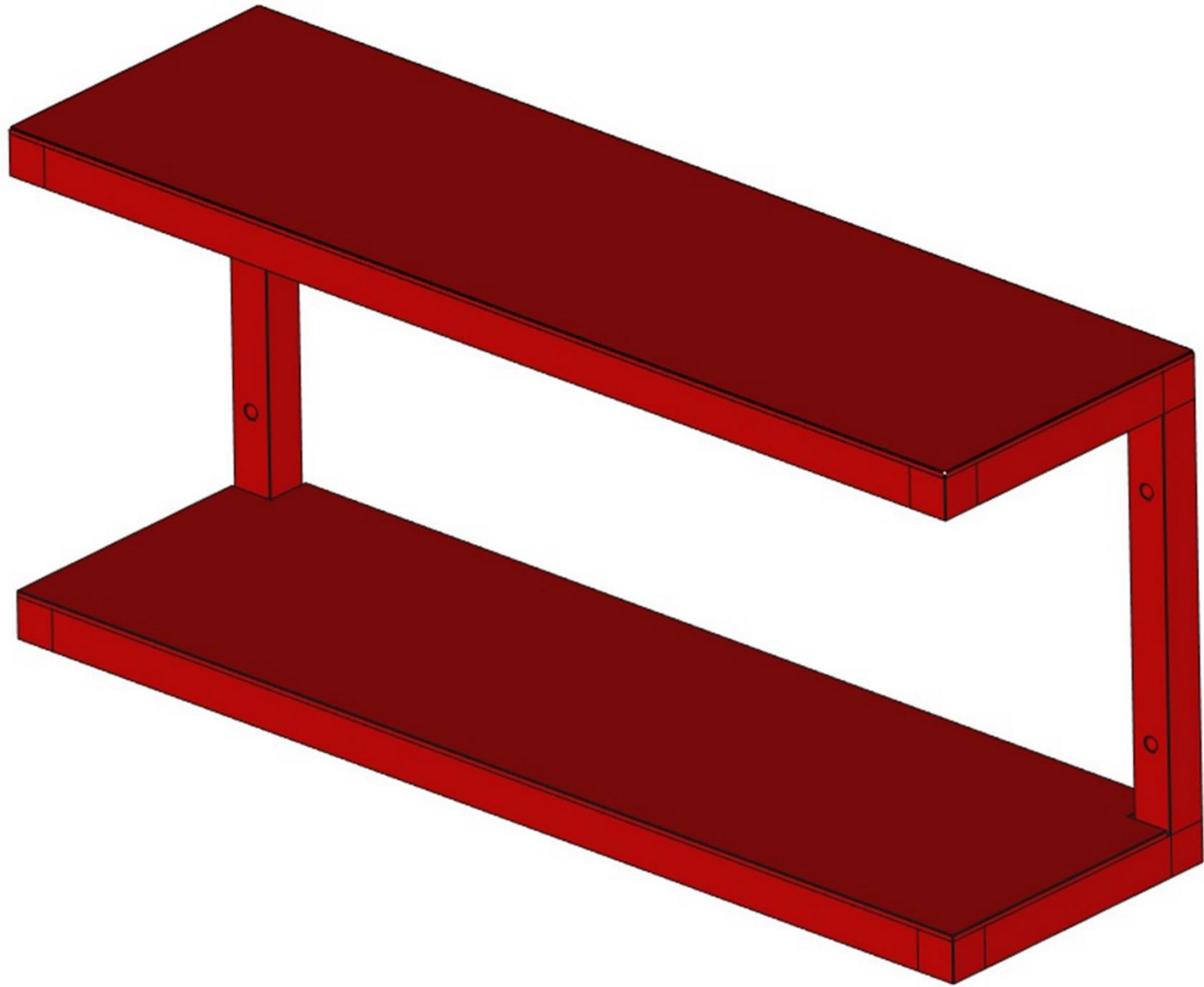
Marianne's Spa-Room Design: View 3



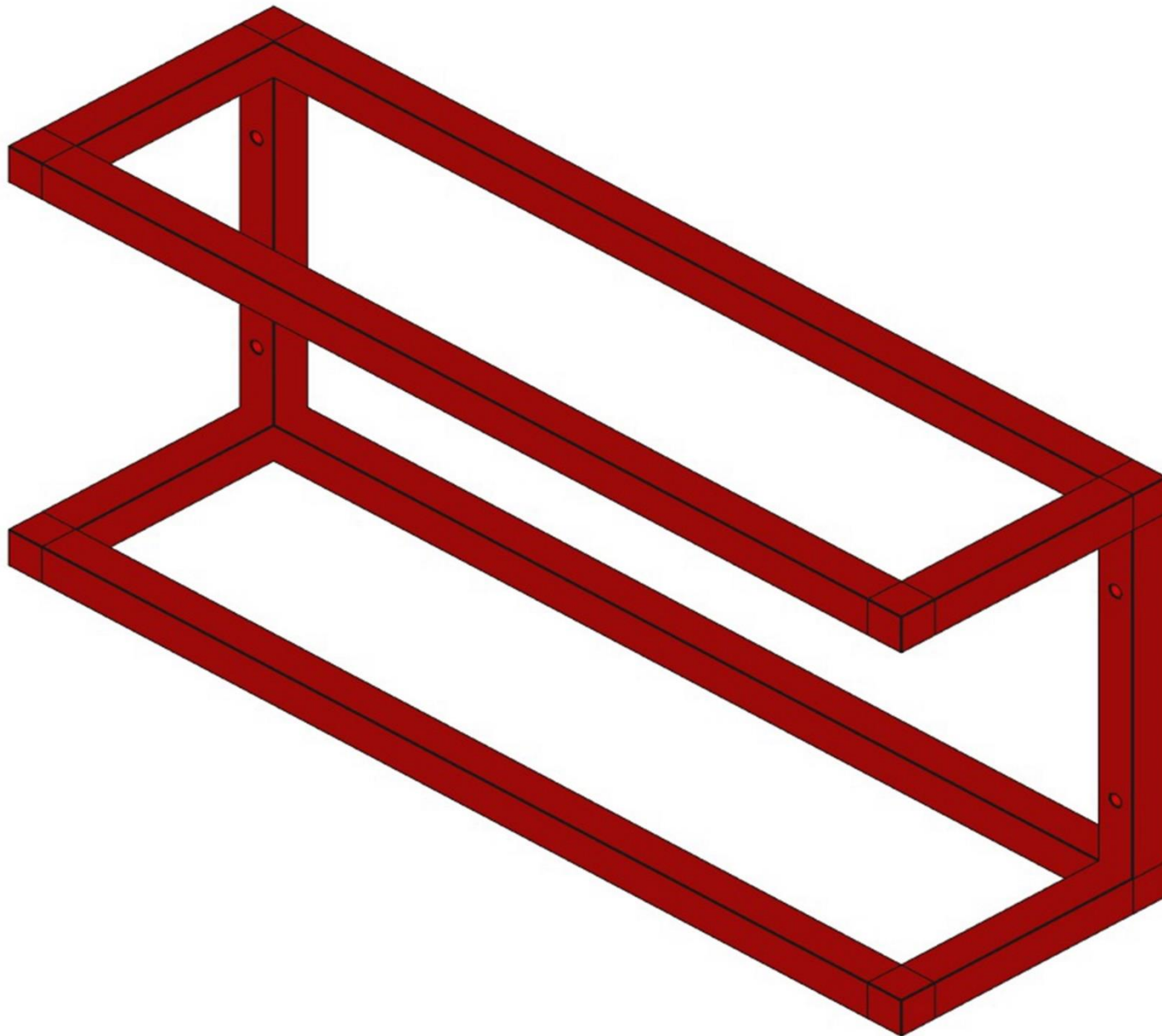
Marianne's Spa Room Design: View 4



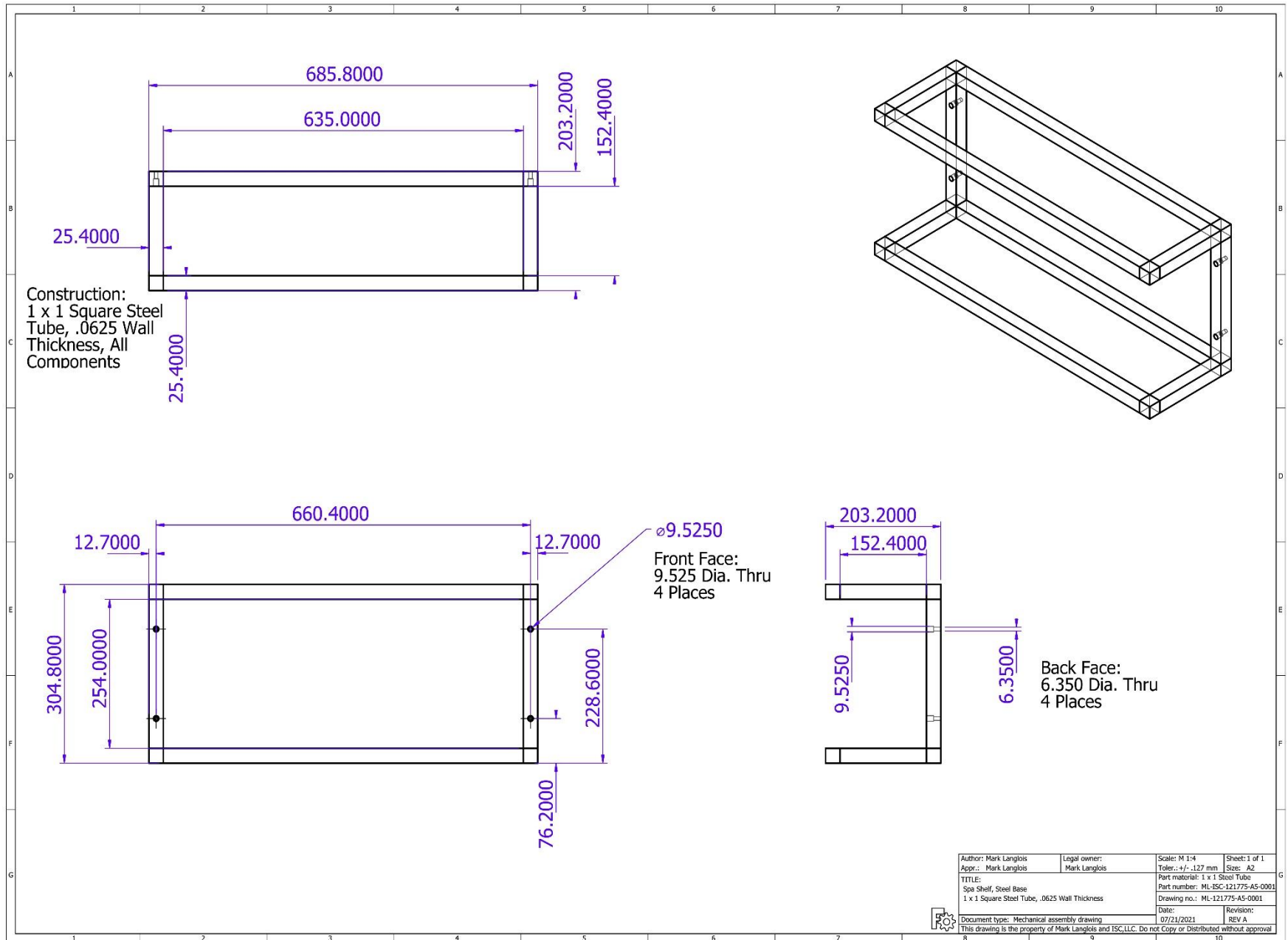
Marianne's Spa-Room Design: View 5



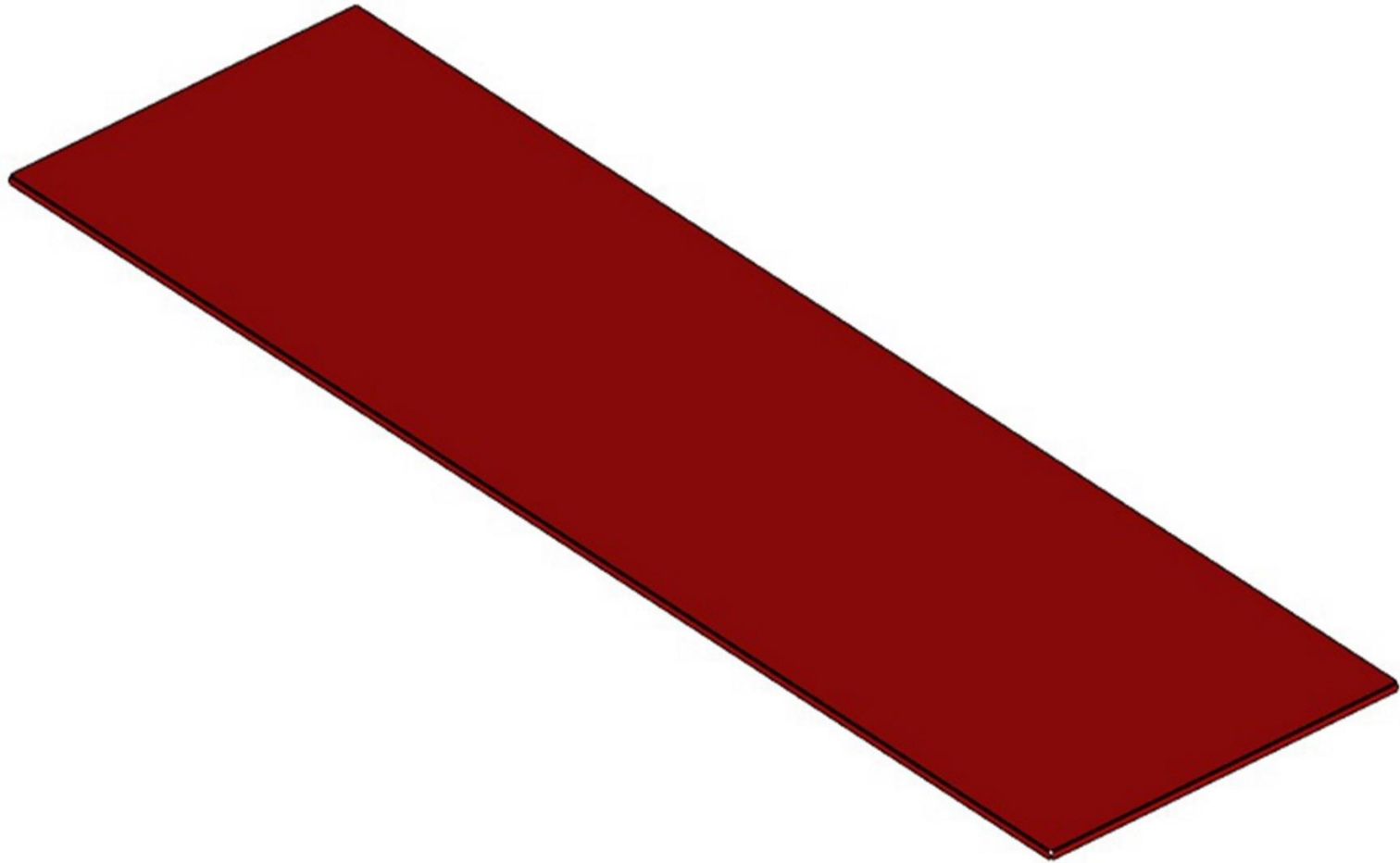
Parametric Solid Model of Spa Book Shelf: Designed using FreeCAD.



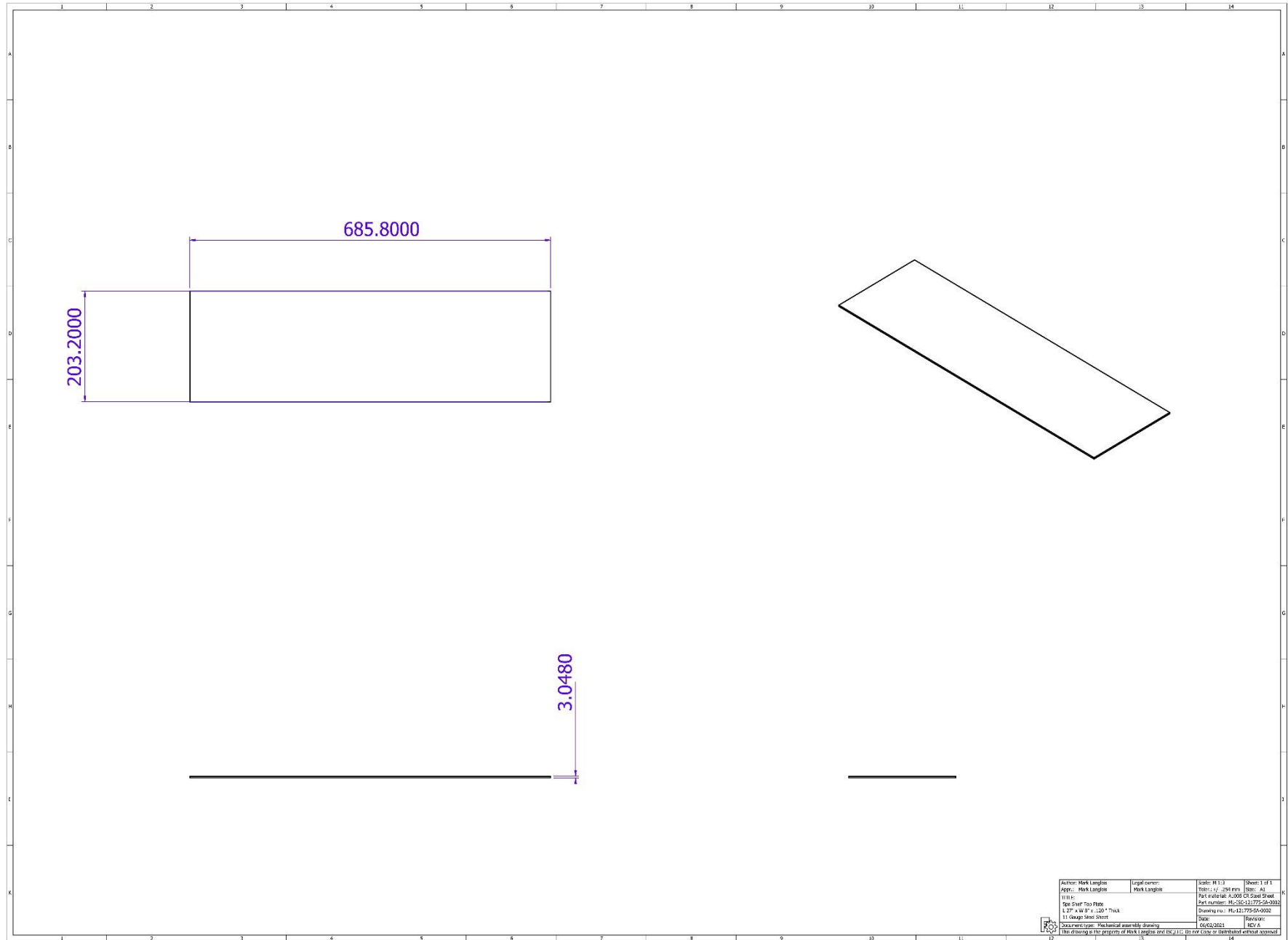
Parametric Solid Model of Spa Book Shelf Steel Frame: Designed using FreeCAD.



Drawing of Spa Book Shelf Steel Frame: Designed using FreeCAD.

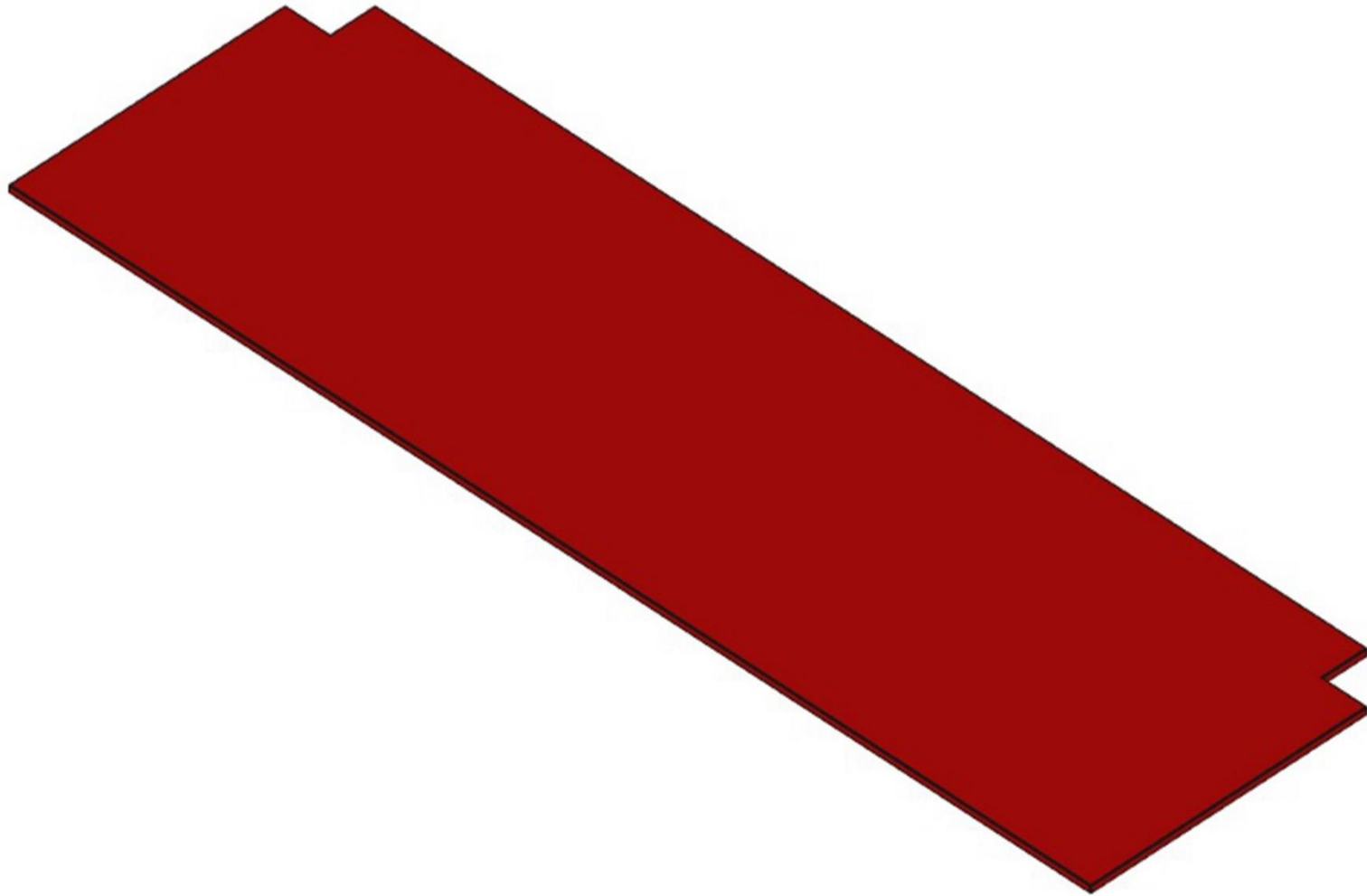


Parametric Solid Model of Spa Book Shelf Top Plate: Designed using FreeCAD.

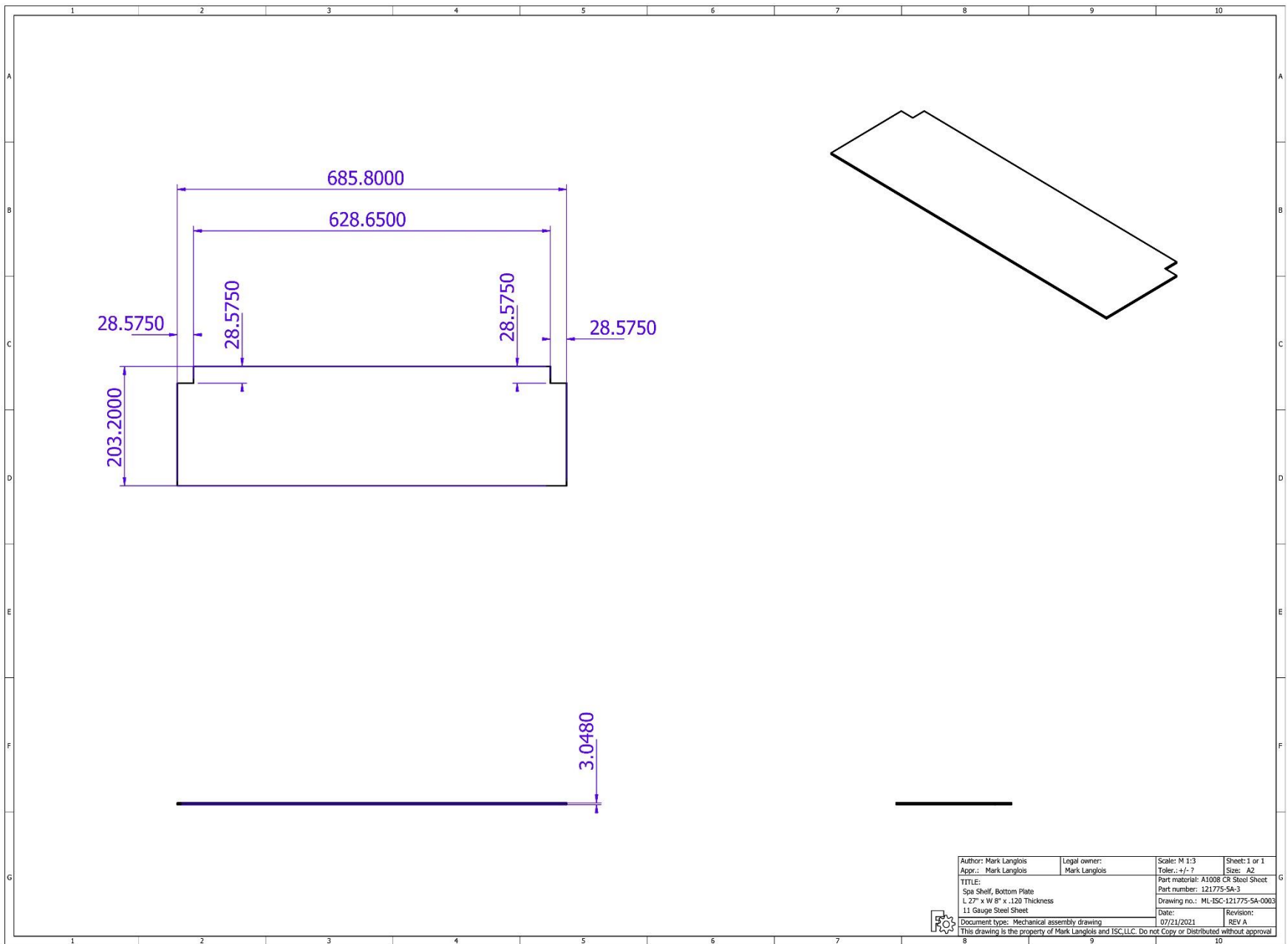


Author: Mark Langton	Legal owner:	Scale: 1:1	Sheet: 1 of 1
Appr.: Mark Langton	Mark Langton	Techn: 1 / 254 mm	Unit: A1
Title:		Part material: A303 CS Steel Sheet	
Top View Top Plate		Part number: M135-12-175-06-0002	
1.27 x 6.35 x .20" Thick		Drawing no.: M13175-06-0002	
11 Gauge Steel Sheet		Date:	Revised:
		06/02/2001	REV A
Document type: Mechanical assembly drawing			
This drawing is the property of Mark Langton Design Ltd. Do not copy or distribute without permission.			

Drawing of Spa Book Shelf Top Plate: Designed using FreeCAD.



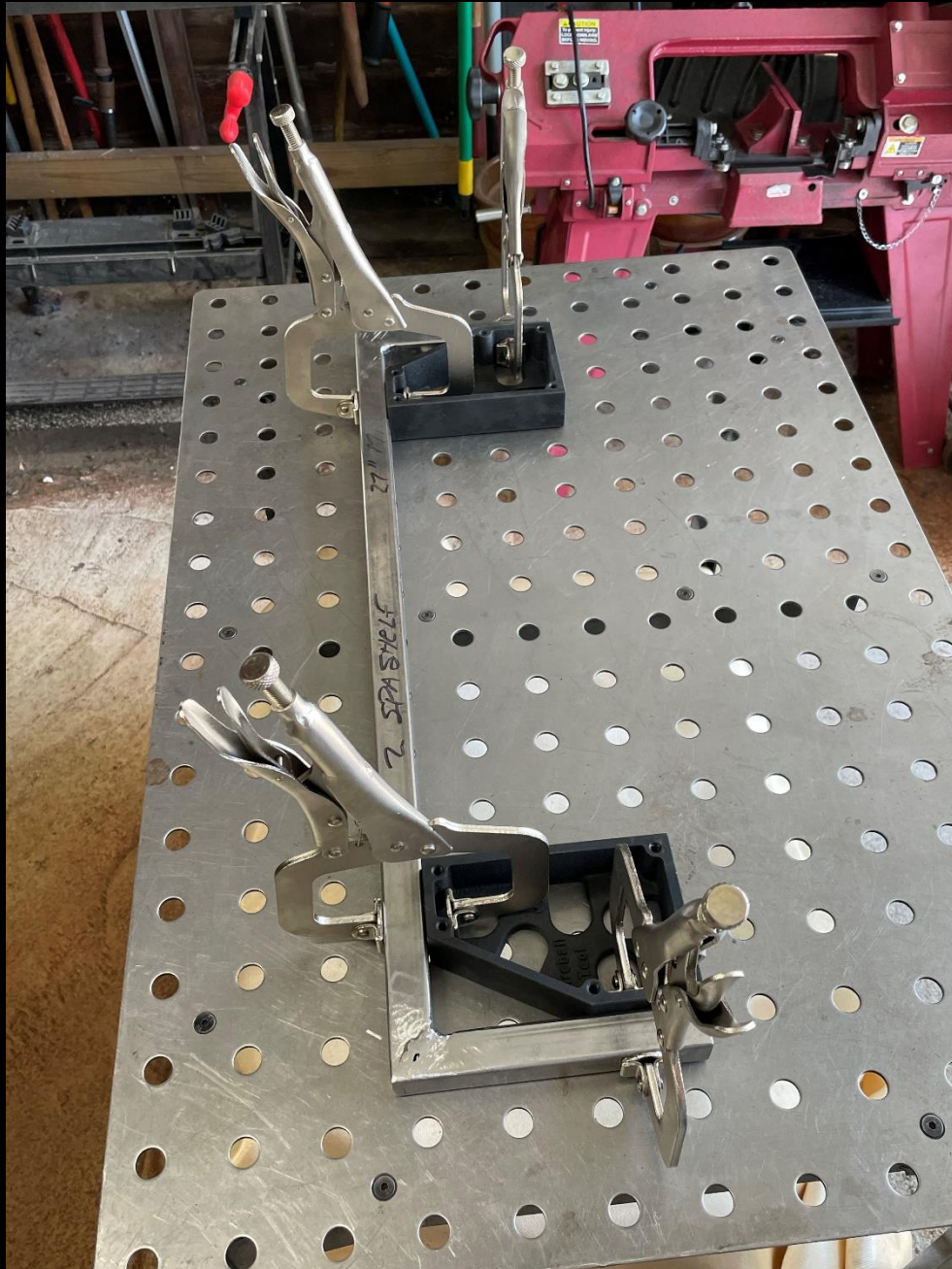
Parametric Solid Model of Spa Book Shelf Bottom Plate: Designed using FreeCAD.



Drawing of Spa Book Shelf Bottom Plate: Designed using FreeCAD.



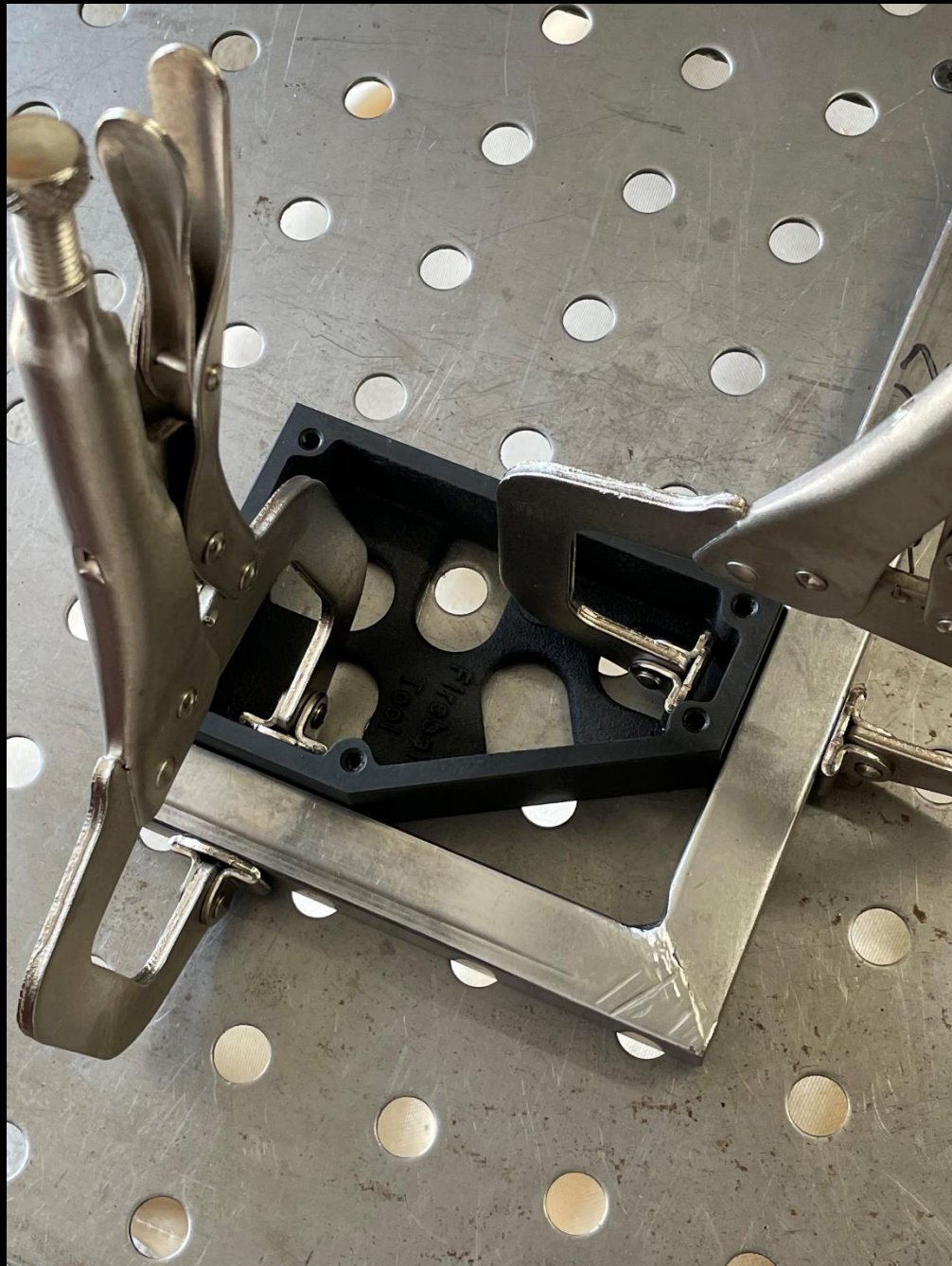
Spa Book Shelf- Fabrication Sequence: 1 Measure & miter cut steel tube.



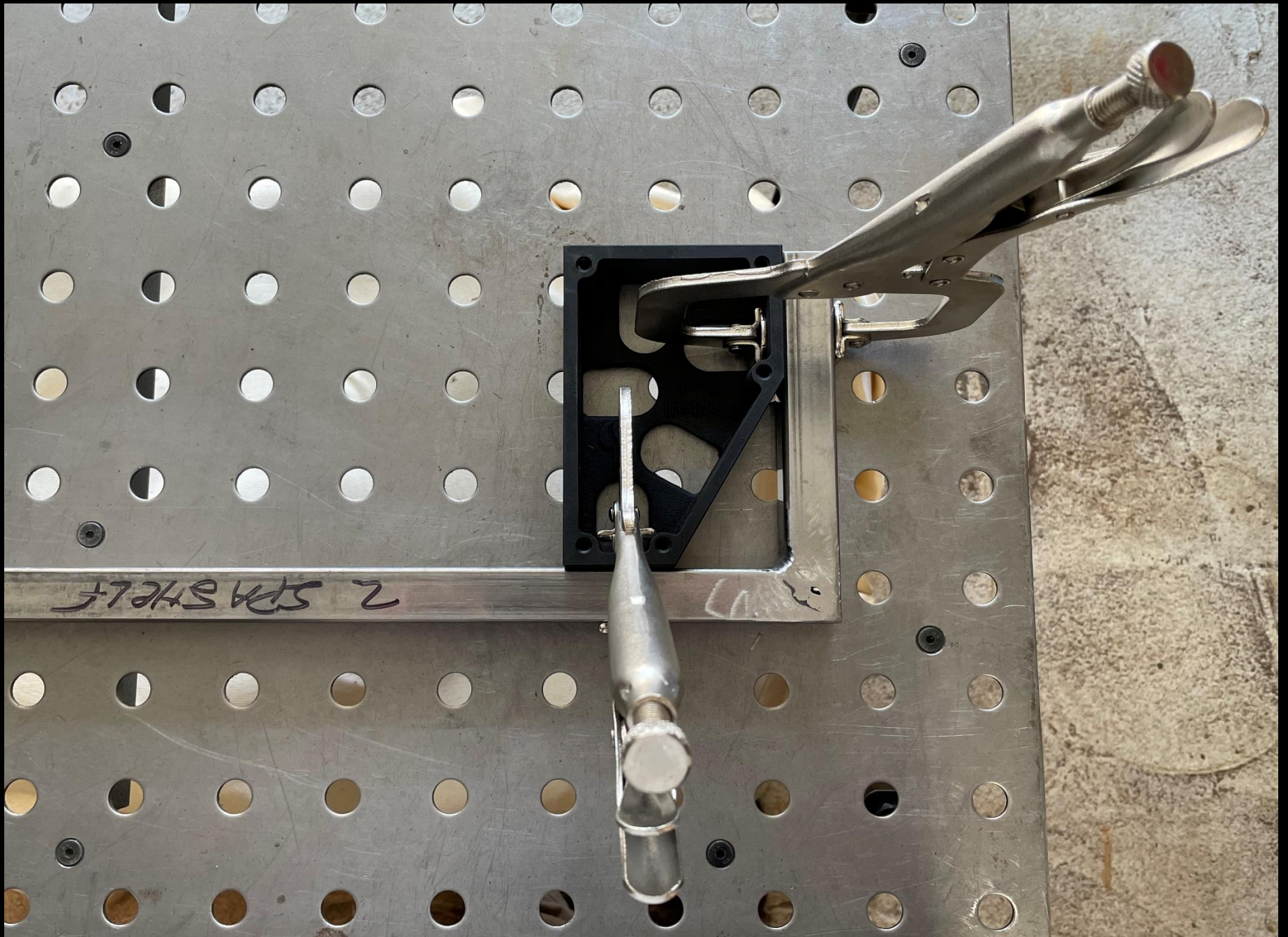
Spa Book Shelf- Fabrication Sequence: 2 Welding the upper and lower frame.



Spa Book Shelf- Fabrication Sequence: 3 Welding miter cuts for shelf brackets.



Spa Book Shelf- Fabrication Sequence: 4



Spa Book Shelf- Fabrication Sequence: 5



Spa Book Shelf- Fabrication Sequence: 6 Welding the inside angle on shelf.



Spa Book Shelf- Fabrication Sequence: 7 Using 45 degree angle on welding magnet.



Spa Book Shelf- Fabrication Sequence: 8 Welding complete on inside angles.



Spa Book Shelf- Fabrication Sequence: 9 Clean up welds on shelf frame.



Spa Book Shelf- Fabrication Sequence: 10 Clean up welds on shelf frame.



Spa Book Shelf- Fabrication Sequence: 11 Weld vertical legs & shelf back-lower.



Spa Book Shelf- Fabrication Sequence: 12 Using 3 axis clamps to position verticals.



Spa Book Shelf- Fabrication Sequence: 13 Tack weld vertical legs & back rail.



Spa Book Shelf- Fabrication Sequence: 14 Finished welds on lower shelf frame.



Spa Book Shelf- Fabrication Sequence: 15 Clean up welds on lower shelf frame.



Spa Book Shelf- Fabrication Sequence: 16 Clean up welds on shelf frame.



Spa Book Shelf- Fabrication Sequence: 17 Using 3 axis clamps to weld upper shelf.



Spa Book Shelf- Fabrication Sequence: 18 Weld upper shelf to vertical legs & back.



Spa Book Shelf- Fabrication Sequence: 19 Tack weld upper shelf and back-side A.



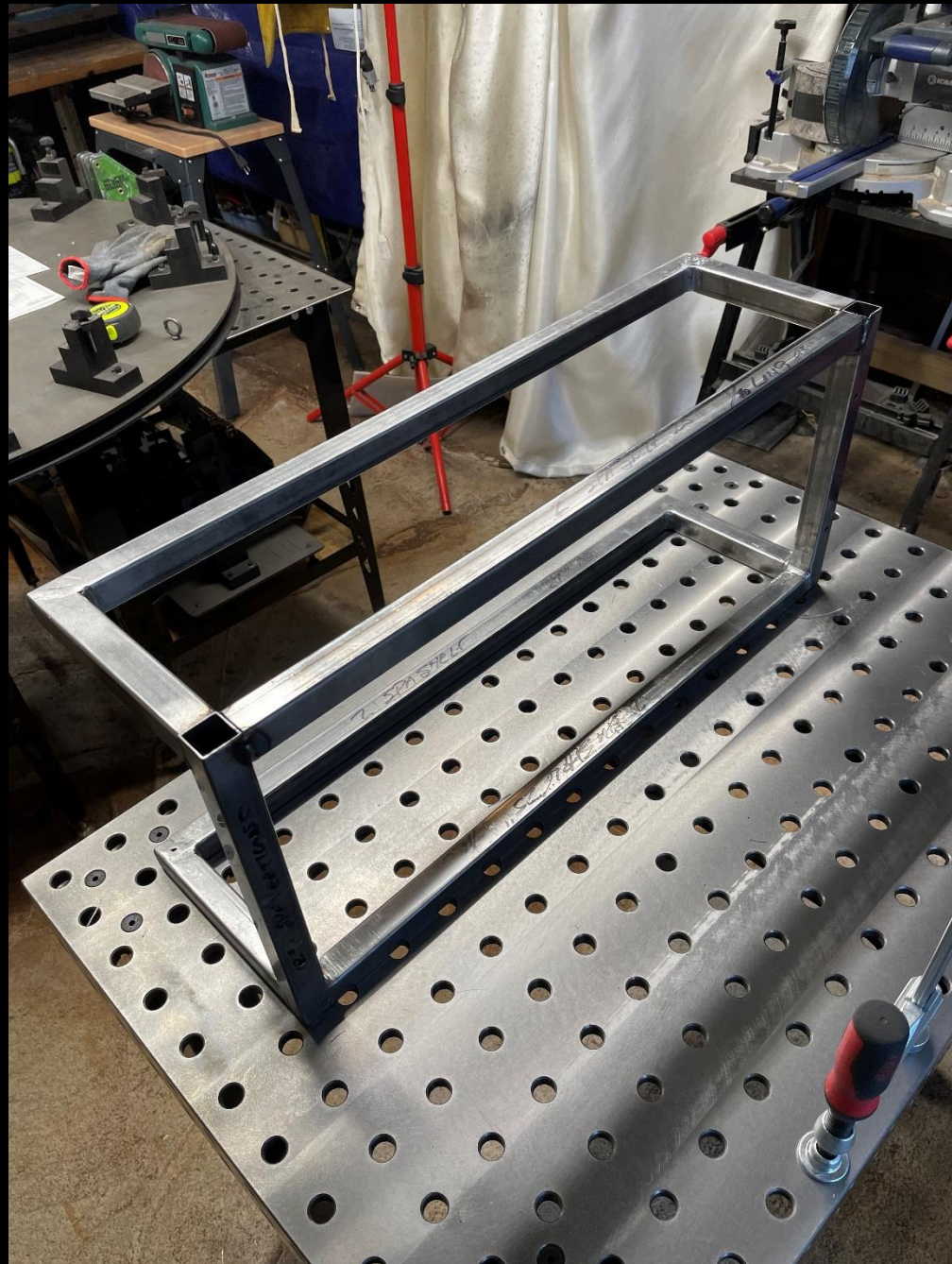
Spa Book Shelf- Fabrication Sequence: 20 Tack weld upper shelf and back-side B.



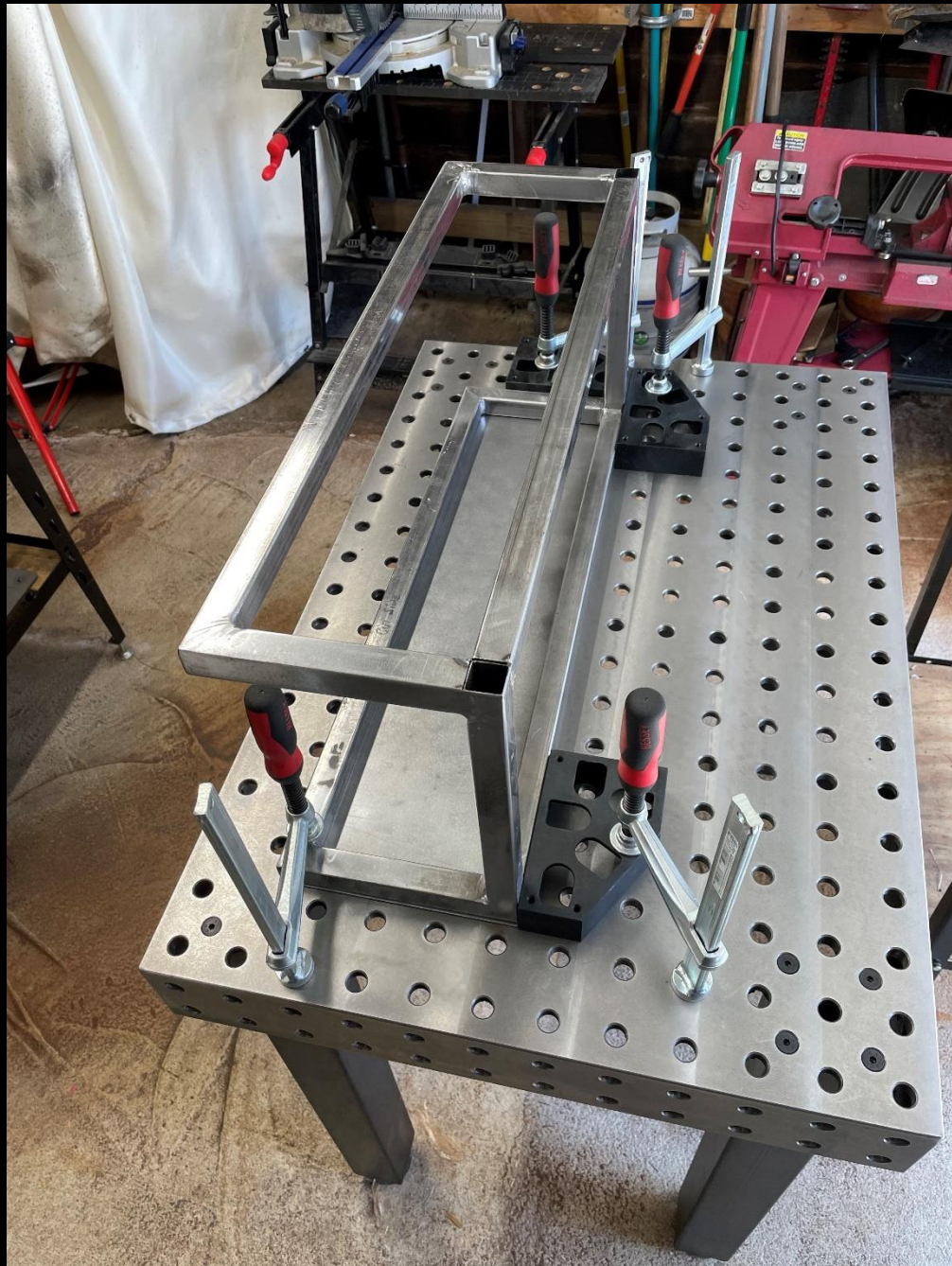
Spa Book Shelf- Fabrication Sequence: 21 Laser cut top & bottom plates.



Spa Book Shelf- Fabrication Sequence: 22 Evaluating fit & positioning of top plate.



Spa Book Shelf- Fabrication Sequence: 23 Top plate is welded on upside down.



Spa Book Shelf- Fabrication Sequence: 24 Top plate is nested with 90 degree blocks.



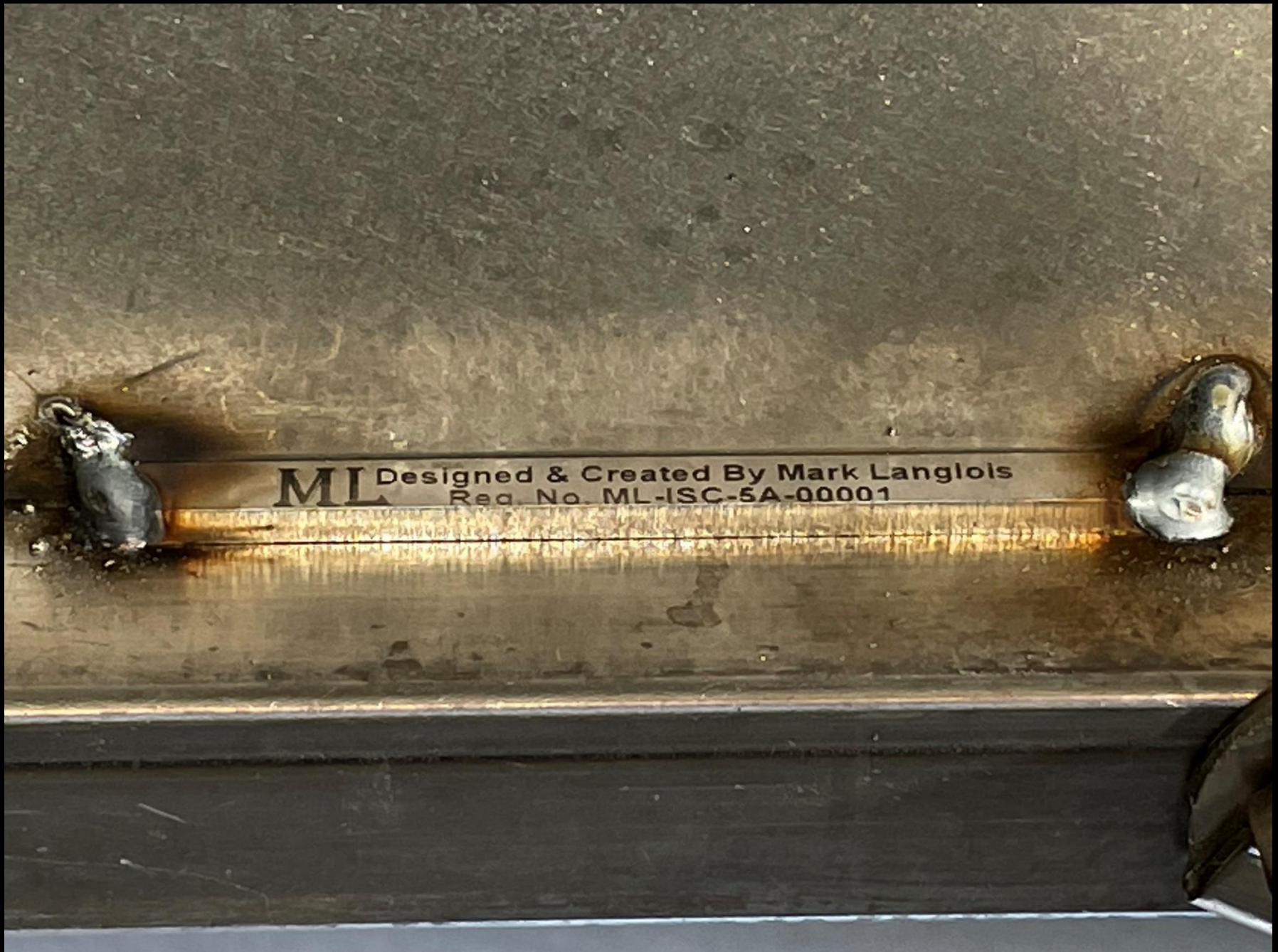
Spa Book Shelf- Fabrication Sequence: 25 Top plate is welded to the upper shelf.



Spa Book Shelf- Fabrication Sequence: 27 Bottom plate is positioned, clamped & welded.



Spa Book Shelf- Fabrication Sequence: 28 My signature plate is welded on last.



Spa Book Shelf- Fabrication Sequence: 29 Signature plate welded to bottom plate.



Spa Book Shelf- Fabrication Sequence: 30 Finish grind and sand top & bottom plates.



Spa Book Shelf- Fabrication Sequence: 31 The spa shelf ready for powder coating.



Spa Book Shelf- Fabrication Sequence: 32 The spa shelf color matches the tonal shelf.



Spa Book Shelf- Fabrication Sequence: 33 Spa Shelf powder coated and complete.



Spa Book Shelf- Fabrication Sequence: 34 The spa shelf installed.



Spa Book Shelf- Fabrication Sequence: 35 Spa Shelf Installed On The Wall -2

	A	B
1	Spa Shelf Construction Data	
2	Design Iteration Number	ML-ISC-121775-5A
3	Size	L 27" x H 12" x D 8"
4	Material	1"x 1" Steel Tube, .120" Steel Plate
5	Construction	Welded Construction
6	Steel Base: Linear Feet	12 Linear Feet 1" x 1" x 1/16" Steel Tube
7	Steel Plate: Square Feet	3 Square Feet, .120" Steel Plate L 27" x H 8"
8	Steel Base: Weight	9.5513 lbs.
9	Steel Plate: Weight	15.282 lbs.
10	Spa Shelf Total Weight	24.8333 lbs.
11	Steel Cost: Steel Tube	\$64.00
12	Steel Cost: Steel Plate	\$43.46
13	Spa Shelf Total Steel Cost	\$107.46
14	Total Number of Welds	88
15	Finish: Powder Coat	Stone Black PSS 1168
16	Powder Coat Cost	\$75.00
17	Spa Shelf Mounting Holes	8 Holes: 4 3/8 Dia., 4 1/2 Dia.
18	Spa Shelf Plastic Hole Inserts	4 Black Plastic Hole Buttons
19	Spa Shelf Plastic Hole Covers	2 Black Plastic Square Plugs
20	Spa Shelf Total Cost	\$202.46
21	Approximate Man Hours To Construct	67