Sofa Table & Stools

Description:

A great project to incorporate wood and metal together, this project utilizes a steel tube frame for the table and stools with live-edge wood table top and stool seats. This project can be simplified for those students with intermediate skills or serves as a great project for students at a more advanced level.

Skills Required:

Basic skills in metal fabrication and wood finishing are needed as well as layout and plan interpretation.

Tools Required:

- ➔ Measuring tape
- ➔ Pencil
- ➔ Soapstone or Marker
- ➔ Lint-free rags
- ➔ Circular Saw
- ➔ Power Hand Plane
- ➔ Power Sander
- ➔ Belt Sander
- ➔ Power Drill
- ➔ Twist Drills
- ➔ Cold Metal Saw w/Miter
- ➔ Drill Press
- ➔ GMAW Welder
- ➔ Angle Grinder
- ➔ Grinding Wheel
- ➔ Flapper Discs
- ➔ Other Metal Finishing tools

Materials:

- ➔ 0.095” x 1” x 1” square steel tube
- ➔ 0.095” x 2” x 2” square steel tube
- ➔ Live Edge wood slab 16” x 84” minimum (unless plans are modified)
- ➔ Live Edge wood slab pieces 16” x 16” minimum recommended
- ➔ Mineral Spirits
- ➔ Tung Oil
- ➔ Paste Wax
- ➔ Paint or Other Metal Finish

Bill of Materials:

Complete the bill of materials below for this project. Use the completed bill of materials for your record book budget by entering the name of the project and the total amount as an expense.

Size	Description	Units	Qty/Project	Cost/Unit	Order	Amount

Total

Project Price:

Enter the expected price you will receive for the project in your record book budget (income).
$_____

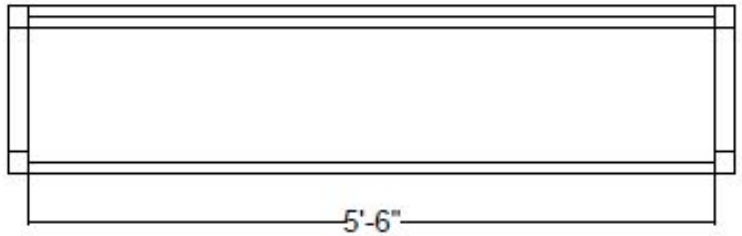
Estimated Construction Time:

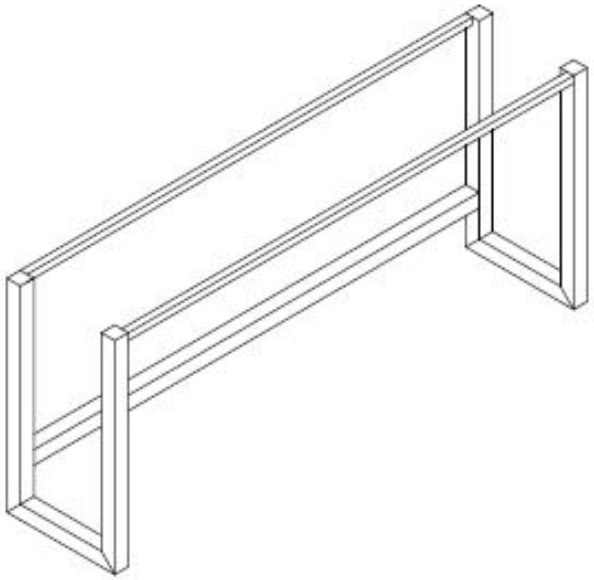
_____ hours. (hint: tung oil recommended time between coats is 24 hours, min. 2 coats)

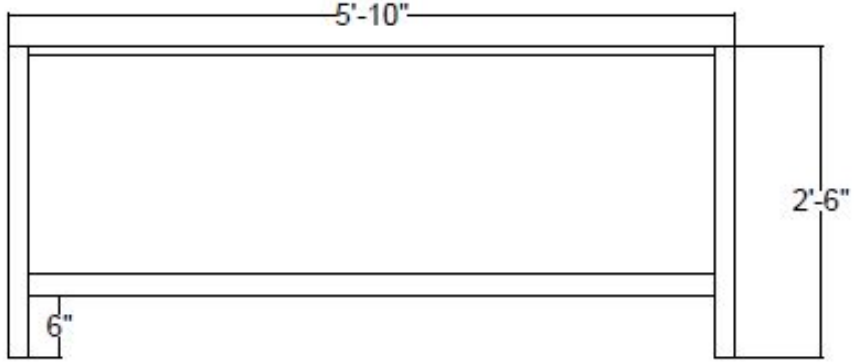
Directions:

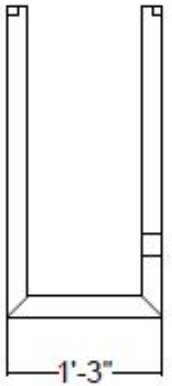
1. Begin by laying out and cutting pieces for the table frame from the 2” square tube.
2. Lay out and cut table frame pieces from the 1” square tube.
3. Drill holes through the 1” square tube to mount the wood top.
4. Square and firmly tack the pieces for one leg side. Repeat for opposite side.
5. Measure and clearly mark 6 inches from the floor side of each leg on what will be the “back side” or the side opposite where the stools will slide under.
6. Tack the 2” square tube foot bar between the two legs, using the 6 inch mark to align the bottom of the bar. Place one tack on each end of the bar.
7. Align the 1” square tube top mounting bars either flush to the outside, front and back, or align them on-center of each leg.
8. Square the entire frame, make adjustments as needed.
9. Weld the frame thoroughly.
10. Use an angle grinder to take welds down to almost flush with the metal surfaces.
11. Use a flapper wheel on an angle grinder to finish making the welds flush. Apply light pressure and even strokes toward the end to avoid digging into the base material. Round corners with light strokes to give corners a natural, blended look.
12. Use a fine grit sandpaper on an orbital sander to create a clean finish around the welds.
13. Lay out the pieces for one stool and begin tacking. Confirm that all corresponding pieces are of equal length. For example, all four 20” pieces are actually 20”. Square each part as you go.

14. Square the entire frame once tacked completely. Weld frame thoroughly.
15. Repeat for additional stools.
16. Finish steel frames with desired paint, chemical, etc.
17. Begin prepping wood slab and stool seats by planing as needed.
18. Sand the top and bottom surfaces with a coarse grit, 60 is recommended. Bottom may not require as much sanding, only needs to feel somewhat smooth to touch.
19. Continue sanding top surfaces of all wood pieces, increase grits until desired level of smoothness is achieved.
20. Remove bark if needed or desired. Sand the live edges to remove fibers where the bark was attached.
21. Use air nozzle to blow dust from the surfaces and any cracks, holes, or other places dust may rest in the wood pieces.
22. Using clean lint-free rags, use mineral oil to clean the top and sides of the wood pieces.
23. Once the mineral oil dries, apply the first coat of tung oil with a clean rag, wiping a generous layer over the whole top and sides. Remove any standing oil and let sit for 5-10 minutes.
24. Using a clean rag, buff the oiled surfaces to even out the oil coat. Let sit for 24 hours.
25. Repeat oiling steps to apply second coat of tung oil. DO NOT repeat mineral oil step!
26. Two coats of tung oil are the minimum. Additional coats can be applied using these steps until the desired “sheen” is achieved.
27. Finishing paste wax may also be used over the top of the tung oil for additional protection and sheen. Follow directions on the can for application.
28. Place the wood tops on the frames as desired. Mark and pre-drill the holes for the lag screws.
29. Attach the tops of the stools and table using the lag screws.
30. Stand back, snap some pictures, and admire your work!









	SOFA TABLE	R. DARRACH	JUNE 22, 2019
	1 OF 1	AGRISKILLS 2019	SCALE 1:16

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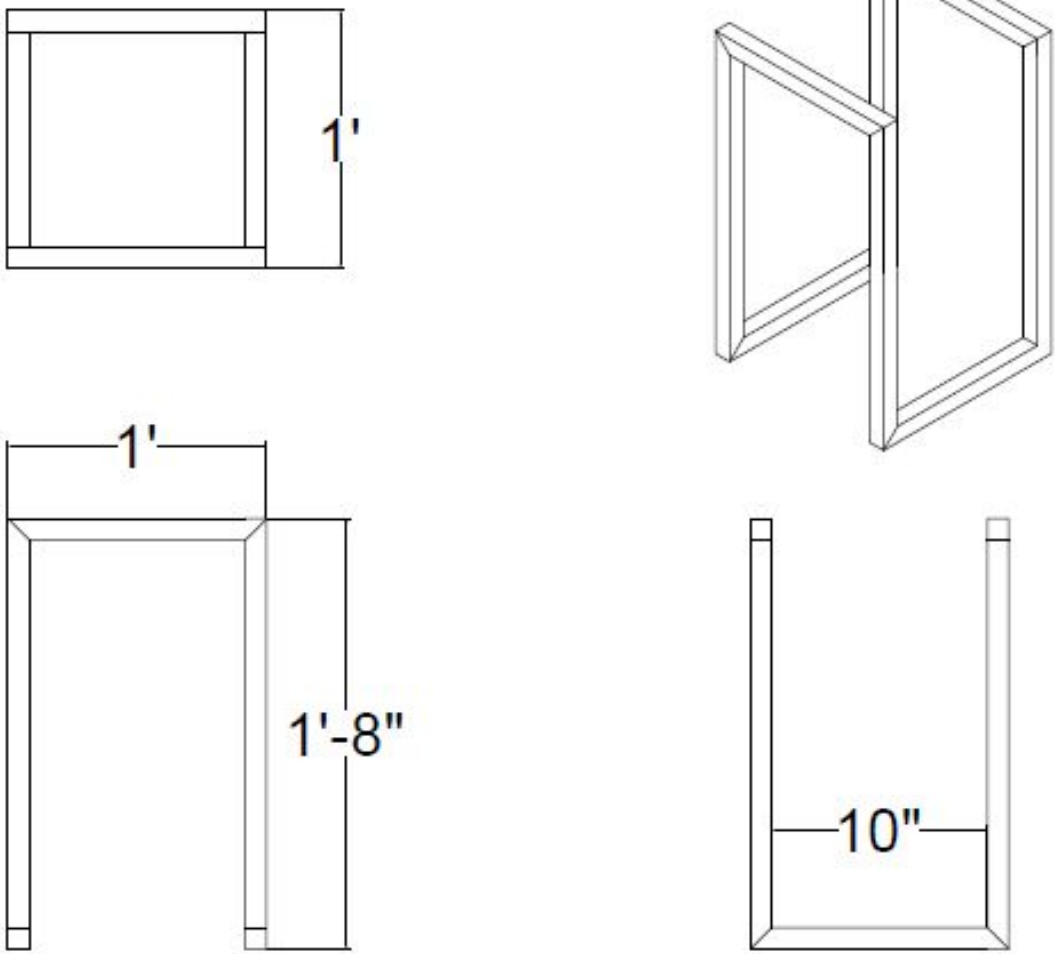

STOOL FRAME	R. DARRACH	JUNE 23, 2019
DRAWING NUMBER	AGRISKILLS 19	SCALE 1:8

Construction Log:

Complete the log below making an entry every day you work on the project. Transfer the logged hours to your record book journal for this SAE enterprise.

Date	Tasks Completed	Skills Used/Learned	Hours

Actual Price Received:

Enter the actual price you received for the project in your record book journal as income. $____

Project Portfolio:

Complete a portfolio for the project that includes:

- ➔ A description of the project and the skills you learned building the project. Include the hours spent on the project and the income (if sold). Use the construction log to complete this narrative. Write in complete sentences.
- ➔ The Bill of Materials
- ➔ The project plan
- ➔ 2-8 photos documenting the project at various stages of construction.