Reflective Journal

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Introduction

Brief

We were required to make a wooded frame using hand tools and power tools. The frame must have joints and mitres closed, frame sanded and ready for polishing. Frame must be square and free from twist and all shoulders must be closed and level.

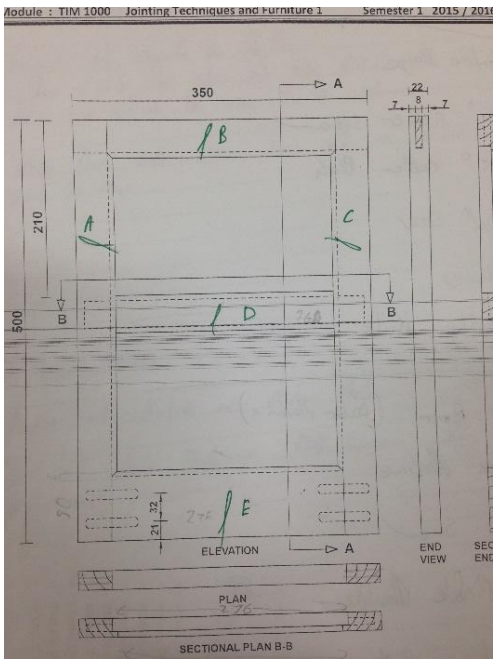
Cutting List

Cutting List needed

No.	Length (mm)	Width (mm)	Thickness (mm)	Material (mm)
2	550	45	22	Red Deal
2	370	45	22	Red Deal
1	300	80	22	Red Deal

Sequence of Events

1. Get timber, check for defects, proper sizes which match to the cutting list given.
2. Mark face side, face edge insuring the piece has as little knots or defects in the appropriate location as possible and label timber A, B, C, D, and E as shown in the drawing.
3. Square bottom of the two stiles on table saw to ensure stiles fit correctly in the multi-borer machine.
4. Start marking from bottom of timber and mark waste on top so bottom is square for dowel joint.
5. Mark out height of mid and top rails on the stiles for full position of mortise. Measure exact width of mortise.
6. Mark out shoulder for tennons on top and mid rails adding 6mm first to allow for mitre joints.
7. Mark position of rebate on all work needed.



8. Make sure bottom of frame is square as it is required for when using the multi borer.
9. Cut bottom rail to be dowled to size.
10. Set mortise gauge to size of mortise (7/8/7) and scribe both side pieces.
11. Cut cheeks of tennons.
12. Bore mortise on mortise machine keeping waste on top for nice a tight fitting tennon joint.
13. Flip around items clamped in morticer, to bore from other side to prevent breaking and splintering of work.
14. Scribe shoulder cheeks with Stanley knife.
15. Cross-cut shoulder cheeks and clean shoulders of tennon with a sharp chisel.
16. After tidying up shoulder cheeks run work through spindle moulder, making sure you have the face side facing up and the face side facing in to the cuter.
17. When it comes to the middle rail you must also do the same to the opposite side.
18. Scribe 45° mitre on work where instructed by the drawing.
19. Clear waist material for the high and low shoulders to fit snug.
20. Place work on the multi borer keeping in mind the bottom fence is the end of your work.
21. Place mitre block at the scribe line and pare gently with a sharp chisel using 45° block for a guide to the rebate line.
22. Dry fit in slash clamps keeping the fame square, straight, level and within the dimensions required at start, (500 x 350mm).
23. Take apart and sand thoroughly using sanding block and glass grit paper starting with the rougher one 1 ½ moving on to 1 and finish sand for a glass finish 00.
24. Once sanded glue up using the minimum amount of glue as it oozes out and hard to clean off properly when done.
25. Make sure the frame is square, level and within dimensions before leaving it to dry.
26. When dry take out of clamps and cut of remaining waste using the table saw if possible.

Hand Tools Used

Mortice Gauge

Japanese Saw

Safety and Knowledge of the Japanese Saw

The Jap Saws cut on the pull stroke unlike the Western Saws, they cut on the push stroke. I always used the western saws until I came to college. I switched to using the Jap saw because it cuts faster also you get a cleaner cut from it because the teeth on the blade are much finer.

- The handle is extra-long for better work holding and accuracy.
- When cutting keep hand and fingers away from the blade.
- When nearing the end of a cut make sure you finish on the line. With the Jap saw, one extra pull could be fatal.

Chisels

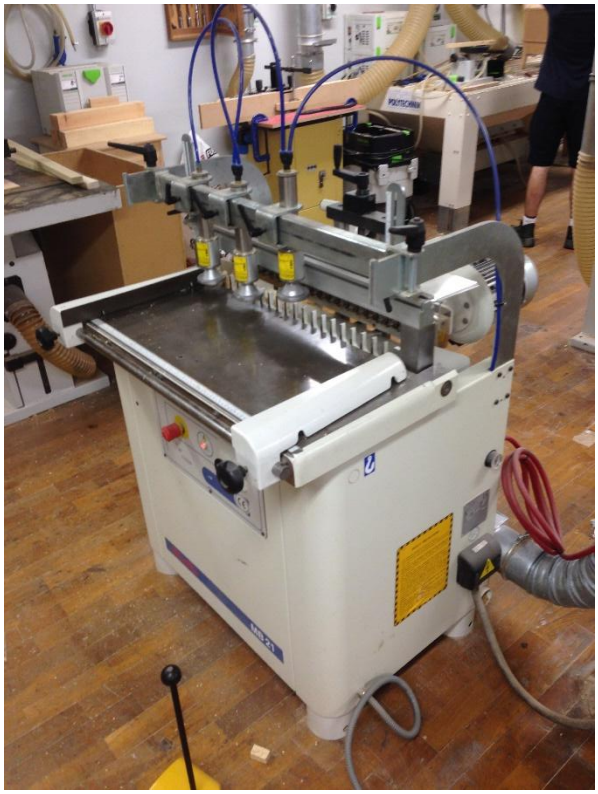
Safety and Knowledge on Chisels

- Keep hands behind cutting edge of chisel while working.
- When carrying around keep cutting edge by your side and pointing down.
- Never try to catch a falling chisel, let it fall.
- Keep them sharp because it's easier and faster to get work done.
- Average size chisel to work with would be the 16mm or 18mm.

Try Squares

Machines Used

Multi Borer



Safety and Knowledge on Multi Borer

- It was my first time using the multi Borer. I needed someone watching me just to make sure I did it right first time.
- When using the Borer, adjust the air clamps within 3-5mm height of work piece to avoid fingers from being clamped when in operation.
- If needing more pressure use waist board to push against fence as hands should not be in the path of bits in case the bits come fully through the piece due to operator's mistake in depth setting.
- I find this machine is the most complicated of them all in the machine room. A lot can go wrong very easily.

Mortice Machine

Safety and Knowledge on Mortice Machine

- Keep hands away from cutting chisel when turned on.
- If one has long hair or strings on a hoody, tie them up and tuck them up in case the object catches the gouge chisel and gets pulled in.
- Remove work when cutter ~~it~~ has completely stopped.
- When boring straight through flip over work and bore from the other direction to prevent cracking and splintering of job.
- When mortising hard woods e.g. maple repeat action pump of arm to prevent mortice chisel from overheating. Cut 2-3 millimetres, let cool down and repeat action until mortice is complete.

Spindle Moulder

Safety and Knowledge on Spindle Moulder

- Keep hands away from cutter when on.
- Before use make sure the guards are fully tightened or secure before use.
- Before cutting the job check cutter is set to the correct debt by running test piece through and checking after.
- Use guarding provided, also use a feather board and push stick for extra safety and accuracy.
- When work has passed the cutter put hand back on top of work to keep it against the fence.
- Before using make sure hair is tied up.
- Goggles must be worn when using the spindle and loose clothing should not be worn or tucked in.

Estimated & Actual Time Chart

Sequence	Estimated Time (min)	Real Time (min)
Inspection and selection of timber	2	7
Marking out	20	35
Cut all four tennons and cheeks	40	44
Mortice machine for four mortices	15	12
Dowling	5	9
Rebating five pieces	10	6
Mitring corners	20	30
Polishing and fitting tennon joints	20	13
Dry fit assembly	10	16
Sanding	60	73
Gluing	10	7
Drying	120	120
Cutting off excess waist	10	6
Final sand and finish	20	40
Total Timing	342 approx.	408 exact.
Timing difference	408 - 342 = 66 min.	

Reflection on Finished Project

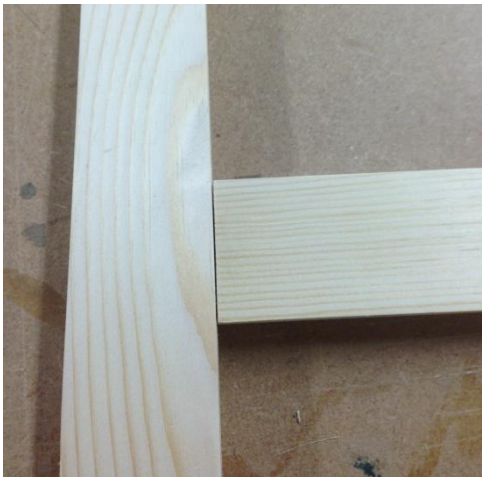
Reflection

When I look back over my sequence of events and time management I feel I should have allocated more time for my sanding and finishing. It is always important to have a good finish and feel to your finished work because a frame is supposed to be picked up and felt, my lecture say “the touchy feely stage”. Besides that I was very happy on the management of the timing I allocated myself. In the next assignment I will bring what I have learnt from this frame to make it better in any way possible.

There were a few little nagley things I wasn’t happy with in my finished project.

Picture 1.

Picture 2.



Picture 3.

- In picture No.1 it is the high and low shoulder. I wasn't happy with the finished presentation because it seems I rounded the corner when I was taking out waste while I was trying to fit the tennon. To overcome and to prevent this from happening in the future I will use a waist block as an anchor instead of the corner.
- In picture No. 2 the middle rail. I wasn't happy with the finished result of this tennon because it didn't close. When making it was fitting perfectly. I think when I was gluing up I might have switched it around by mistake. Next time I know to be more vigilant when on the final bits so I won't mess up with and I sore of a gap.
- In picture No.3 I was unhappy with the finished joint because I pared 1mm over with the mitre. If doing mitres in the next project or any time in the future I will keep checking if its snug every few pairs.

- Also cutting waist with Jap saw I cut too far down. When using the Jap saw again if I think I need to cut small little bit more, I don't.

Pictures during construction