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**School of Arts (NSW)**

**TECH107 Design Issues in Timber**

# OPERATION SHEET

**Student Name: Harry Sahota**

**Date: 20th October**

**Component Name: Storage Box**

**Material / Size: 1 of 600x140x 12. Ply wood for base**

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| **OPERATIONNUMBER** | **NAME OF OPERATION** | **MACH TOOL** | **CUTTING TOOL** | **SPEED** | **FEED** | **DEPTH OF CUT** | **REMARKS** |
| 10 | Marking out timber to cut | -pencil  -rule  -tri square | n/a | n/a | n/a | n/a | Using the rule, I measured the lengths of timber I needed with the rule, making marks with the pencil leaving 2mm gap in-between for Tenon saw width. Once marks have been made use the tri square to make straight lines. |
| 20 | Cutting timber | -bench hook  -vice | -Tenon saw | Fast hand | Hand | 12mm for frame  6mm for ply | With the bench hook secure the timber in firmly. Cut down the 2mm gap left prior. |
| 30 | Trim timber |  | -disk sander | 1420rpm | Hand | <1mm | Sand off timber until reaching the line first marked. May not be needed on all pieces |
| 40 | Marking rebate | -pencil  -rule  -marking gauge | n/a | n/a | n/a | n/a | Using the rule set the marking gauge to 12mm and mark around the faces and edges of the piece of timber getting the rebate (at both ends). Next set the marking gauge to 4mm. Mark down the end of the timber (both ends) |
| 50 | Cutting rebate | -vice  -mallet  -bench hook | -Tenon saw  -bevelled edge chisel | Fast/slow hand | Hand | 4mm into face  12mm into end | Place timber into bench hook and cut into the face of the timber 4mm at the 12mm markings. Next place timber into the vice with the rebate end which is being worked on facing the ceiling. Chip away into the end with the chisel until reaching the 4mm mark. Clean up with sand paper. Repeat on other side. |
| 60 | Mark mitre | -combination square  -pencil | n/a | n/a | n/a | n/a | With the 45-degree angle on the combination square mark the 45 degree angles on the tops of the timber. |
| 70 | Cutting mitre |  | -adjustable mitre box with Tenon saw | Medium hand | Hand | -32mm | Set up adjustable mitre box at 45 degrees. Secure marked timber in place. Hold timber firmly with ‘off hand’. Cut using the Tenon saw ensuring cuts are in line. Repeat on all 4 pieces requiring the mitre. |
| 80 | Rebate for plywood base | -vice  -rule | -rebate plane | Medium hand | Hand | -8mm | Secure timber in vice with ends to be planed facing away from the table. Set up the plane correctly using the rule to 8mm down and 6mm in. stroke plane going with the grain just like using a regular jack plane. |
| 90 | Housing joint for divider | -vice  -bench hook  -tri square  -mallet | -Tenon saw  -bevelled edge thin chisel | Fast hand | Hand | 5mm | Mark housing on front and back pieces. Using a rule and tri square. Place bench hook in vice and then place piece being worked on in the bench hook. Cut down the two edges of the marks for the housing joint until reaching the 5mm line. Then place timber in vice with the housing joint vertical. Chisel down the marking until half way. Then flip over and continue from other side. Only going half way ensures the other end of the timber does not snap off excessively |
| 100 | Cut out base | -rule  -pencil  -tri square | -bandsaw | 2840rpm | Hand | 6mm | Using the rule measure the base space on the box. Using these measurements mark the base and cut on the bandsaw. |
| 110 | Dry clamp | -Picture frame clamp  -rule | n/a | n/a | n/a | n/a | Dry clamp all sides of the box, divider and base. Ensuring square. Measuring corners |
| 120 | Prepare lid | -rule  -tri square | -disk sander | 1420rpm | Hand | <1mm | Measure box as it is dry clamped to see exactly what size lid is needed. After measurements it was recorded that less than 1mm had to be taken off to ensure lid was the the same dimensions as the top of the box |
| 130 | Sand all pieces which will be inside facing | -sandpaper (80,120,240)  -sanding block | n/a | Fast hand | Hand | n/a | Sand all pieces which will be glued facing inside the box. These will be much harder to sand and will endure less damage until the finishing process. |
| 140 | Glue frame, divider and base | -picture frame clamp  -quick grip  -scrap wood  -Pva glue  -rags | n/a | n/a | n/a | n/a | Set up clamps to be used and organise which joints need clamping. Lubricate joints with glue and spread with fingers ensuring the corners are covered. Tighten picture frame clamp and then check for square. Using quick grip tighten rebate and housing joint. Wipe excess glue with a rag. Check for square once again. |
| 150 | Attach butt hinge | -pencil  -rule  -centre punch  -marking gauge  -5mm screws  -PH1 driver | -cordless drill |  | hand | 5mm | Mark out position of the hinge with combination of marking gauge and rule. Pre drill holes for screws on both lid and base. Line up hinge and insert screws with screw driver. Open and close to test if closing correctly. |
| 160 | Sand entire box | -sandpaper (80,120,180,240)  -sanding block | n/a | Fast hand | Hand | n/a | Sand box thoroughly ensuring all scratches are removed by using the finer grade paper. Remove all glue. |
| 170 | Oil | -Scandinavian oil  -clean rag | n/a | n/a | n/a | n/a | Apply oil to entire box with the rag ensuring no spots are left behind. Set to dry |

**General Comments:** I am quite happy with the result of my project. It has shown my level of woodworking effectively.