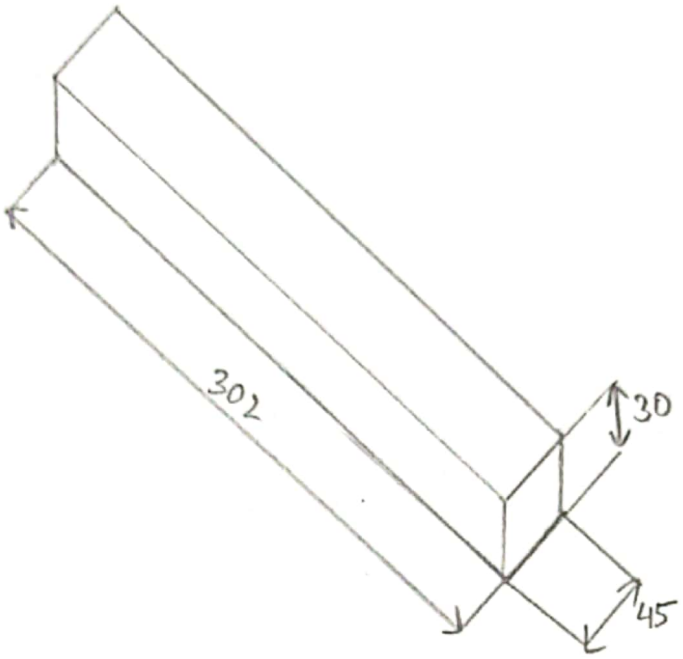
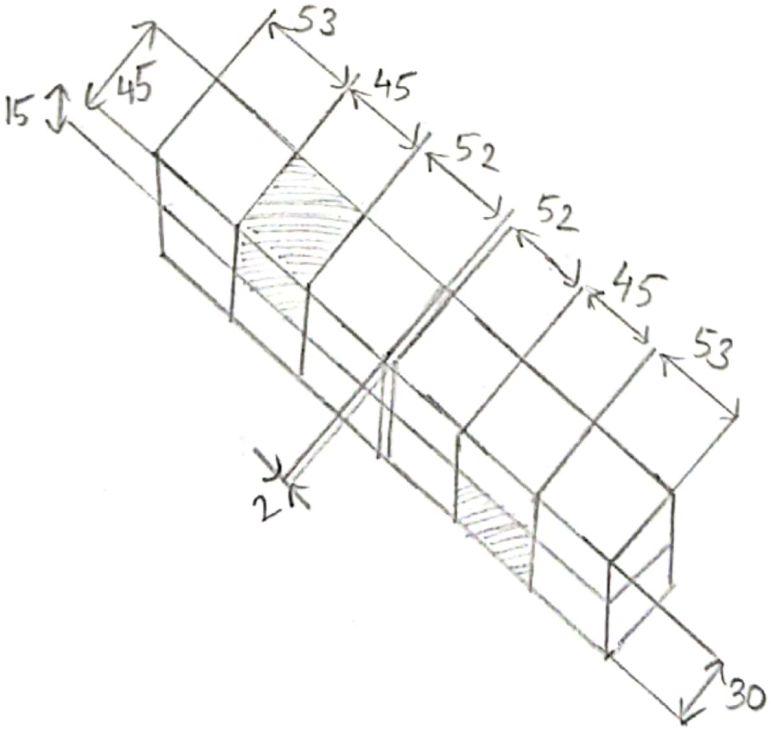
DATE: 8.10.21

# CROSS HALVING JOINT

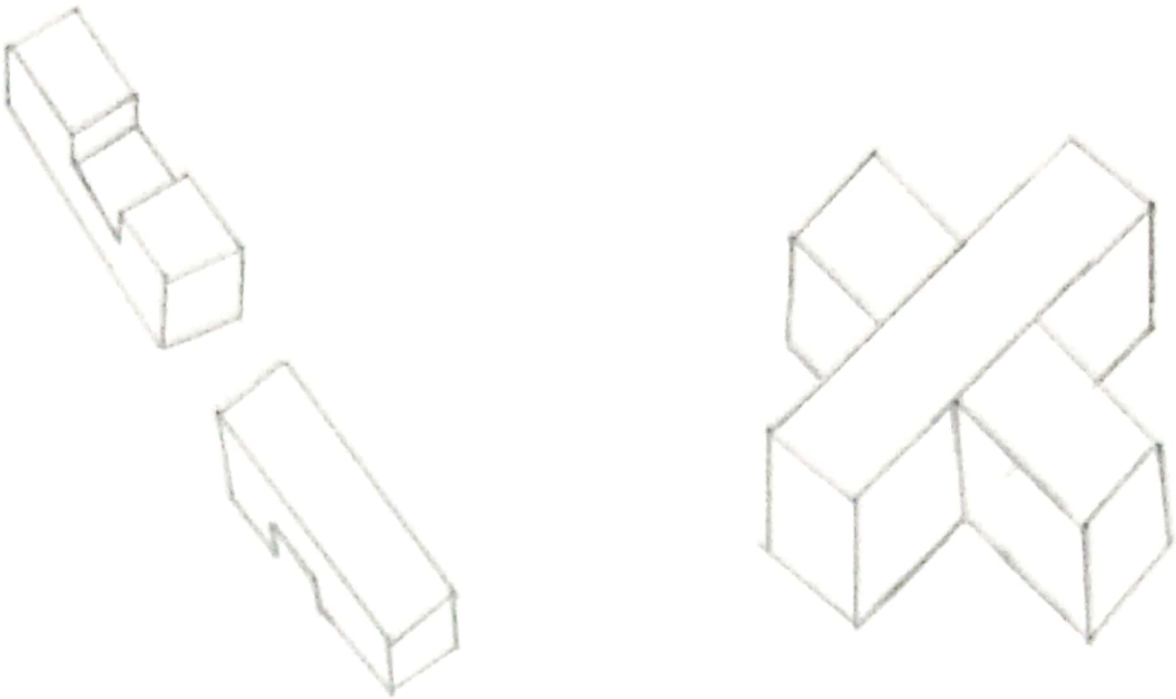
(1) WORK PIECE




(2) UNWANTED PORTION MARKING



(3) ASSEMBLED WORK PIECE



ALL DIMENSIONS ARE IN MM.

★ **AIM:**

To produce a cross halving joint from the given work piece.

★ **APPLICATION:**

Cross bars in a cot, Shelves, Frames for cheap flush panel doors.

★ **MATERIAL SPECIFICATIONS:**

Venteek wood of size 302 X 45 X 30 mm.

★ **TOOLS REQUIRED:**

(1) Pencil (2) Steel Rule (3) Try Square (4) Marking gauge (5) Hand saw (6) Firmer chisel (7) Mortise chisel (8) Wooden mallet (9) Rasp.

★ **SEQUENCE OF OPERATION:**

(1) Preparing (2) Marking (3) Cutting / Sawing / Chiseling (4) Finishing.

★ WORKING STEPS:

(1) Preparing:

→ Prepare the work piece as described in a length of 302 mm, width 45 mm, thickness 30 mm.

(2) Marking:

→ Using a try square and pencil, first mark from right side of the work piece with distance of 53 mm then 45 mm and 52 mm.

→ Again draw 2mm line given for cutting clearance.

→ Mark again from left side of work piece at same distance for right side.

→ Using marking gauge draw the center line 15 mm face edge for both side.

→ The intersecting portion to be marked on the 45 mm face side and 15 mm face edge, on one side top another side bottom.

(3) Cutting / Sawing / Chiseling:

→ Carpentry bench vice, hold the piece horizontally and tightly in a vice such that the portion to be cut is just above the jaw. Use firmer chisel, to make groove on first and second marking right side 53 mm, 45 mm & 52 mm.

→ Then take the work piece and place them on the right side of bench vice then use the hand saw up to 15 mm depth on both lines.

→ As per same procedure for another side do it.

→ Before chiseling hold the piece horizontally and tightly in a vice such that the portion to be is just above the jaw.

→ Now using a firmer chisel take series of cuts to remove the wood up to the bottom line, as shown in figure.

(4) Finishing:

→ Take a series of small cut delicately on both the pieces to remove the excess wood.
→ Make it smooth with rasp.
→ Obtain a fine finish of the top and bottom side.
→ Then to be cut wooden piece middle of 2mm.
→ Assemble joint and clean off waste.

★ PRE AND POST LAB QUESTIONS:

Q1. Define Carpentry.

Ans= Carpentry is a skilled trade and a craft in which the primary work performed is the cutting, shaping and installation of building materials during the construction of buildings, etc.

Q2. What are the types of wood used in carpentry?

Ans= (1) Teak wood.
(2) Sal wood.
(3) Ply wood.
(4) Nona-Pan wood / MDF.
(5) Rubber wood.
(6) Venteek wood.

Q3. How do you classify hand tools?

Ans= Hand tools can be divided into:
(1) Layout out tools.
(2) Impact or striking tools.
(3) Twisting tools or fastening tools
(4) Woodcutting tools.
(5) Metal cutting tools
(6) Holding tools
(7) Safety equipment.
(8) Grinding and Sharpening tools.
(9) Finishing tools

Q8. Q4. What is holding tools in carpentry?

Ans Ans = (1) Work Bench
(2) Carpenter Vice
(3) Clamps
Q9 (4) Screwdriver
Ans (5) Tape measure

Q5. Why are hacksaw blades made with different sized teeth?

Ans = Different sized teeth provide varying levels of cutting power. Large blades with fewer teeth are better suited to tough materials, while smaller blades with a greater number of teeth are designed for finer work.

Q11
Ans Q6. How can flatness be tested?

Ans = Methods for flatness testing:
(1) Using two footed twisted gauge
(2) Spirit Level Method.
(3) Auto collimator.
(4) Beam comparator.
(5) Laser Beam
(6) Comparing with liquid surface.
(7) Interference method.

Q7. What tools are needed for framing?

Ans = (1) Storage space
(2) Toolboxes
(3) Tool belt
(4) Hammer
(5) Tape measure
(6) Utility knife
(7) Squares
(8) Level
(9) Chisel
(10) Carpenter's Pencil
(11) Cat's paw

Q8. Why use mallet?

Ans= Wooden mallets are usually used in carpentry to knock wooden pieces together or to drive dowels or chisels.

Q9. How do you cut a cross halving joint?

Ans= Prepare material to size, square or rectangular in section as required. Make a pair of knife lines all the way round each piece. Set a marking gauge to half the thickness of the wood. Gauge a line along the edges between the knife lines on each piece. Reinforce initial knife line cuts on waste areas.

Q10. What is the cutting angle of a chisel?

Ans= The chisels are factory delivered with a cutting edge angle of 25°. This angle is suitable for soft to medium hard wood.

★ RESULT:

The cross halving joint produced from the given work piece, is and assembled joint was submitted for evaluation.