



S&C Code: S&C005

S&C Type: Individual

S&C Title: The Hangman

Rating: Medium/Difficult



**STRETCH &
CHALLENGE!**

STRETCH & CHALLENGE!

This end-of-year Stretch & Challenge event is designed to push your carpentry and joinery skills further than ever before. Throughout the course you've built confidence with tools, techniques, and teamwork — now it's time to put those abilities to the test in a series of fun, hands-on challenges.

You'll work both individually and as part of a team to produce accurate joints, solve practical problems, and demonstrate the craftsmanship you've developed this year. Each task is designed to stretch your precision, creativity, communication, and professional standards, giving you a taste of the expectations found in real workshop environments.

This is your chance to show what you can do, challenge yourself, and take pride in the progress you've made. Let's see your best work.

AIM:

To set out, fabricate, and assemble a structurally sound gallows bracket that demonstrates advanced understanding of marking out, joint accuracy, load paths, and safe construction techniques.

LEARNING OBJECTIVES:

By the end of this activity, learners will be able to:

- Accurately mark out timber components using industry-standard methods.
- Select appropriate joints and fixings for a load-bearing bracket.
- Demonstrate safe and efficient use of hand and power tools.
- Assemble a gallows bracket that meets dimensional tolerances and structural expectations.
- Evaluate the quality, accuracy, and stability of their finished bracket.
- Apply problem-solving strategies to overcome construction challenges.

ACTIVITY OVERVIEW:

Learners will construct a gallows bracket using a combination of angled braces, vertical supports, and horizontal members. The task requires precise measurement, cutting accuracy, and correct joint selection. Learners must consider load transfer, fixing methods, and the structural purpose of the bracket. This stretch-and-challenge activity encourages independent decision-making, advanced craftsmanship, and reflective evaluation.

WHY?:

This activity deepens understanding of:

- **Structural principles:** Learners explore compression, tension, and triangulation.
- **Accuracy and tolerance:** The bracket's geometry demands precise marking out and cutting.
- **Real-world application:** Gallows brackets are used in roofing, porches, signage, and architectural features.
- **Independent problem-solving:** Learners must make informed decisions about joints, fixings, and sequencing.
- **Craftsmanship:** The task reinforces professional standards in timber construction.

STUDENT INSTRUCTIONS:

1. Review the design brief and sketch your intended bracket layout.
2. Identify the dimensions required for each component.
3. Select appropriate timber sections and check for defects.
4. Mark out all components using square, bevel, tape, and marking gauge.
5. Cut components accurately, maintaining clean edges and correct angles.
6. Choose suitable joints (e.g., halving joint, housed joint, lap joint) and prepare them.
7. Dry-fit the assembly to check alignment and tolerances.
8. Fix components using screws, bolts, or coach screws as appropriate.
9. Check the bracket for squareness, rigidity, and finish quality.
10. Complete a self-evaluation identifying strengths and areas for improvement.

LECTURER INSTRUCTIONS:

- Introduce the structural purpose of gallows brackets and show examples.
- Demonstrate marking out for angled braces and halving joints.
- Provide guidance on safe tool use, especially mitre saws and chisels.
- Circulate during the activity to challenge learners' decision-making.
- Ask probing questions about joint choice, load paths, and fixing methods.
- Provide targeted feedback during dry-fit and final assembly stages.
- Facilitate a reflective discussion at the end of the session.

SCAFFOLDING OPPORTUNITIES:

- Provide pre-cut templates for learners who need support with angles.
- Offer simplified joint options for learners developing confidence.
- Supply visual guides showing correct joint geometry.
- Allow learners to work in pairs for marking out before progressing independently.
- Provide a partially completed bracket for comparison and modelling.

DIFFERENTIATION STRATEGIES:

For learners needing support:

- Reduce the number of joints required.
- Provide step-by-step marking-out sheets.
- Allow additional time for cutting and assembly.
- Offer guided tool-use demonstrations.

For high-achieving learners:

- Require tighter tolerances (e.g., ± 1 mm).
- Introduce decorative chamfers or housing details.
- Ask learners to justify joint selection in writing.
- Challenge them to design a bracket capable of supporting a specific load.

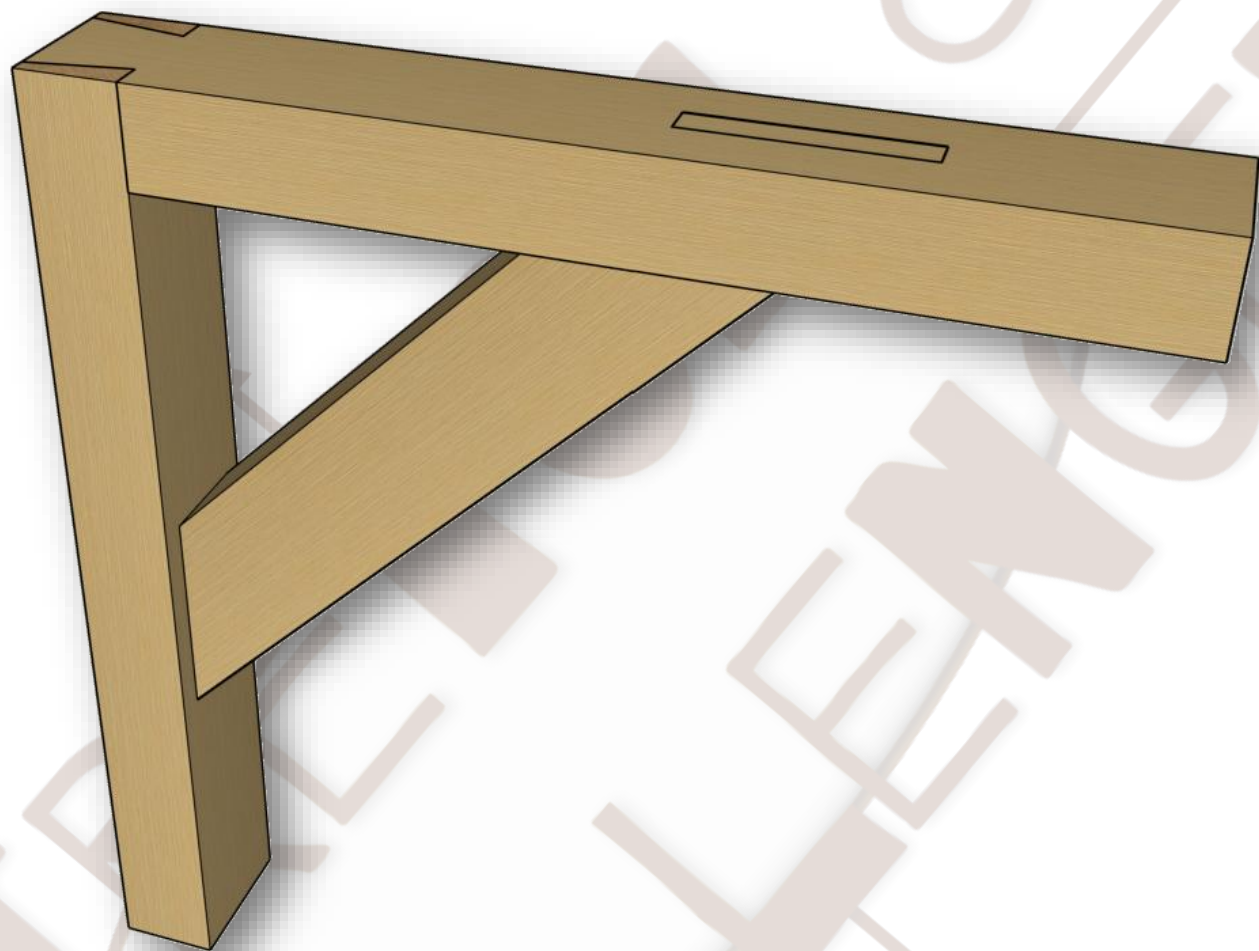
ASSESSMENT OPPORTUNITIES:

Formative:

- Observation of marking out accuracy.
- Tool-use competency checks.
- Quality of joints during dry-fit.
- Learner explanations of design choices.

Summative:

- Completed gallows bracket meets dimensional tolerances.
- Structural stability and rigidity.
- Quality of finish and craftsmanship.
- Written or verbal evaluation demonstrating understanding of structural principles.

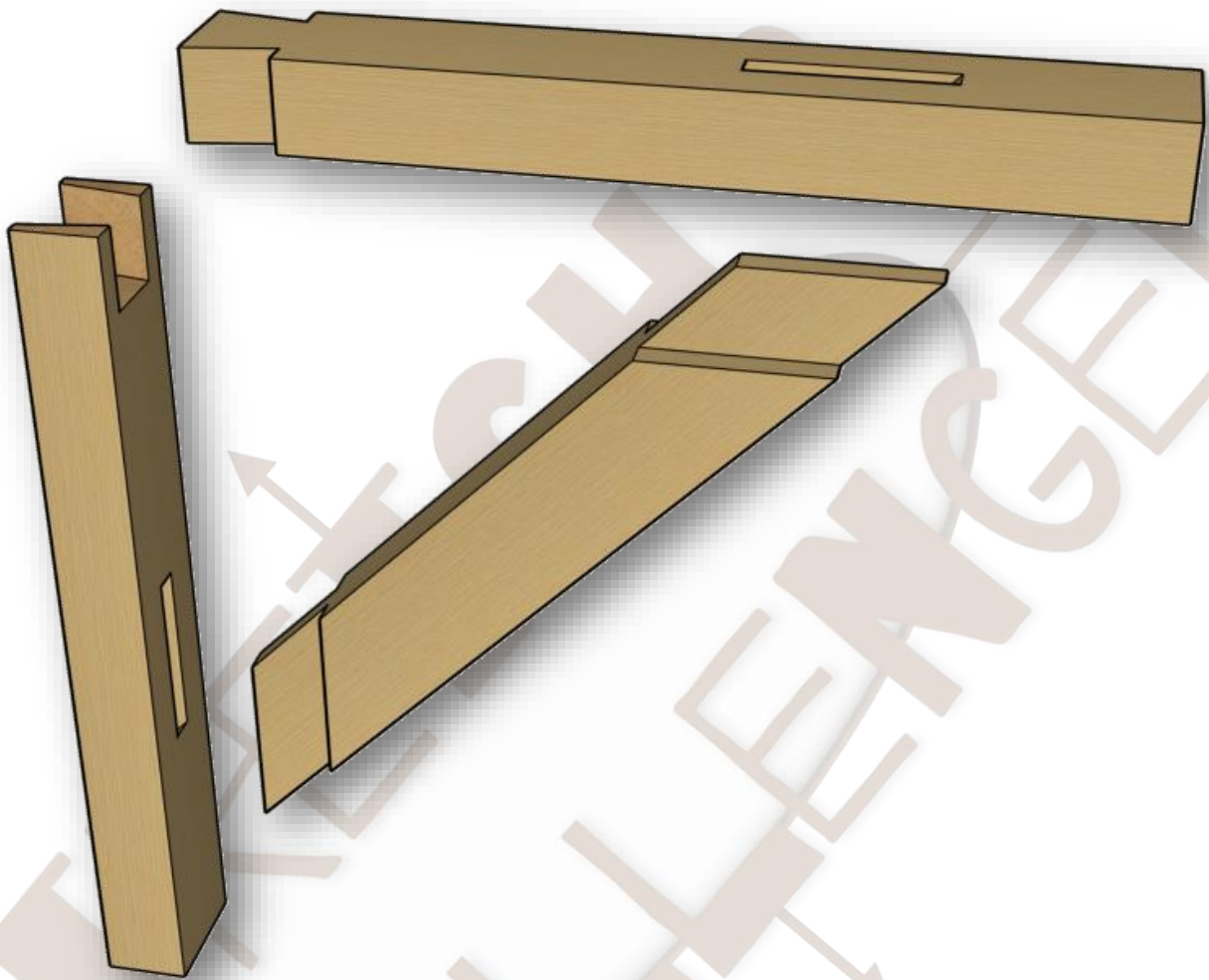


S&C005: The Hangman

STRETCH & CHALLENGE!	Stretch & Challenge.
	Educon
	Scale: none.
	Drawing No.005.
S&C005	James Rix.
Date12/08/2026.	

Gallows Bracket.

Exploded View.

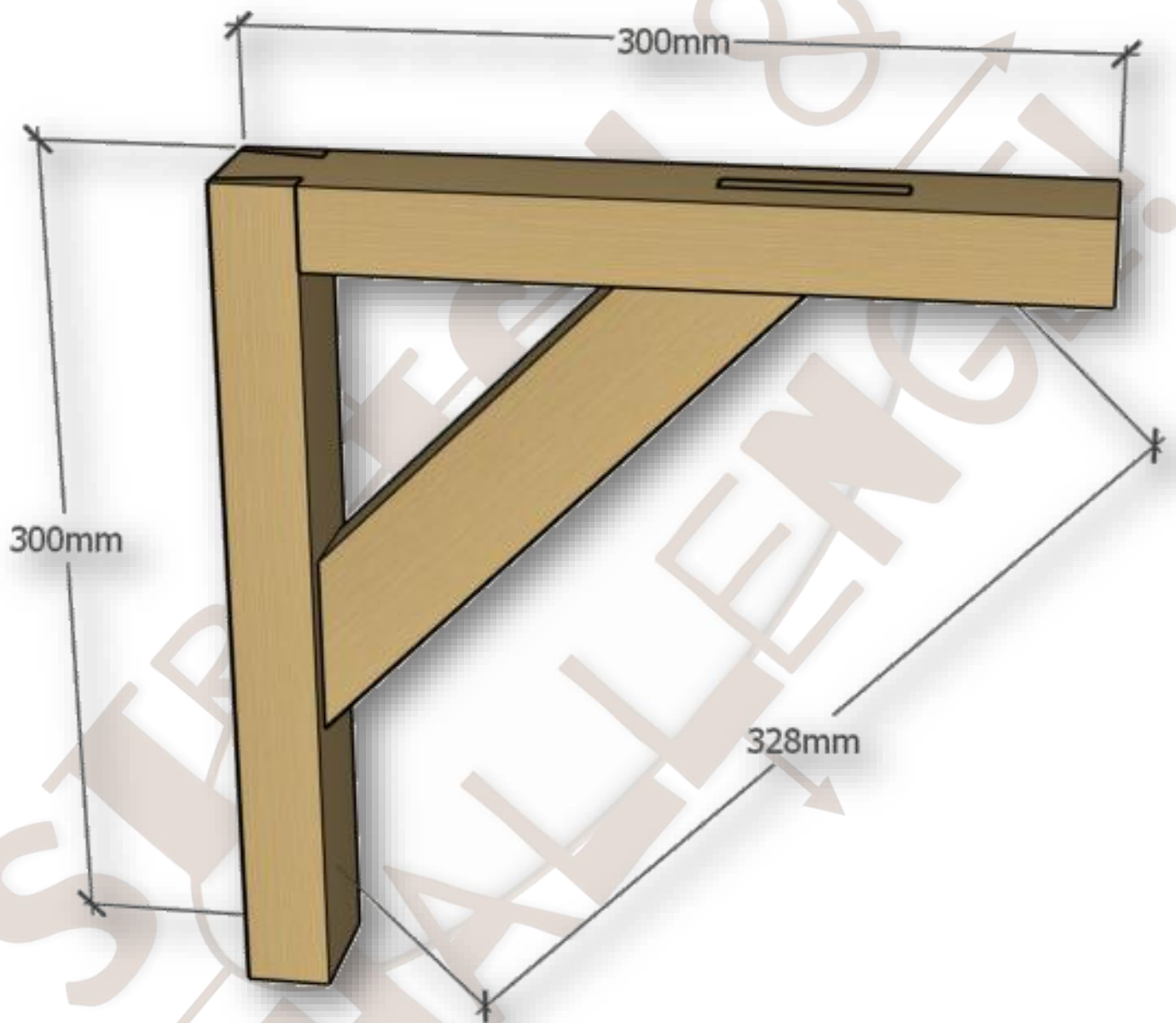


A **gallows bracket** is a triangular timber support used to carry loads projecting from a wall, such as small roofs, porches, or signs. It typically consists of a horizontal beam, a vertical back plate, and an angled brace forming a rigid triangle. The design demonstrates key principles of structural stability—transferring weight efficiently through compression and tension. Constructing a gallows bracket helps learners apply geometry, joint accuracy, and fixing techniques while understanding how simple timber frameworks can achieve strong, durable support in real-world building applications.



T Halving Joint.

Overall Dimensions.



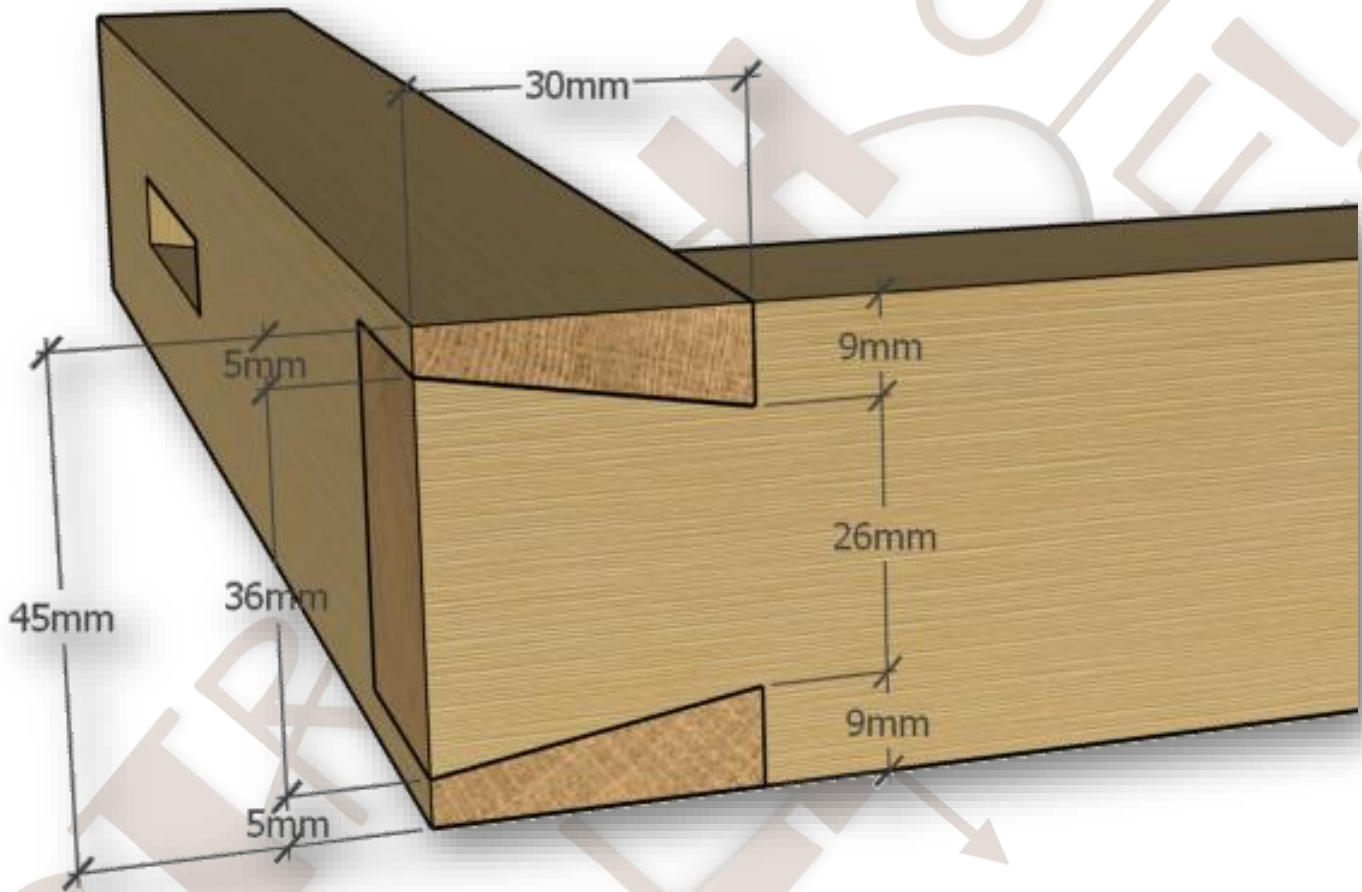
Cutting List.

Component	Length	Width	Thick	Qty
Vertical Plate	300	45	30	1
Horizontal Arm	300	45	30	1
Brace	328	45	30	1



Dovetail Joint.

Joint Dimensions.



Correct
Angle of
Dovetail.

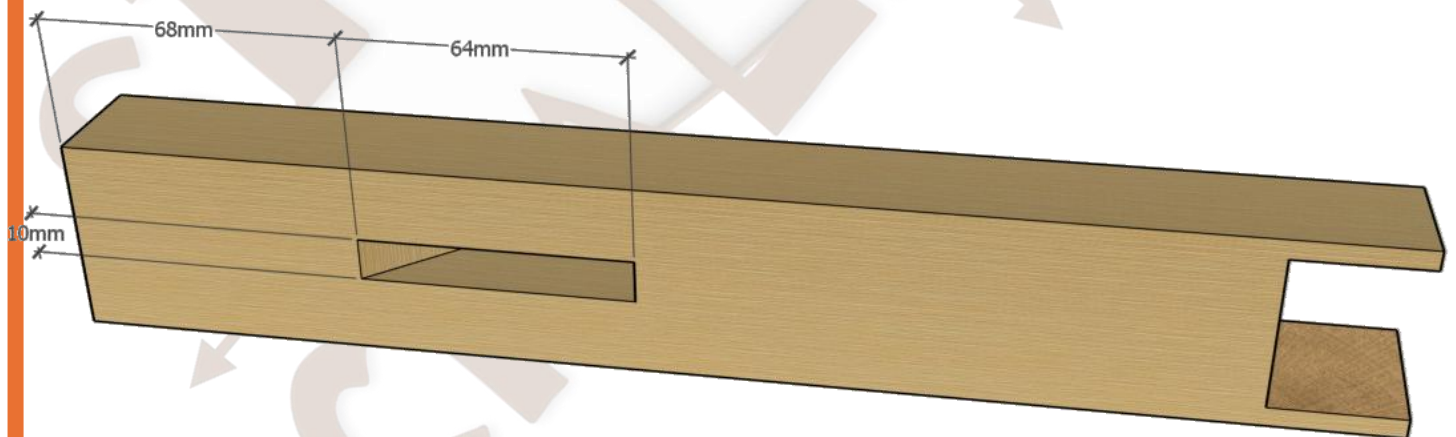
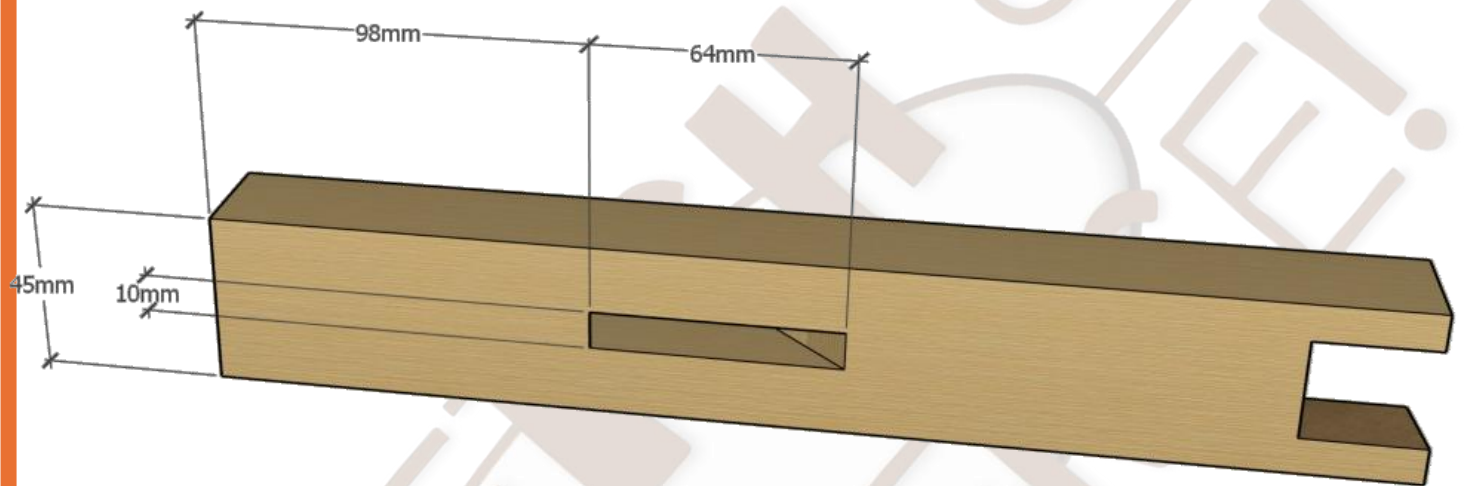
6 units

1 unit



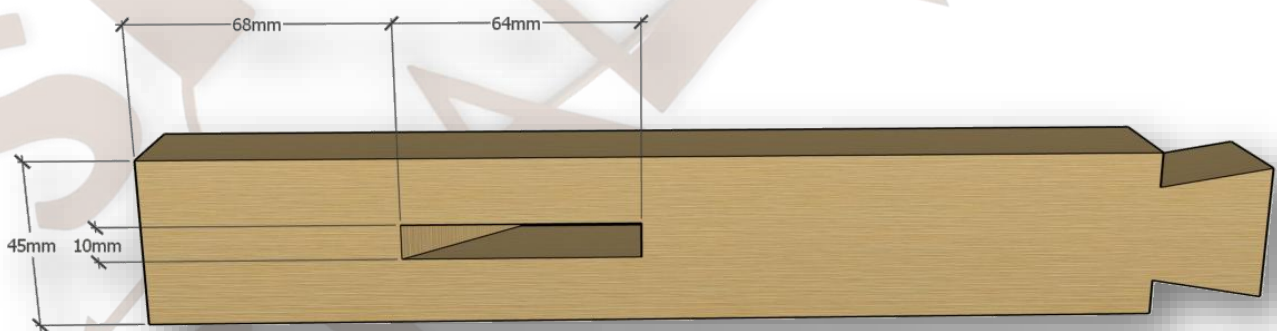
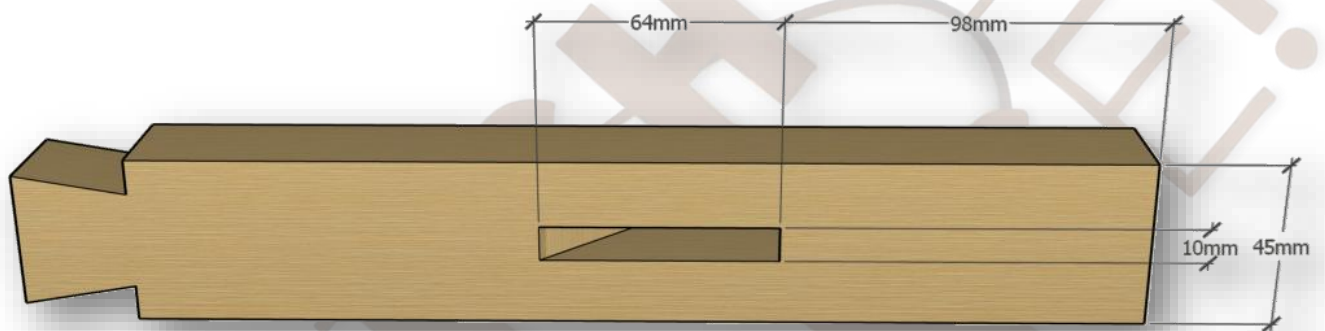
Mortice – Vertical Plate.

Joint Dimensions.



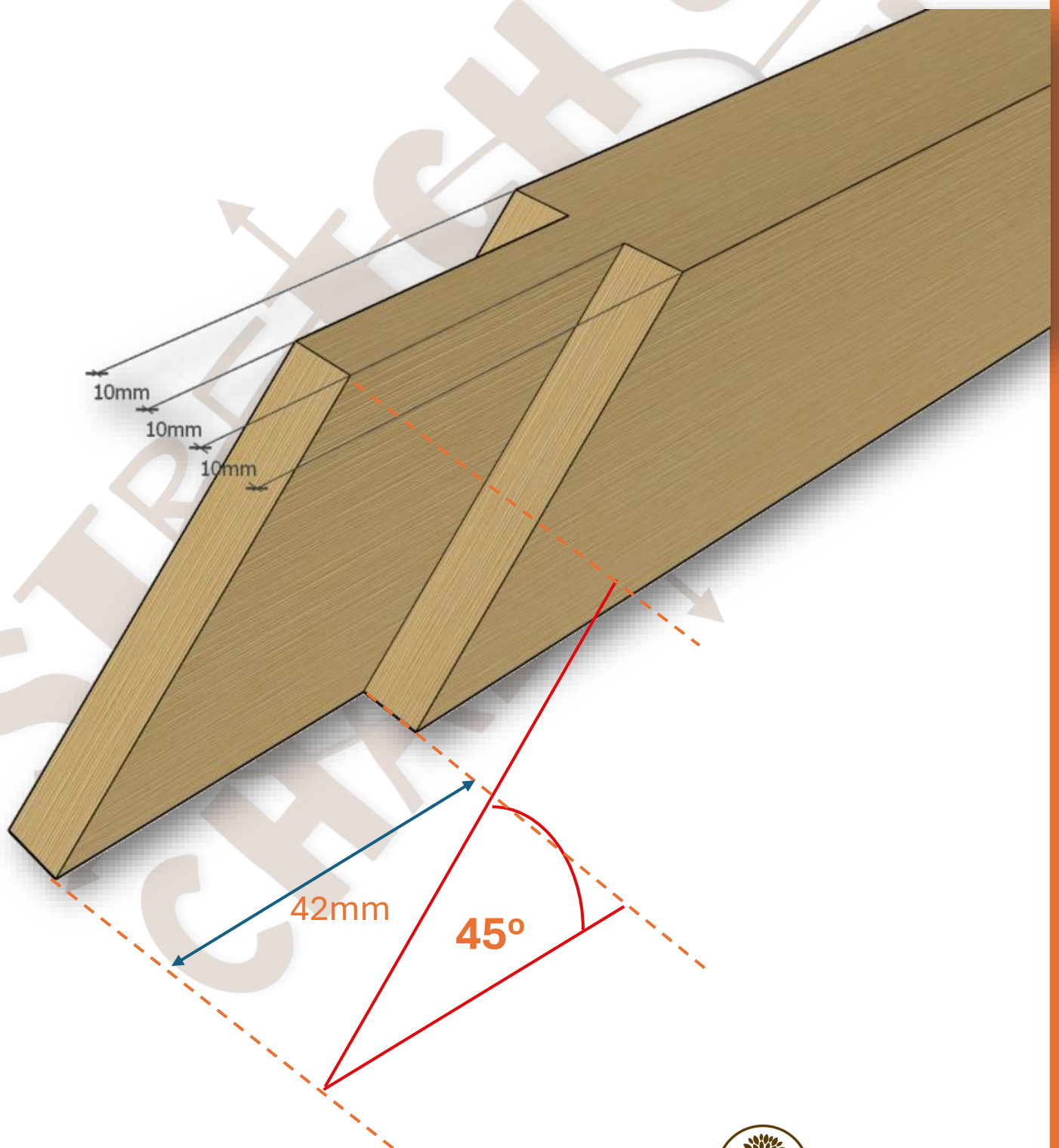
Mortice – Horizontal Arm.

Joint Dimensions.



Tenon Joint.

Joint Dimensions.



Marking Criteria.

Dimensional Accuracy. Any task over the specified tolerance must be repeated.	Achieved	
	Yes	No
Finished Width (+/-2mm)		
Finished Height (+/-2mm)		
Face side and Edge Square (+/-1mm)		
Angled Mortice & Tenon Joints fit cleanly without gaps		
Tutor Feedback.		
Tutor Signature		Date

