CARPENTRY SHOP

Introduction

In carpentry we deal with different types of wood or timber, use of various woods working tools and machines and making different types of joints for assembly two or more pieces of wood.

Wood and Timber

Wood is a forest product whereas timber is a general name given to that wood which is good and suitable for engineering and building purposes.

Seasoning of Wood

It is done to remove unwanted or extra moisture from the wood to get rid of its sap, presence of which results in shrinkage or splitting most seasoned wood have moisture reduced to above 12%.

Advantage of Wood Seasoning

a) Harder, stronger and desirable wood
b) Increased resistance to impact load and stress
c) Reduced wood density but increased workability
d) Improved fine resistance and better polish taking capability

Method of Wood Seasoning

- Natural or air seasoning
- Artificial or kiln seasoning
- Water seasoning
- Electrical seasoning

Defects in Wood

There are mainly two types of defects found in wood

a) **Natural Defects**: some defects in wood come due to abnormality during its growth as knots, hollow, spiral grains and shakes.
b) **Conservation Defects**: some defects are also found in wood due to lack of proper maintenance during preservation of wood as shake, distortion and defects due to fungi and insects.

Carpentry Tools

The tools used in carpentry shop may be generally classified into following types

A. Measuring and Marking Tools

a) Folding wooden scale
b) Steel scale
c) Try square
d) Bevel square
e) Scriber
f) Marking knife
g) Marking gauge
h) Mortise gauge

B. Holding/Supporting Tools

a) Carpentry vice
b) Bar clamp-sash clamp
c) C – clamp
d) Bench hook

C. Cutting Tools

a) Saws (rip saw, cross saw, tenon saw, dovetail saw, compass saw)
b) Chisels (firmer chisel, dovetail chisel, mortise chisel, socket chisel)
c) Gauge (inside curve gauge, outside curved gauge)

D. Finishing Tools

Planers (wooden planer, iron planer)

Carpentry Joints

a) Butt joint
b) Miter joint
c) Lap joint
d) Mortise and Tenon joint
e) Bridle joint
f) Dovetail joint

Preparations Involved in Carpentry Shop

a) Measuring and marking
b) Sawing
c) Chiseling
d) Drilling /boring
e) Turning
f) Planning/finishing

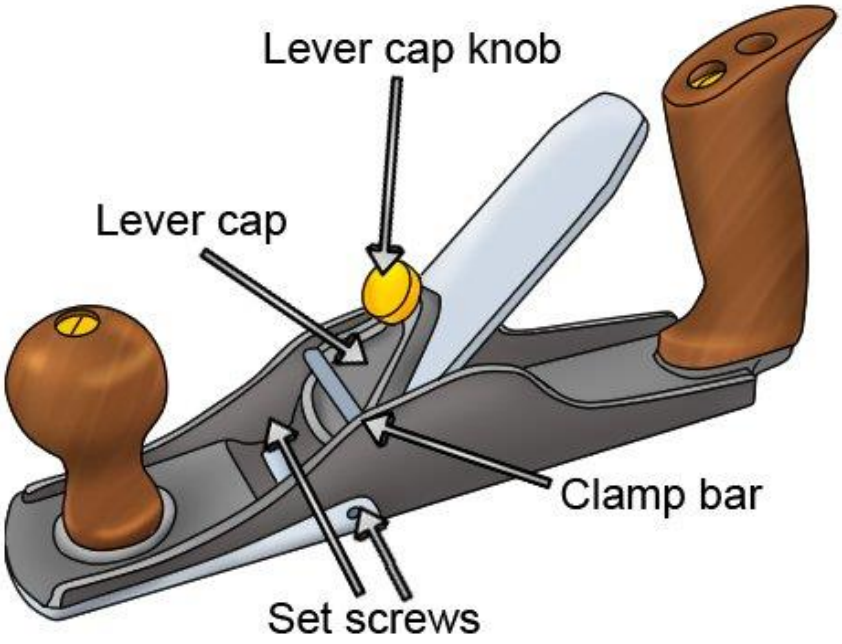


Fig.1: Metal Jack Plane

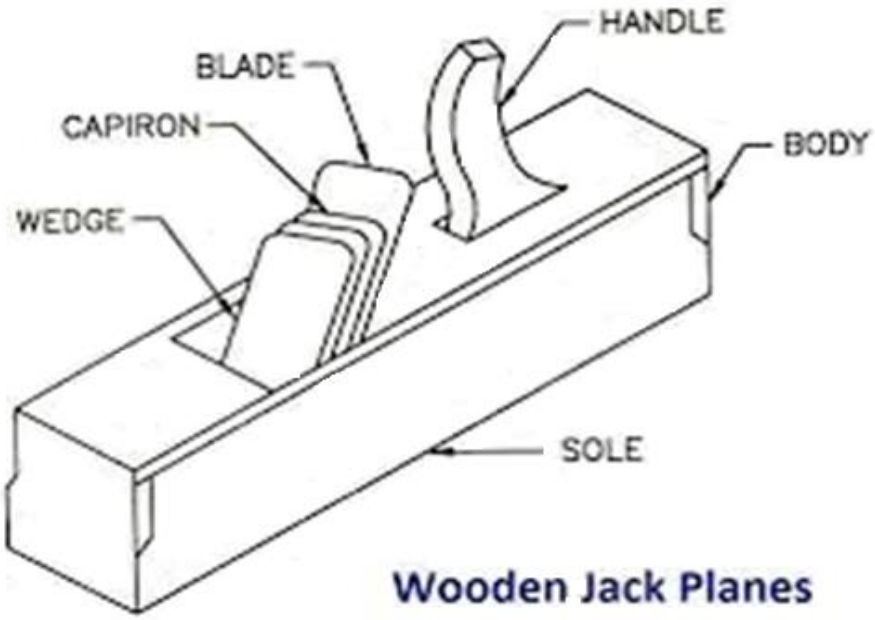


Fig. 2: Wooden Jack Plane

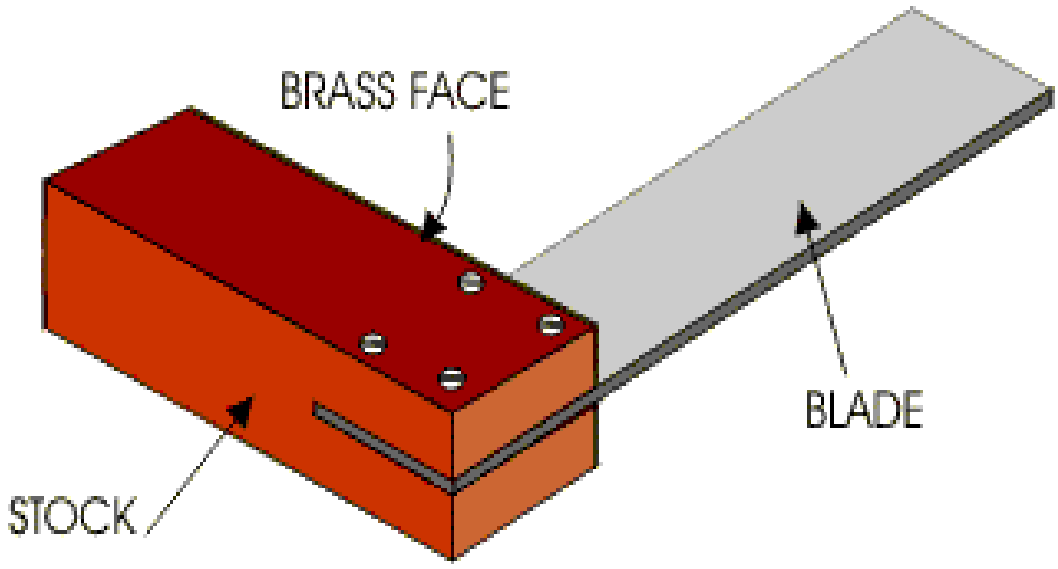
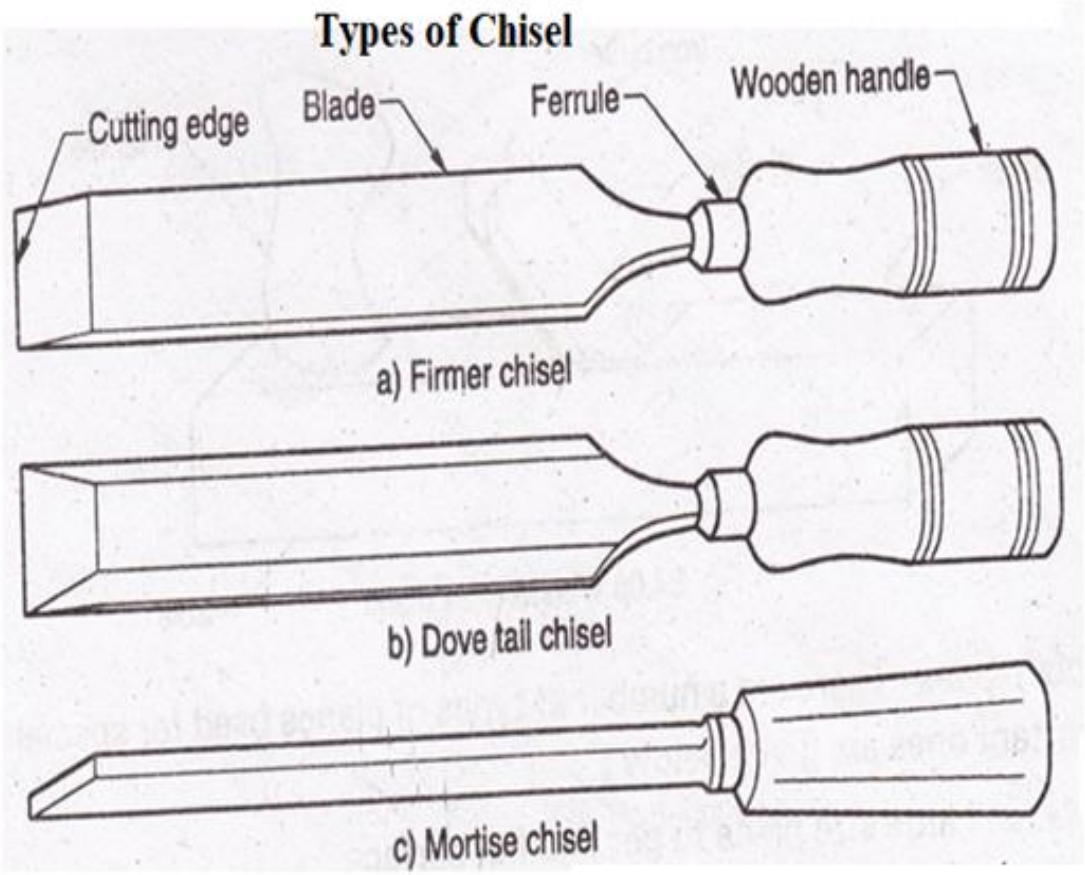
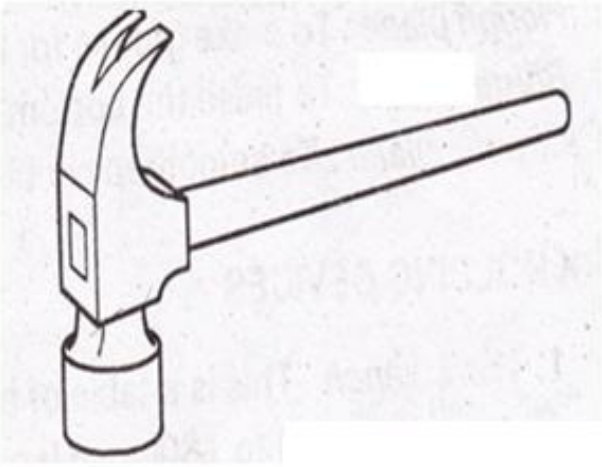


Fig. 3: Try Square

Fig. 4: Firmer Chisel





Claw Hammer

Fig. 5: Types of Chisel & Hammer

Fig. 6: Rasp File

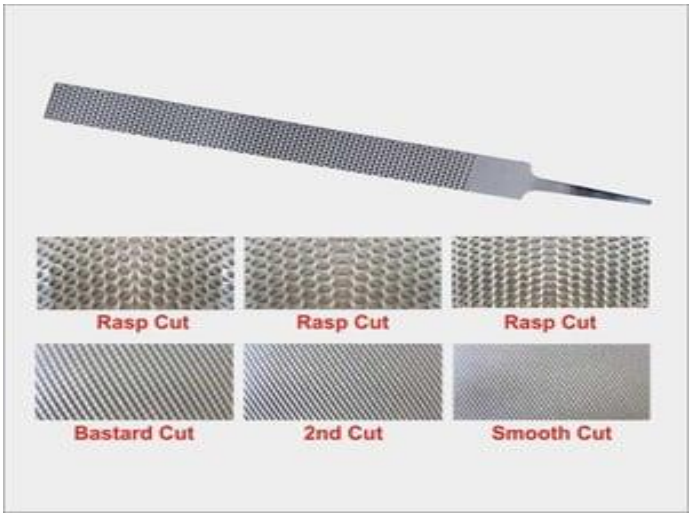


Fig. 7: Types of Cut

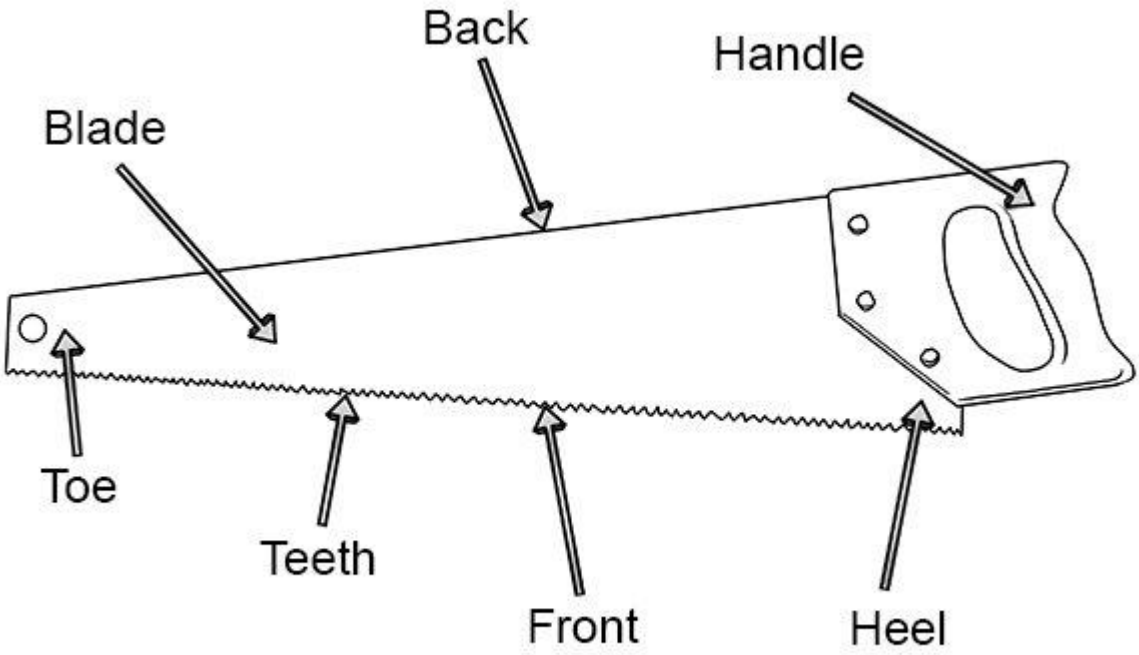


Fig. 7: Rip Saw

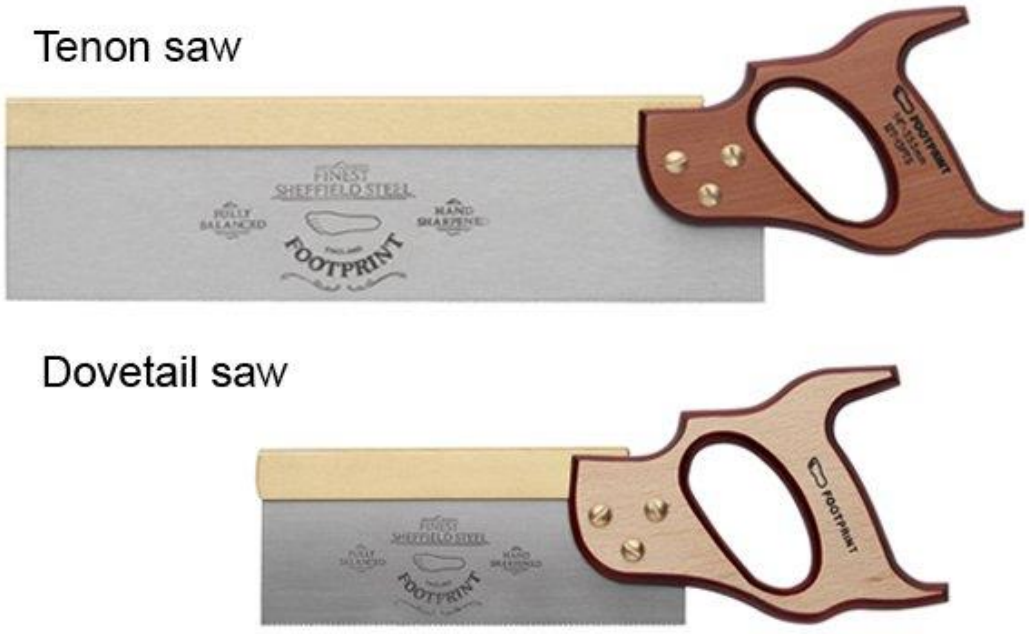


Fig. 8: Tenon Saw & Dovetail Saw

PRACTICAL NO. 1

OBJECTIVE

To make corner-lap/ center-lap joint using a wooden piece.

MATERIAL REQUIRED

Two wooden pieces of dimensions (45 X 35 X 150) mm.

TOOLS REQUIRED

1. Try square
2. Rip saw
3. Iron jack plane
4. Firmer chisel
5. Marking gauge
6. Rasp file

PROCEDURE

1. Hold the wooden pieces (300 mm in length) firmly in the carpentry bench vice and pain its sides using iron jack plane, till it becomes uniformly flat on checking with try square.
2. It is assumed that this plain side is the reference side and perpendicular to it checked with try square.
3. Taking two sides as the reference side, marking is done using gauge to make the remaining two sides of regular dimensions.
4. Cut 300 mm wooden piece in two equal lengths of 150 mm as required for lap joint, using rip saw.
5. Marking is carried out for lap joint and remove the surplus portion from both the pieces with the help of saw and chisels.
6. Assume both the parts according to the given drawing with the help of filling if required.

RESULT ANALYSIS: Changes in dimensions (length, width, dia., weight etc.).

LEARNING OUTCOMES: What did you learn in this practical.

APPLICATION: Where we can apply the knowledge gained in this practical.

SUGGESTIONS: If you have any suggestion related to this practical, please advise.

PRECAUTIONS

1. The job should be held firmly in carpentry bench.
2. Avoid over tightening of the wooden piece else it kills cause deformation in the piece.

3. All the tools must be properly sharpened.
4. Choose appropriate tools and procedure position to carry out the process.
5. While working on job, concentration should be maintained.

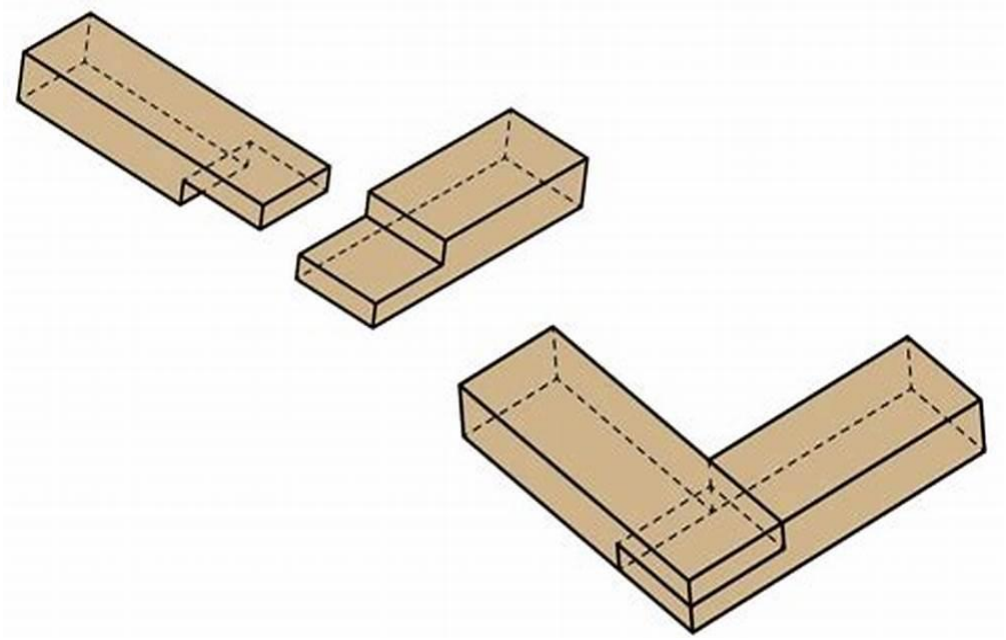


Fig. 9: Corner-lap Joint

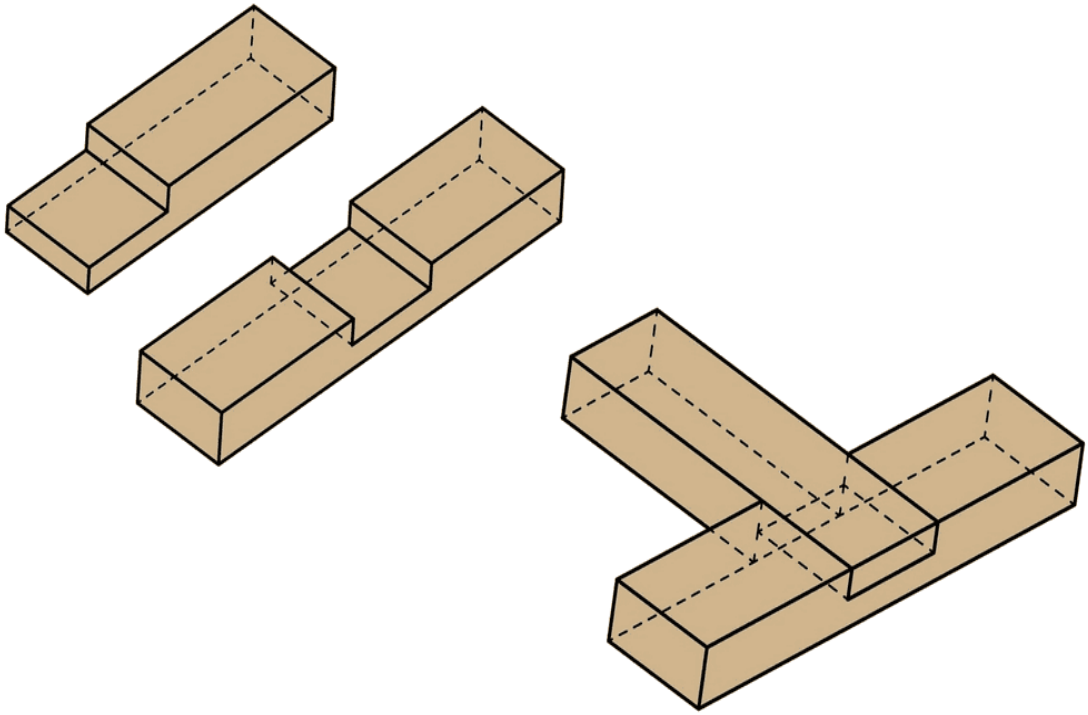


Fig. 10: Center-lap Joint

PRACTICAL NO. 2

OBJECTIVE

To make mortise and tenon joint using a wooden piece.

MATERIAL REQUIRED

Two wooden pieces of dimensions (45 X 35 X 150) mm.

TOOLS REQUIRED

1. Try square
2. Rip saw
3. Iron jack plane
4. Firmer chisel
5. Marking gauge
6. Rasp file

PROCEDURE

1. Hold the wooden pieces (300 mm in length) firmly in the carpentry bench vice and pain its sides using iron jack plane, till it becomes uniformly flat on checking with try square.
2. It is assumed that this plain side is the reference side and perpendicular to it checked with try square.
3. Taking two sides as the reference side, marking is done using gauge to make the remaining two sides of regular dimensions.
4. Cut 300 mm wooden piece in two equal lengths of 150 mm as required for mortise and tenon joint, using rip saw.
5. Marking is carried out for mortise and tenon joint and remove the surplus portion from both the pieces with the help of saw and chisels.
6. Assume both the parts according to the given drawing with the help of filling if required.

RESULT ANALYSIS: Changes in dimensions (length, width, dia, weight etc.).

LEARNING OUTCOMES: What did you learn in this practical.

APPLICATION: Where we can apply the knowledge gained in this practical.

SUGGESTIONS: If you have any suggestion related to this practical, please advise.

PRECAUTIONS

1. The job should be held firmly in carpentry bench.
2. Avoid over tightening of the wooden piece else it kills cause deformation in the piece.
3. All the tools must be properly sharpened.
4. Choose appropriate tools and procedure position to carry out the process.
5. While working on job, concentration should be maintained.

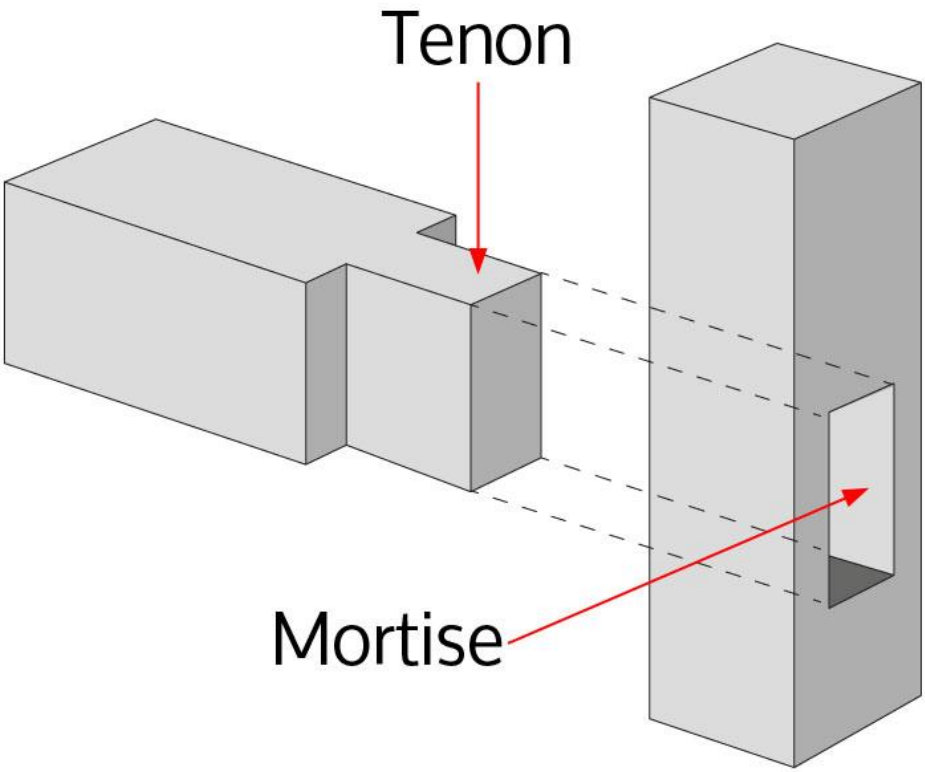


Fig. 11: Mortise and Tenon Joint