

Defects in Timber



Types of Defects



Defects in timber can affect its;

- strength,
- appearance,
- and durability.

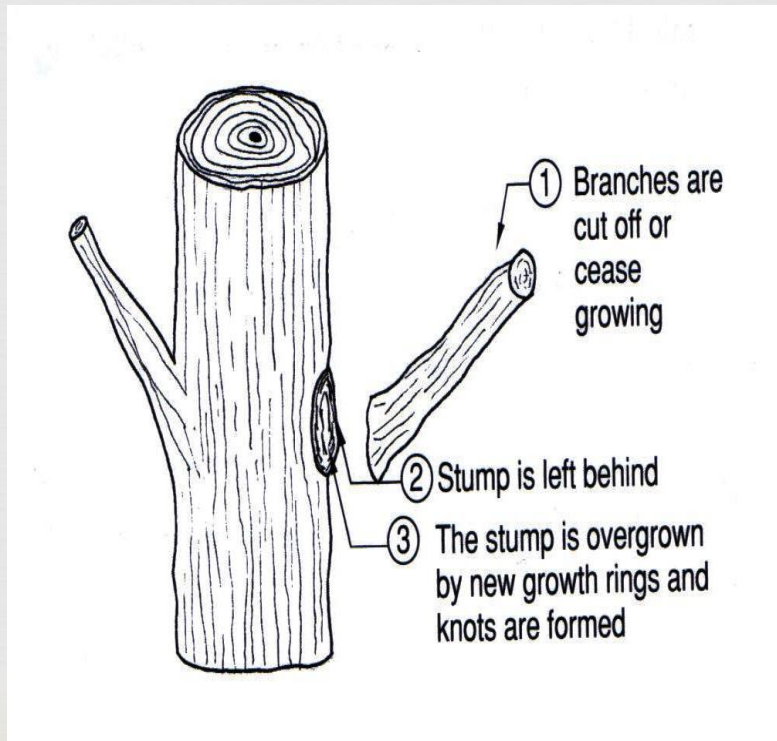
Defects in timber are either;

1. **Natural:** defects that may be present in the growing tree.
2. **Artificial:** defects caused by the seasoning, conversion and felling process.

Natural Defects - Knots



☞ Caused when the branches of a tree are cut off or stop growing.

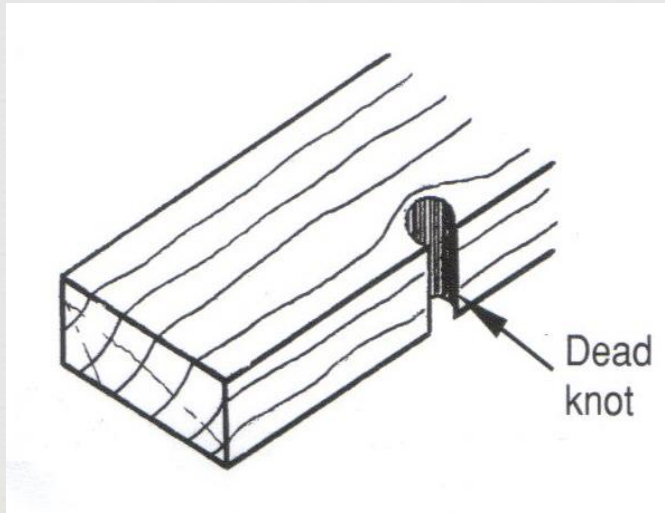


Two types of knots



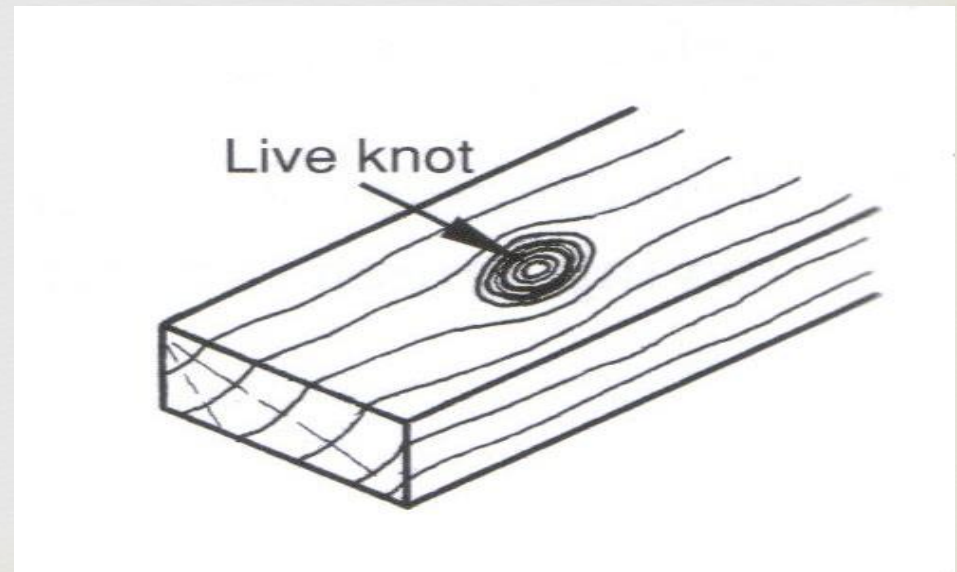
Dead Knots

- ❧ Dark in colour and shows sign of decay
- ❧ Weaken the timber and often become loose and fall out.



Live Knots

- ❧ Light in colour and do not generally fall out.

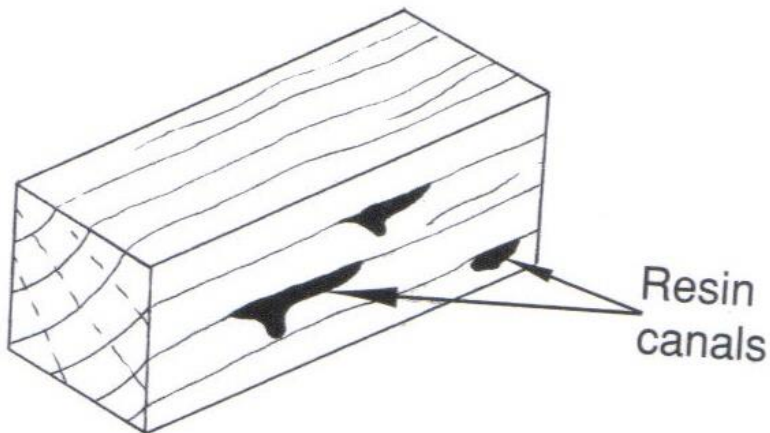


Natural Defects



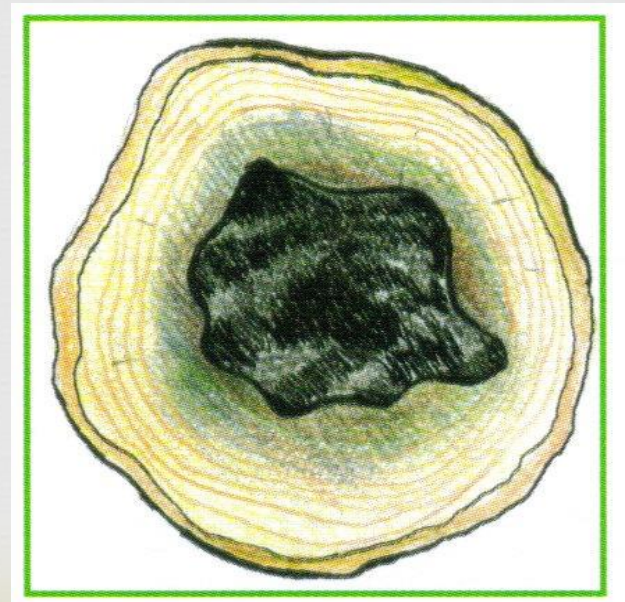
Resin canals

- Some trees which are exposed to high winds, develop internal splits.
- Splits fill with resin or gum to make the wood resinous.



Heart rot

- Occurs when fungus attacks and rots the pith of the heartwood



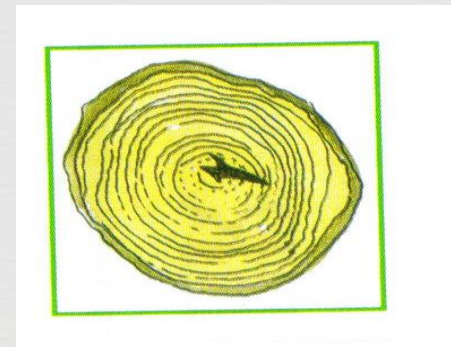
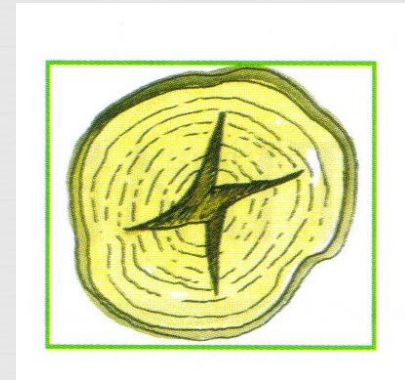
Natural / Felling Defects

- ❧ Cracks or splits in the wood are called **shakes**

Types of Shakes

1. Heart and Star shakes

- ❧ Deep, wide cracks which radiate out from the centre of the log
- ❧ Caused by shrinkage through old age or by too rapid drying after felling

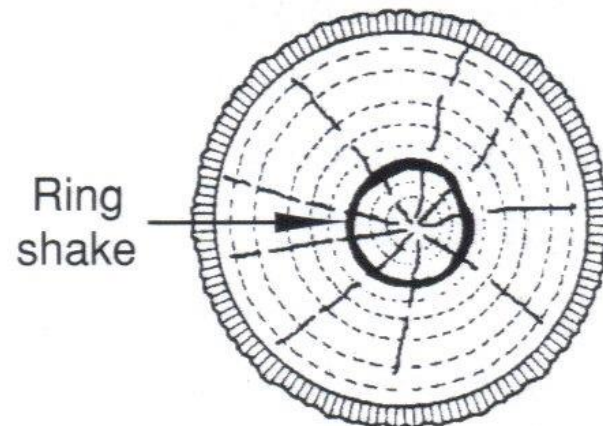
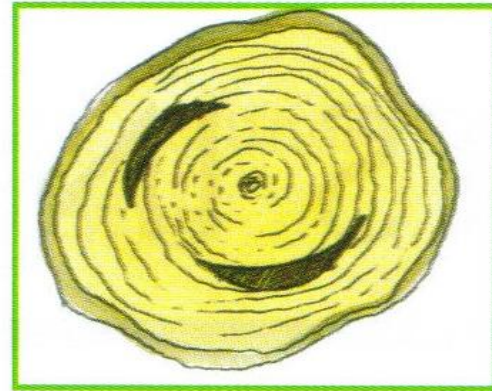


Types of Shakes



Cup and ring shakes

- ❧ Gaps between growth rings, that can be very deep, are known as cup or ring shakes.
- ❧ Caused by ;
 - ❧ Old age,

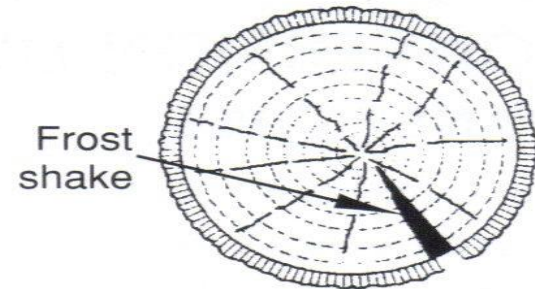


Types of Shakes



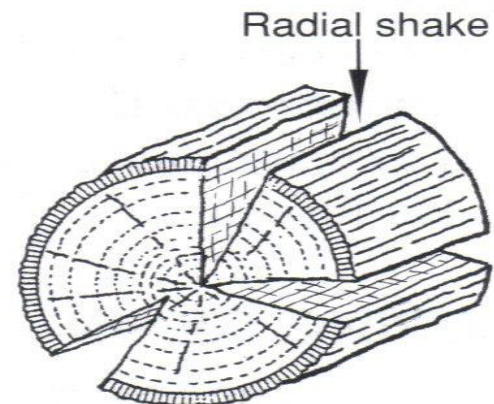
Frost shake

- ✧ This is where the wood splits inwards towards the centre and is caused by very cold weather



Radial shakes

- ✧ A split along the outside of the wood caused by rapid drying (shrinkage) of the log before conversion

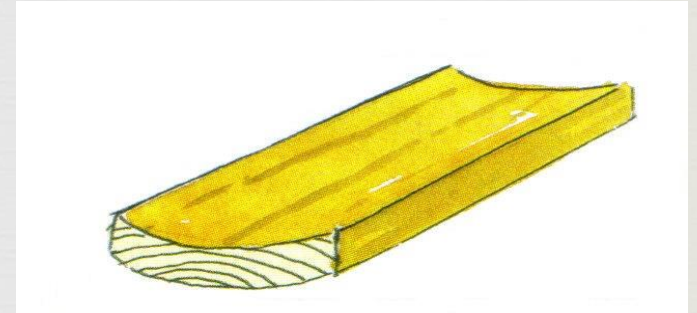


Artificial Defects: Seasoning



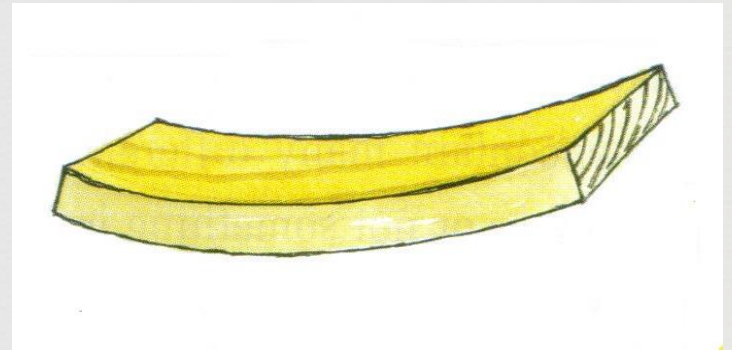
Cupping

- ☞ When you look at the end of the board it appears as a curve.
- ☞ Caused by unequal amounts of shrinkage along the growth rings.



Bowing

- ☞ When you look at the edge of the wood it appears curved.
- ☞ Caused by poor stacking.
 - ☞ Not enough stickers!

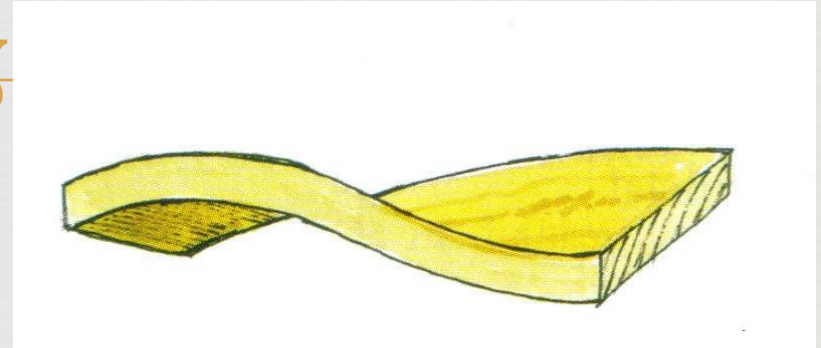


Artificial Defects: Seasoning

Twisting/ warping

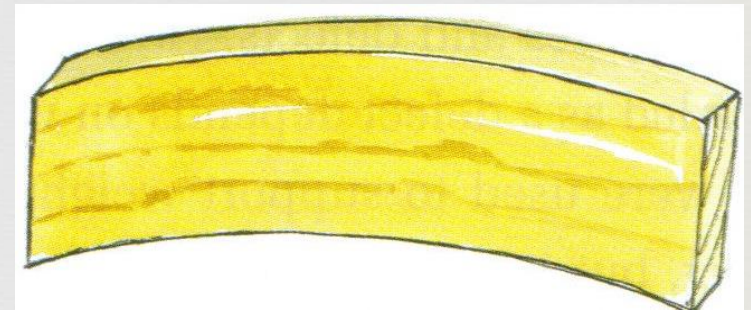


- ⌘ When the ends of the boards are twisted in opposite direction.
- ⌘ Caused by shrinkage along spiral or interlocking grain.



Springing

- ⌘ When the face of the board remains flat and the edge bends inwards to form a curve.
- ⌘ Caused by shrinkage longitudinally along irregular grain.

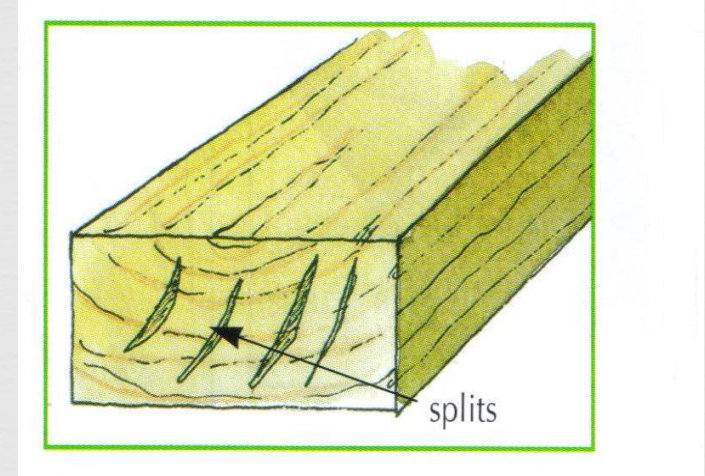


Seasoning Defects



End splits

- ❧ Occur at the exposed ends of the boards.
- ❧ Caused by rapid drying out from the sun
- ❧ Prevented by painting the ends of the timber with bitumous paint (water proof)

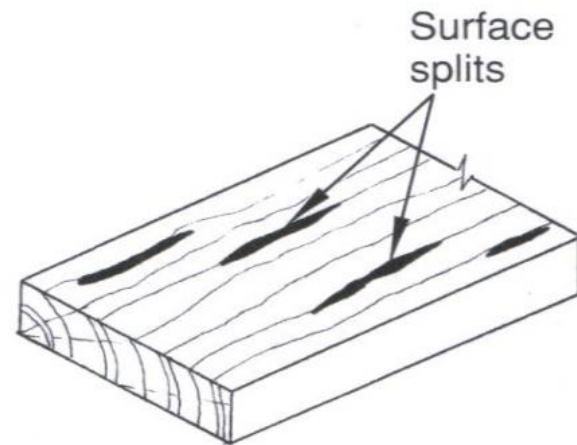


Seasoning Defects



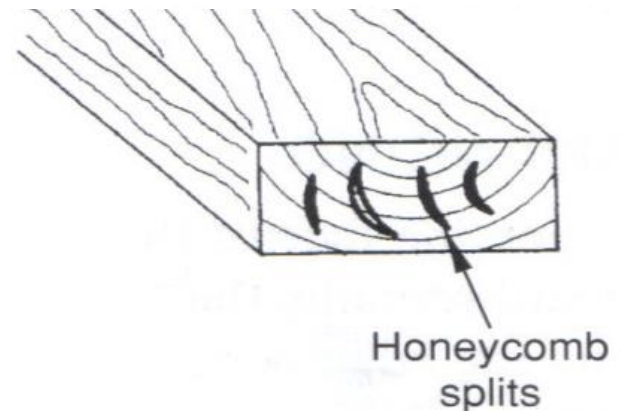
Surface splits/checks

- ☞ Usually lie along the grain.
- ☞ Caused by rapid drying out on the surface of the wood.



Honeycomb splits/checks

- ☞ Occur inside the board.
- ☞ Reduces strength.

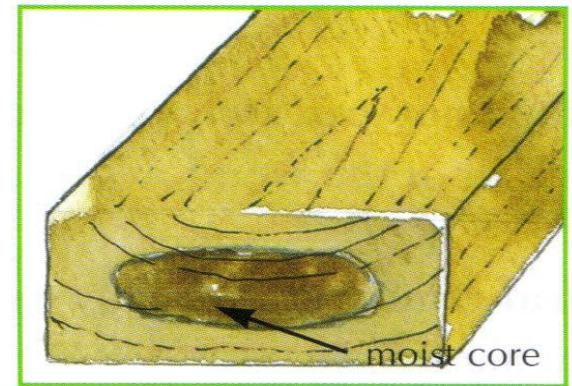


Seasoning Defects



Case hardening

- ☞ Where the outside of the board is dry and hard but moisture is trapped in the centre cells of the wood.
- ☞ Caused by rapid drying.

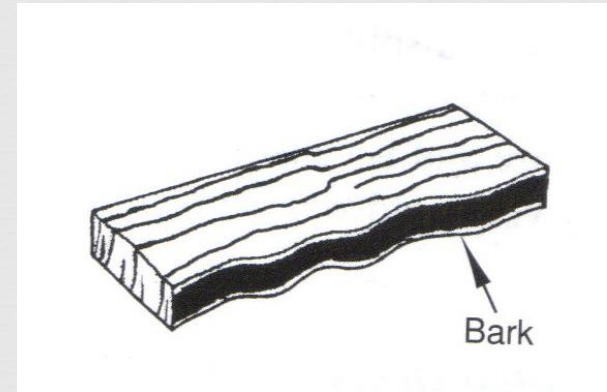


CONVERSION DEFECTS



Waney Edge

- Occurs when the bark is left on during conversion



Sloping grain/short grain

- Grain does not run parallel to the edge of the board because of bad conversion
 - seriously weakens the timber

