

## SOME DEFECTS IN VENEER AND PLYWOOD

by

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### Introduction

A veneer is a thin sheet of wood of uniform thickness, usually ranging from 0.1 to 3 mm. It is either peeled from a log by a rotary lathe or sliced from a flitch by a slicer. Rotary veneers are usually intended for the manufacture of plywood, while sliced veneers are obtained from more valuable or highly decorative material for use as overlays to particleboard, hardboard, rawplywood and solid-mouldings.

Plywood is a panel product made by gluing together a number of plies of veneers. The grain direction of the face veneer is

parallel to the length of the panel, while the grain direction of the cross-band layers are at 90 degrees to the face and back veneers.

During plywood manufacturing, the dried veneer is graded for face, back and core qualities based on the presence and extent of defects. Defects in veneers can arise as the result of abnormal growth of the wood and the action of biological agents on the wood used in the production of veneers. On the other hand, defects in plywood are mainly the manufacturing defects. Limits of these defects are used in the grade classification of veneer and plywood by appearance.

### Defects in veneer



**Figure 1.** *Irregular grain* - grain that is not straight because of the abnormal structure of the wood



**Figure 2.** *Burl* - a swirl or twist in the grain of the wood resulting from cutting through a contorted or gnarled growth, which usually occurs near a knot but does not contain a knot



**Figure 3.** *Pin knot* - intergrown knot of not more than 3 mm in diameter



**Figure 4.** *Dead knot* (non-adhering knot) - knothaving fibres intergrown with those of the surrounding wood to the extent of approximately 75% and 25% of its cross-sectional perimeter



**Figure 5.** *Sound knot* - knot free from rot, solid across its face and at least as hard as the surrounding wood



**Figure 6.** *Knot hole* - hole caused by removal of a knot



**Figure 7.** *Included phloem* - strands or zones of abnormal and often very hard tissue occurring in long or short concentric arcs in some timbers, caused by abnormal development of the cambium



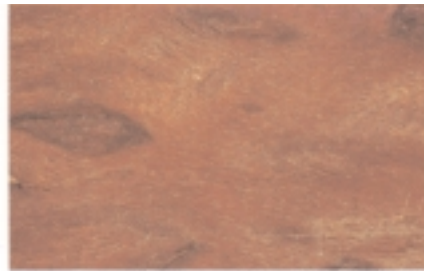
**Figure 8.** *Compression failure* (cross-break, lightning shake, deprecated) - deformation or fracture of the fibres across the grain resulting from excessive compression in the direction of the grain either by direct end compression or in bending



**Figure 9.** *Worm hole* (borer hole, shot hole, grub hole) - hole or tunnel or channel caused by a wood borer.



**Figure 10.** *Large worm hole* - worm hole more than 1.5 mm in diameter or a channel made by a wood borer. This includes holes made by marine borers



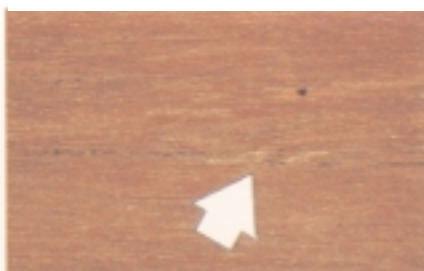
**Figure 11.** *Chicken track* - blemish, mainly in the form of a diamond pattern, occurring on flat-sawn or rotary-cut surfaces some *Shorea* species and due to localised grain distortion believed to result from insect damage to the cambium



**Figure 12.** *Worm track* - a channel caused by a wood borer



**Figure 13.** *Sound discoloration* - veneer of nonuniform colour resulting from a mixture of sapwood and heartwood, but not stained

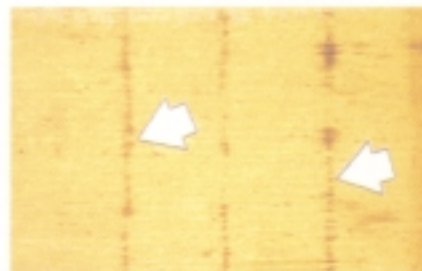


**Figure 14.** *Rot* (decay) - decomposition of wood by fungi or other micro-organisms. This results in softening, progressive loss of strength and mass and often a change of texture and colour



**Figure 15.** *Split* - separation of the fibres along the grain extending through the thickness of the veneer

## Defects



**Figure 16.** *Oil stain* (equipment stain) - stain of the outer ply caused by dripping of oil or by contact with the oily surface of equipment



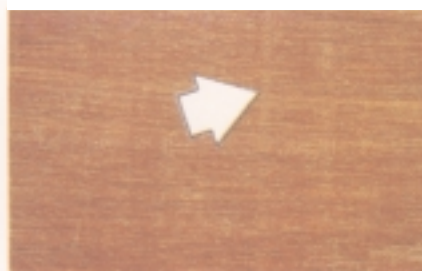
**Figure 17.** *Chain mark* - local depression on the outer ply caused by the conveyor chain



**Figure 18.** *Glue smear* - blemish that has been caused by glue splashed on the surface of veneer



**Figure 19.** *Sander burn* - burnt mark on the outer ply caused by excessive friction during sanding



**Figure 20.** *Knife mark* - fine and shallow groove running the whole width of the panel surface caused by a nick on the knife edge