

# Timber Variability versus Performance

## Factors which impact performance or appearance of timber products.

*This BWF Guide is intended to provide advise to end users on factors which may affect the performance or appearance of timber products after they have left the manufacturer. The quality, durability and aesthetic appear of timber is created by the growth conditions. The features which appeal to the end user can also on occasions create unusual results during use. Some of these aspects are noted here which should be taken into consideration by end users. The result of these aspects may not appear until the timber is installed and may be out of the control of the joinery manufacturers.*

*A table identifying species which may be affected is also included. This table is by no-means exhaustive and other species not listed may be affected.*

### **Colour Change**

Some species can exhibit a considerable colour change after kiln drying and machining. This

colour change may result in a considerable colour contrast between adjacent pieces which may

not always be acceptable to the end user, although these may be unavoidable

### **Corrosion**

Some species have very acidic extractives and in addition to staining, fixings can corrode and fail. Ferrous fixings particularly must be avoided.

### **Dead Knots**

Some species contains small black (dead) knots which will only appear once machining has

taken place. These do not create a defect. If dead knots are considered unacceptable additional

costs may be incurred in producing dead knot free products.

### **Degreasing**

Not all species will accept a decoration coat without further processing. Species which exhibit

natural oils which provide good durability may require degreasing before decorating.

### **Extractives**

All timbers contain extractives, some of which are soluble. If moisture has been present either in the form of waterbased preservatives or paint systems, or as a result of site conditions these extractives can be dissolved and may be drawn to the timber surface highlighting any knots present.

Even when fully decorated these extractives can result in staining in the area of surface knots appearing as a brown or yellow circle below the paint finish.

### **Iron Stains**

Some timbers contain acidic extractives. When iron

products (nails, screws, etc) make contact

with the timber in damp conditions, dark/black stains can occur.

Maintaining timber in dry conditions will reduce the possibility. Avoiding contact with ferrous

products will prevent the staining. In some species staining can appear some time after

machining if the machining has been carried out on "green" timber. It is some times possible to

remove the staining by the use of Oxalic Acid.

### **Low Moisture Content**

Considerable quantities of timber from overseas, particularly the USA, is initially processed and kiln dried in the country of origin.

Occasionally, local demand will take precedent resulting in timber being kilned down to a "furniture moisture content" (ie as low as 8%). If this

timber is used in a high humidity or external environment, problems of swelling and distortion can occur. It is best to avoid these species for these environments.

Alternatively, if a long lead time can be arranged the timber can be left covered in a relatively high humidity location until it has "conditioned" to a higher moisture content.

Direct contact with water will result in local staining which will be almost impossible to remove.

## Resin

Resin is created during the growth of the tree. It improves the natural durability of the timber

and can be released by direct heat. Resin is a finite material once drawn out it will not reappear

(See BWF Guide– Resin Exudation in Joinery Timber).

## Stick Marks

During kiln-drying timber slabs are often kept apart by cross pieces called sticks. In some species the location of those sticks can appear as stain marks. Unfortunately, this will not be obvious during or just

after machining and may in fact only appear as the first decorating coat is applied.

Although unsightly these marks will slowly disappear with time. They can sometimes be reduced by the application of a strong bleach or Oxalic Acid.

**Note:** *Whilst every effort has been made to ensure the accuracy of advice given, the federation cannot accept liability for loss or damage arising from the use of the information supplied in this publication.*

Further guidance is available via [www.bwf.org.uk](http://www.bwf.org.uk)

	COLOUR CHANGE	CORROSION	DEAD KNOTS	DEGREASING	EXTRACTIVES	IRON STAIN	LOW M/C	RESIN	STICK MARKS
A Fromosia, (Cites Listed)		✓							
Ash American									✓
Beech									✓
Black Walnut, American	✓						✓		
Cherry, American	✓								✓
Douglas Fir				✓		✓			
Idigbo		✓							
Iroko	✓			✓					✓
Keruing								✓	
Maple									✓
Oak, European		✓	✓			✓			
Redwood								✓	
Southern Pine				✓					
Sweet Chestnut		✓							
Sycamore	✓								
Teak	✓			✓					
Walnut, African				✓					
Walnut, European	✓					✓			
Western Red Cedar						✓			
White Oak, American							✓		
Yellow Poplar	✓								