Teknos Technical Library

Preparation Guide

Version 2: February 2024

GRAIN DEFINITION
CAUSES & TREATMENT

GRAIN CHARACTERISTICS

A part of grain definition in timber arises from the boundaries between summer and winter growth. It is the annular rings that are visible in the cross section of a felled tree trunk.

The grain pattern seen in joinery components varies, dependant on:

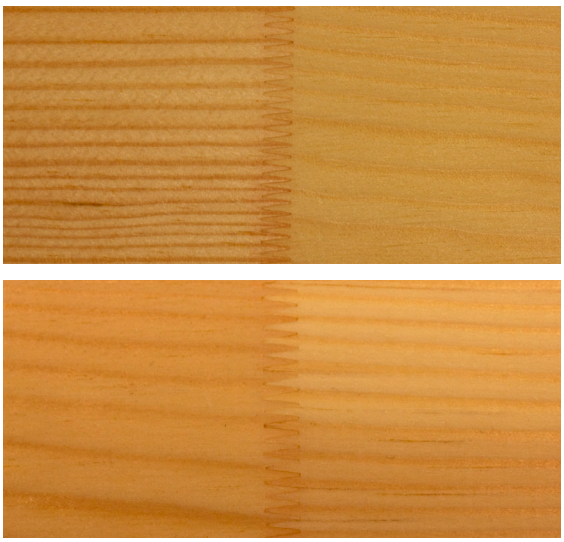
- Timber species (Hardwood/Softwood)
- Growing origin (Region)
- Angle at which the board was cut from the original tree

Grain profiling (the height variations sometimes seen across the timber surface) is caused by differential swelling of the early and late growth regions. The faster Spring/Summer cell growth areas are larger, more porous, and absorb moisture at a higher rate, when compared to the later / winter cell growth structure, which is smaller, more condensed and structural.

Grain Profiling

Generally, grain definition and profiling are seen as appealing and natural features of a joinery product, though occasionally concerns arise where adjacent components have markedly different grain configurations or on laminated sections when dissimilar grain patterns are apparent on either side of a finger joint.

Dissimilar Grain Patterns in Finger Joints



Effect on performance

Grain profiling has no impact on the operating performance or expected service life of exterior joinery. Modern waterbased coating systems are designed to cope with the natural flexing and movement of standard species in relation to any moisture content variations.

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With a natural product like timber it is almost impossible to exactly match the grain configuration of individual components. however, steps can be taken to minimise the visual variations which occur:

- Sharp cutters and routers will give a smooth profile after machining. Blunt cutters tear rather than shear the timber, exaggerating the swelling differences beween winter and summer growth regions.
- The moisture content of the timber prior to machining should be in the range of 10% - 18% . The average moisture content of exterior joinery will vary between 12% - 18% over the year, so if machining is carried out on timber at close to the mid point of the recommended range swelling between grain boundaries will be reduced.

Further information on wood moisture can be found in Technical Library Guide 'Moisture Content and Machining Tolerances' at teknos.com.

- Avoid excessive sanding. Sanding may appear to reduce profiling in the workshop, but it will tear the surface, increase surface porosity, and increase profiling when the joinery is subsequently exposed to moisture during the coating process.

Further information on sanding can be found in the Technical Library Guide 'Surface Preparation in the Factory' at teknos.com.

Always refer to the Technical Datasheet for full instructions on how to use Teknos products.

For further support, contact your local Teknos coating expert or visit **teknos.com**

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