

Tunncliffe's

Tunncliffe Timber Company Limited

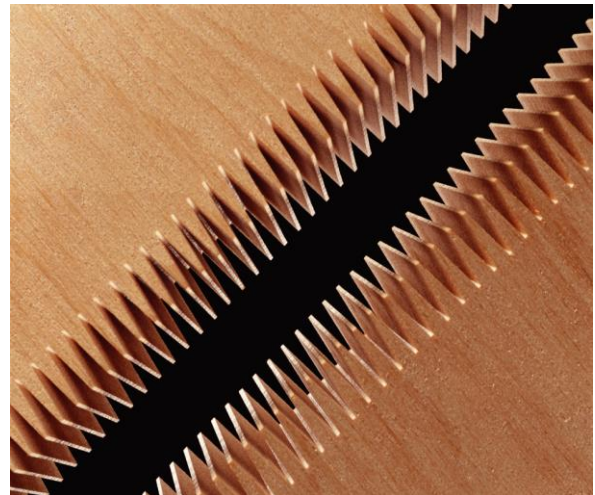
Finger Jointing – The Facts

Finger-jointing is a method of end to end or length-joining of timber.

Tunncliffe's are supplying untreated, chemically treated H3.2 Tanalised® Ecwood™ and thermally modified ThermoWood®230 finger-jointed Radiata pine components to timber joiners, aluminium joiners, door manufacturers-, and pre-hangers.

When doing the rounds, it still happens, you can run into joiners who absolutely do not want to have anything to do with finger-jointed timber, sticking with clears. It is not that they are doing anything wrong, working with clears, but we believe that in business it has merit to review the way of doing things, from time to time.

The sentiment may come from the early days of finger-jointing, the 1950's. The industry was dealing with teething problems, which was coinciding with a lucrative building boom in Australia. There was a growing demand for large volumes of mouldings and fascia boards hence a lot of new enterprises were starting up, not always putting out quality work. These products also entered the New Zealand market and resulted in some bad experiences. This still festers with some architects and builders today.



This article is an effort to overcome misconceptions in the market by having a closer look as to what today's finger-jointing actually is all about. Finger-jointing has come a long way and the bad old days are well behind us.

One argument that pops up in discussions with the antis is that you can see the finger-joints through the painting. As with finger-jointing, paint and coating systems have developed and improved over the years. If you really want to see the finger-joints after a quality paint job you can, but then only if you set out to look for them with your nose almost touching the timber. The benefits of using finger-jointed timber far outweigh the Sherlock's looking for a joint.

Technical Aspects

When finger-jointing, you glue several blocks of timber together length wise. The blocks, or shooks as we call them, are cut from kiln dried boards and are the clear wood components between the defects such as knots. The beauty is that you get a defect free piece of timber with a fixed length.

Two butt-ends of timber are difficult to glue together due to the porous end grain. This is why the finger-joint was invented. It not only increases the surface area but also creates a surface of "side-grain" for the glue to stick to.

In general there are two types of finger-joints, a structural joint and an appearance joint. The first is usually of a larger size between 10 to 25mm. The appearance joints are 3 to 4 mm long and often called micro-joints.

The joints are machined by cutters in a finger pattern. After the glue has been applied the shooks are pushed together using powerful hydraulic pressure locking the fingers together. The fingers are tapered and work as wedges in such a way that you can say the timber is getting jammed together. The forces here are such that without glue the boards are holding together. This won't last of course, the glue is fixing and securing the joint.

Pin holes are the openings that occur between the "fingertips" and "valleys". You can say the fingers are not fully "closing in". This closing in is a very critical point in the production process. A finger-joint with a pinhole is a stronger joint since the jamming or side way pressure is fully utilized. As soon as the finger reaches and pushes into the valley this pressure is lost and makes the joint weaker.

This is why in structural finger-jointing you most likely find the pinholes. In appearance grade finger-jointing this is undesirable. It is an art performed by the operator to get the fingers only just closing in.

There are two directions of finger-jointing; face to face, where you see the fingers on the face of the board and edge to edge, where you see the fingers on the edge of the board. The face to face or 'vertical joint' is the stronger of the two.

The product coming off the finger-jointer machine is called a 'blank', which in fact is a half product needing further processing into its final profile. Joiners often fall back on the blanks to create their own profiles and to match new joinery to the existing during alteration jobs.



Markets and Products

Finger-jointing can be done for two different reasons, one is to produce a specific product, and the other is one of recovery. Both options are very different and can cause confusion and misconception.

Finger-jointing for the purpose of recovery is joining off-cuts that otherwise go into waste or firewood. We suspect that imported finger-jointed Western Red Cedar is an example. During the grading and optimisation of the timber in large sawmill operations the offcuts are jointed together and sold as a cheaper recovery product. The offcuts are of various grades and from different batches, which can have various densities and moisture contents. A product like this will have its application but cannot be compared with the original timber commodity it is produced from. This is often not helping the image of finger-jointed timber in general.

Another phenomenon compromising the image is using finger-jointing to turn a cheap low grade timber into a high grade expensive product aiming for high profit margins. The reality is, as with so many things in life, that this can turn out to be a myth. It will work for a little while but is not designed for the long term. To produce a quality finger-jointed product it is important that the shooks are of consistent high quality. These are more than often not coming from cheap, low grade timber.



At Tunncliffe's we specifically aim for a high quality finger-jointed product. We learned that you cannot get away with cheap low grade timber. In Radiata pine low grade timber contains a relatively high percentage of core wood. The boards are cut near the center or pith of the log. The fiber is low in density, unstable, is not taking up treatment and is more difficult to dry and modify. This timber is generally sold for industrial packaging. Boards cut toward the outside of the log are higher in density, more stable, take up treatment and are easy to dry and modify. This timber is of higher value and handled with more care during the sawmilling process. Drying is a very important aspect of conditioning the timber before finger-jointing. It does not need a lot of explaining to understand how two shocks with a big difference in moisture content glued together will cause major issues further down the line.

Economics

Comparing the use of clears or finger-jointed timber in your business is one of economics. A packet of clears may be "cheaper" but converting it into a quality product is not. By far the biggest cost to make a door or window is labour.

Packets of clears come mainly in random lengths. It takes considerably more time to execute a cutting list from random clears than it is from fixed length finger-jointed lengths.

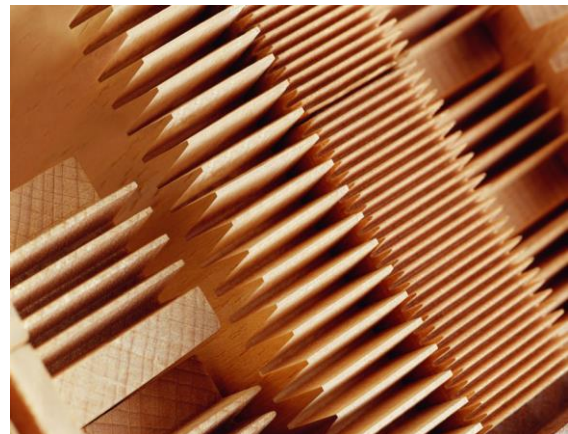
Clears are never 100% clears, you still need to cut around these, whereas with finger-jointed lengths you seldom do.

Optimal use of the timber, minimising waste is also an important cost saving factor, you will have better results with fixed lengths finger-jointed timber than random length clears.

Finger-jointed lengths are straight, clears hardly ever are and require more work to straighten, more time, more costs. In a lot of cases you will find a clear that seems straight curls up on you once machined into a profile. This is just much less with a finger-jointed length, as the stresses in the timber have been broken up in smaller sections. If your finger-jointed lengths are pre-profiled it is just a matter of framing up the lengths.

Another thing to consider is stability, long lengths of clears are relatively unstable when compared with finger-jointed. Movement in timber joinery is a known issue that comes with the product. You want to reduce the number of times being called back to fix a problem of jamming doors and windows once they have been installed.

Quality finger-jointed timber is no longer a hard sell. It is a 'no brainer' for many but there is still a group of full hardy architects, builders, painters and joiners that will not see the light. And that is OK. Using clears will always remain as an option to make a good product, that's a fact. Also a fact is that using quality finger-jointed timber makes perfect economic sense and arguably a better product. •



Comparison	Clears	Finger-jointed
Lengths	Radom	Fixed
Defects	Still present	Free of any most of the time
Straightness	Never truly straight	Straight most of the time
Stability	Relatively unstable	More stable