

# Tunncliffe's

Tunncliffe Timber Company Limited

## The Issue of Dark Colours on Timber Joinery

It ought to be standard industry practice for timber joiners to recommend not using dark colours when painting timber joinery, especially when the joinery is exposed to direct sunlight all day. Heat caused by the summer sun is likely to cause serious problems for home owners, architects, builders, joiners and timber suppliers.



The sun is producing rays giving us light and heat. The more rays you receive per square unit (rays per m<sup>2</sup>) the higher the intensity, the hotter it gets. The higher the sun climbs in our sky the higher the intensity. The maximum is reached when the rays are hitting the surface at 90 degrees (perpendicular). This happens in high summer, in the middle of the day.

Most of us know that a dark surface gets hotter than a light surface. A dark surface absorbs the sunrays and therefore heat, whereas a light surface reflects the sunrays and therefore diverting heat away.

Our New Zealand sun is harsh; it's high in ultra violet rays and can be very hot. We take care and protect our skin with sunblock to avoid nasty damage and seek protection from shade as much as we can. We should do the same with our timber joinery, keep it out of the sun as much as possible and protect it using good quality paint; make it a good job with a minimum of three layers and preferably using white colours only.

We recently have seen a couple of jobs where our finger jointed H3.2 TanE Radiata pine has been used in a house-lot of joinery where the finger joints failed by coming apart. This happened in doorsills which were painted in a dark green colour, north facing and exposed to direct sunlight all day. In both cases the joinery in areas that were not exposed to direct sunlight all day was in perfect condition.

A doorsill being in its horizontal flat projection will receive the maximum heat when compared with the rest of the joinery. The timber can get very hot, so hot that you burn yourself standing on it with your bare feet. Just remember how hot the sand on a beach can get despite the fact that the sand has a light colour. When the timber gets hot it dries out, potentially down to 0% whereas it normally is 12% to 14%. As the timber is losing moisture it shrinks.

A doorsill is usually only partly exposed; the sash in the joinery covers the back section of it. The exposed front part of the sill dries out and shrinks, the timber in the protected parts will not. This uneven drying is causing tension, there is a build-up of stress within the timber and between the finger-jointed shook (blocks), which can cause the finger joints to fail.

The forces involved with shrinking and swelling of timber cannot be underestimated; they are huge. In the days of the Roman Empire a method of quarrying marble was to drive a wedge of dry timber into a crack and soak it with water. The force of the swelling timber was used to break up the marble rock.

The problem described above is not limited to finger jointed pine, it affects timber in general.

The colour choice for the joinery in a house design is critical and requires careful consideration at the early stages of the building process. If dark colours are desired the appropriate design and materials should be applied. The lessor exposure to sunlight the darker the colour of the joinery can be.

Timber joinery needs to be protected from all day long direct sunlight and it is recommended to make use of awnings, eaves or something similar. If that cannot be achieved the joinery must not be painted in any other colour than white.

If you look at old style houses with timber joinery you will notice eaves and other measures of protections including white paint. When talking to old school timber joiners they are very much aware of the potential problems. We believe that overtime designers may have got out of touch with the specifics of timber joinery as aluminium joinery has taken over the majority of the market.

We strongly recommend our timber joinery customers to give appropriate advice and recommendations to the end user of their product to avoid the stress, heartache and pain these problems can cause.●

