

Tunncliffe's

Tunncliffe Timber Company Limited

Painting Exterior Timber Joinery

Part 2

Following on from Part 1 where we discussed the world of paint products in general we'll now have a look at what's involved to getting the job done. As in Part 1 we have tried not to be too technical and please accept that this article is by no means complete or pretending to be an industry standard. It's a guide to help joiners get their heads around the subject.

The paint finish is an integral and very important part of the durability of exterior timber joinery and should be given due consideration. Please refer to our earlier article "*Durability of Exterior Timber Joinery*" available from our website.

It all starts with a well-defined job specification or contract. This is an important document containing detailed information aiming to minimize controversy and disputes during the period of contract and will protect the interest of both the contractor and principal. It is also a document to refer to if any issues arise at a later date.

Technical details to include in a Paint Specification plus some helpful suggestions.



- **Areas and Items to be Painted**

- It sounds obvious but make sure all relevant surface areas of the joinery are covered. This includes the undersides of sashes and other less visible surfaces which are sometimes “overlooked”.

- **Process and Timing**

- Painting joinery is part of the building process and ideally that work starts as soon as possible after installation. Communication and planning is everything and to get the painters on the job at the right time requires coordination between other trades.
- Transportation, on-site storage, installation and painting of timber joinery is a very critical final phase in which all the good work in the joinery shop can be undone. It goes without saying that damage needs to be kept to an absolute minimum but our biggest enemy is moisture. Damage occurs when a building site is busy with several tradesman going about their business. Try not to get joinery delivered when other significant work is being carried out.
- Most importantly make sure joinery is kept dry at all times. One or two coats of primer does not protect the timber from taking up moisture. It cannot be exposed to the weather. Please refer to our earlier article “*The Myth about Primer*”, available from our website.
- Pre-primed timber still interacts with moisture in the atmosphere. Ideally the moisture content of the timber at the time of painting should be near the equilibrium moisture content of the environment where the joinery is being used. For this to happen it’s good practice to have the joinery well protected on site for some time. The equilibrium moisture content for Radiata pine in New Zealand generally ranges from 12 to 14%.



- **Substrate Preparation**

- The purpose of preparing a substrate for painting is to ensure that it will accept and retain the paint with the minimum of interference from surface contaminants.
- In most cases timber joinery leaves the joinery shop pre-primed.
- As mentioned in Part 1 the Primer coat is the foundation and most important layer in the Paint System. It is only as good as the quality of the preparation of the substrate, the surface it goes onto.

- The type of primer needs to be selected carefully. It should be compatible with the timber it goes onto. It's essential to determine whether the timber to be painted has been treated. This is particularly important when the timber has been treated with LOSP (Light Organic Solvent Preservative) formulations. The preservative is carried into the timber by "white spirit" and this needs to be removed afterwards. The timber surface then needs conditioning prior to painting.
- There are generally no issues with CCA, ACQ or our H3.2 Tanalised®Ecowood™ treated timber. These treatments are waterborne and the timber is treated and re-dried before processing. The chemicals are firmly fixed to the fibre and excess chemical is machined off. ThermoWood®230 is thermally modified Radiata pine, which is an ideal substrate for paint. All resin, which normally conflicts with paint, has been removed by burning off. The timber has also opened up and offers excellent penetration. ThermoWood®230 is gaining in popularity over Western Red Cedar, because it is as stable, as durable and just does not have the issues with paint as Western Red Cedar does.
- Any surface to be painted needs to be dry, clean, and free of oil, grease, dust and dirt.
- For all joinery applications the surface also needs to be sanded which increases the surface area, removes contamination and opens up the grain for better penetration.

• Paint System

- Ensure you provide a full description of the paint products to be used, from primer and/or sealers to undercoats and finishing coats. Please refer to Part 1 (*"Painting Exterior Timber Joinery Part 1"*), available from our website.



- The choice of colour for exterior timber joinery is another important factor to consider in dealing with our harsh New Zealand sunlight. Please refer to our earlier article *"The Issue of Dark Colours on Timber Joinery"*, available on our website. The LRV (Light Reflectance Value) of a colour is an indicator of what the temperature of the paint surface and substrate should reach in direct sunlight. Black, the most absorbing of visible light and the thermal infrared, has a LRV very close

to 0. White is the most reflective of visible light. It also reflects a lot of the invisible thermal infrared, and has a LRV of approximately 100. Therefore dark colours get very hot; lighter colours less so. Under normal ambient conditions of 20°C, colours in the mid- range of LRV 50 can absorb enough light and thermal IR to rise to around 40/50°C, which is too warm for many substrates including wood. As clouds pass over, temperatures on the surface can change rapidly. This rapid change in temperature does cause the paint film and the substrate to suffer stresses; these can be reduced by a more reflective colour. There are new pigment technologies around for paint colours that are more reflective of the visible and less absorbing of the invisible thermal infrared. Be careful when using these colours. While they can give a reduction in heat absorption they do still absorb heat. As a general guide, use colours with an LRV >50 on timber for exterior direct exposure to the sun but keep in mind that realistically exterior timber joinery should only be painted white.



- **Application**

- The effectiveness of an exterior paint system depends on building up a film of adequate thickness. Saving on paint by overspreading compromises the quality of the job and is false economy.
- At all times adhere to the manufacturer's recommendations with regard to thinning, minimum and maximum spreading rates, weather conditions and temperature at times of application, drying and the time interval between coats.
- One design detail of exterior timber joinery which will better ensure a long term quality paint job is rounded corners and edges. These allow the desired dry film build up in these areas, whereas sharp edges and corners don't.
- The most common application technique for exterior timber finishing is by brush. Although more labour intensive, brushing or roller is specifically recommended for the primer and undercoat as it gives better wetting of the surface and penetration into grain, joints and corners. Airless spray may be used for subsequent coats but is more suited to large areas which are normally not applicable to timber joinery and therefore hardly used.

- Last but not least in this category is workmanship, making sure you are dealing with qualified trades people. A dry film test will tell you immediately if the painter has applied the specified number of coats at the required dry film build. If you have correctly specified the number of coats and the required coverage rate for each coat, the painter must meet that specification.
- **Maintenance**
 - Like any product, all building substrates require maintenance. Not everyone expects this, but it is particularly important in the first few years of the building's life. Both concrete and wood are subject to movement as the building settles down. Catching coating defects early such as cracks in the substrate is a priority and needs to be fixed to prevent any further potentially costly issues.

For the definitive guide to painting exterior timber joinery please refer to the Australian and New Zealand Standard ASNZS 2311-2009 "Guide to painting of buildings".

Tunncliffe Timber Company Limited

In association with
The Paint Doctor Ltd
Research; Development &
Investigation
bwhalley@xtra.co.nz
Ph 021 467 545

