

# Shadowclad / Ecoply Plywood Exterior Painting Recommendations

(Technical Note 09/10/01: 01 October 2009)

## Exterior exposure

Plywood exposed to the weather is subject to sunlight, rain and moisture, dust and dirt, biological organisms, including rot fungi, insects, moulds and algae. The effects of exterior exposure can be minimised by the use of coatings, preservative treatment, surface texture, design and maintenance.

Coatings protect wood and improve appearance. For vertical exterior walls use Ecoply or Shadowclad plywood treated for H3 Hazard class to AS 1604.3-2004 to provide long term rot and insect resistance. Rot treatment may provide only short-term mould resistance. Light organic solvent preservative (LOSP) is used in band-sawn Shadowclad (Texture and Grooved) Primed, and Shadowclad (Texture and Grooved) Natural cladding products and includes a wax water repellent. Band-sawn surface texture increases paint life by diffusing UV rays and attracting more paint per square metre.

## Design and maintenance

Keep plywood at least 150 mm clear of ground.

Avoid moisture or dust traps on the surface.

Roof overhangs offer shade, and protect walls from rain and dust.

Bevel trim to shed moisture

Detail flashings with gaps that do not trap water at sheet edges.

Regular washing extends the life of plywood and coatings.

## CHOOSING A COATING

Aesthetic choice needs to be balanced against weathering performance, and maintenance expectations. Paints perform best in exterior use. Stains show wood grain but also let UV rays through and so won't last as long as paint, and may be harder to clean. Dark colours attract heat that can put extra stress on the surface and lead to early paint failure. Light or pastel shades are recommended for best performance.

### Paints

A wide range of colour and contrasts.

Long lasting finish with easier maintenance. Surface dirt or mould can be washed off easily.

Good quality paints should contain a mouldicide to inhibit mould growth.

Require recoating at five to ten year intervals, with more expensive paints going about ten years

On plywood, oil based paints do not perform as well as more flexible 100% acrylic paints.

Paint should normally be washed and checked annually.

### Stains or semitransparent finishes

Show wood grain and may be coloured to obtain desired effects. Excellent for interior use.

In exterior use, performance depends on the degree of protection offered by the stain.

Pigmented stains offer best protection against UV ultraviolet.

Stained surfaces left without cleaning or recoating eventually take on the weathered rustic look of uncoated boards, albeit with a base colour.

Stains require closer cleaning intervals, and recoating in two to four years.

Mould growth will depend on the type of stain, mouldicide in the stain, and on the environment. Sites in warm, moist regions will need closer cleaning intervals.

Not recommended for long term structural use but may be adequate for aesthetic purposes.

### Clear finishes

Not recommended for exterior plywood claddings since coating life will be less than one year.

### Uncoated plywood

Will develop a weathered grey/black rustic surface, and mould growth at a level consistent with the climate and length of exposure. A textured surface has reduced visible surface checking.

Not recommended for long term structural use but it may be adequate for a rustic aesthetic look.

## APPLYING PAINTS AND STAINS TO ECOPLY

Follow coating manufacturer's instructions and observe the following:

### Storage and preparation of sheets

Protect plywood from the weather by storing in a well-ventilated place under cover out of the sun.

LOSP treated Shadowclad Primed and Natural needs time to evaporate solvent, this process is conducted at time of manufacture. With all treated timber you should check for any treatment residue and leave the product to evaporate which is usually 2 to 5 days or until it loses its greasy feel. If this still has not occurred please use a wash down chemical solution where the active ingredient is sodium hydrochloride, and apply as directed by the manufacture of the cleaning agent.

If Shadowclad is to be used internally, there maybe a requirement for the solvent to fully evaporate further and fully clean down so that there are no excess odours once installed.

Seal all cut edges with a compatible preservative solution.

As far as practicable, place cut edges at the top of the sheet, to avoid rain soaking into cut end grain.

Laps and edges may be sealed with paint or stain but it can be difficult to match the final coat.

For painted systems, primer is usually a sufficient seal.

With stains, it may be difficult to avoid darker strips at edges, depending on the stain.

Excellent results are possible by pre-coating the entire panel before construction.

Sealing the back or unexposed side of plywood is unnecessary

If required fill all joints and cracks. Use only exterior grade putty or fillers.

### Weathering period before coating

Weathering degrades wood quickly. Coat as soon as solvent is sufficiently evaporated.

If plywood has been left without protection, wash surfaces to remove all mould, dirt, dust and grease.

### Flashings

Shadowclad Aluminium Flashings do not need any further coating unless the natural anodised colour is not desirable. Coat other metal flashings with suitable metal primer before applying topcoats (please refer to coatings manufacturer's application details for further information).

### Coating application

A first coat on smooth plywood may cover 10 m<sup>2</sup>/litre and the second 16 m<sup>2</sup>.

A first coat on rough sawn may reduce to 8 m<sup>2</sup>/litre for the first coat. Rates depend on the coating type.

### Paints

Paint systems usually comprise at least three layers: -primer, undercoat and topcoat.

- If painting Shadowclad Natural use good quality 100% acrylic primer or use Shadowclad Primed. Oil-based primers may penetrate better but complete oil-based systems become brittle and crack on aging letting in water and giving earlier paint failure.
- If product is Shadowclad Natural, prime the plywood as soon as possible, sufficient to obscure the grain. Do not make it too thin.
- Use an undercoat followed by a topcoat when painting with a solvent based paint.
- Use two topcoats over the primer with 100% acrylic paint, extreme environments may require further topcoats.
- Apply first topcoat/undercoat within two weeks of priming and the second coat within two weeks of the first. If more than two weeks pass, scrub the primed surface. If dirty, use a detergent and if mould has developed use bleach. Rinse surface with water and allow drying before repriming.
- Cover all surface fibres to ensure that they do not penetrate the coating film.

All coatings applications are to be followed under the paint manufacturer's application details.

Do not apply paint to a cool surface that is about to be heated by the sun.

Acrylic paints need at least 10°C for the first 24 hours to ensure good paint film bonding.

Finish painting at least two hours before sunset to allow paint to dry.

Do not paint in the morning when surface is cold and covered in dew.

Oil-based paints should be applied when the temperature is above 5°C

Acrylic paints may be used over older alkyd (oil or solvent based) paint, but alkyd paints should not be used over acrylic, because the base coats are too flexible under the top coats.

## Recommended best coating choice for “natural” EcoPLY and Shadowclad plywood

A light coloured 100 % acrylic latex paint system comprising one coat of 100 % acrylic stain blocking primer and two coats of acrylic exterior topcoat.

## Recommendations for coating Shadowclad Primed plywood

Overcoat with a quality paint system.

Do not leave unpainted.

Paint as soon as possible within 6 weeks of installation, or re-prime as required.

Within 6 weeks of erection, apply 2 coats of premium 100% acrylic exterior house paint

If painting after 6 weeks of erection, apply 1 coat premium 100% acrylic undercoat with tannin blocker, followed by 2 coats of premium 100% acrylic house paint.

Follow the paint manufacturer’s instructions.

For best results, allow 24 hours between coats.

Use a light-coloured paint system.

## Stains

Do not reduce the ultraviolet light absorbing pigment by over thinning the stain.

- Penetrating oil-based stains  
Use two coats and apply the second coat before the first is dry.  
About an hour after applying second coat, use a brush lightly wet with stain to remove excess stain.  
Stir the stain often during application to avoid settling and colour change.
- Latex semi-transparent stains  
Apply two coats

All coatings applications are to be followed under the paint manufacturer’s application details.

## MAINTENANCE

### Washing and inspection

Wash down regularly to remove surface dirt, debris or mould.

Check surfaces once a year paying special attention to joints, corners and bottom edges of sheets

Repaint as necessary

Ensure dirt, garden soil or leaf build-up is at least 150 mm away from the plywood.

### Mould

Mould grows on wood or paint surfaces but does not degrade the wood as rot fungi do.

The Forest Research Institute of New Zealand recommends scrubbing the surface with the following solution for the removal of mould:

- |                                 |            |
|---------------------------------|------------|
| • Tri-sodium phosphate          | 85 gms     |
| • Household detergent           | 25 gms     |
| • Chlorine bleach solution (5%) | 1.0 litre  |
| • Warm water                    | 3.5 litres |

Handle and apply with care to prevent contact with eyes and skin.

***Never mix with ammonia products, because a toxic gas may form.***

Alternative cleaning solutions and additional information is in Technical note 01/11/25, “Mould growth on plywood”.

Some coating manufacturers have mould killing and cleaning solutions.

In Australia, Tropical Mould Killer from U.I.M Chemicals may be added to paint to manufacturer’s specifications to lower risk of mould. Similar chemicals are being investigated for New Zealand use. Diluting the paint decreases the effectiveness of the mould killer.

### Uncoated plywood

Treated uncoated plywood has limited resistance against mould development. Mould and algae can form part of a rustic design. If mould is not desirable, the plywood should be coated as soon as practical (a maximum of two weeks

for exterior exposure). The most effective place for mould resistant chemicals is in a coating. After longer exposure, coating preparation should include a wash with cleaning solution.

### ***Stained and painted plywood***

Mould can be washed off. When properly applied, a paint containing a mouldicide should prevent mould for many years. Confirm mouldicide content with paint suppliers. Mould must be removed prior to re-finishing. Otherwise the mould may grow through the new coating and cannot be controlled. The entire system may then require stripping and a new finishing system applied.

### **Re-finishing previously painted plywood**

Acrylic paints can be applied directly to weathered painted surfaces if the old paint is clean and sound. Scrub off loose paint, remove mould as above, rinse and allow to dry before repainting. Exposed wood should be cleaned and allowed to dry for at least two days before priming and top coating.

### **Further information and instruction on painting**

Plywood veneer is solid *Pinus radiata*. Many practices used with exterior timber are applicable to plywood.

Different manufacturers have different recommendations for the coating of exterior plywood. Consult manufacturers for details on latest paint brands, technologies and applications.

Reputable manufacturers include the following: Wattyl Ltd, Taubmans, Orica (Dulux and Cabot's brands), Woodmans/Boscote, Resenes paints. This list is by no means exclusive.

NB: Churton Distributors: CD50 is not compatible with LOSP-treated plywood claddings.

### **Limitations**

All statements in this Technical Note shall be read subject to the plywood being properly installed used and maintained in accordance with specifications herein, product specific brochures available from Carter Holt Harvey Ltd, and in accordance with the Building Code. This information is based on data available at the time of writing, which we believe is accurate and reliable. From time to time the information will be added as new data becomes available.

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