

Resene

✓ Popular Paint Systems

Painting roofs

This document is an edited version of the Resene Best System Selling training notes provided to Resene staff and is provided to enable you to gain a greater understanding of the substrates and paint systems you may encounter in your decorating project. It is impossible to cover all decorating scenarios in a single document, so if you are in doubt about any aspect of your project please contact Resene for assistance.



Resene
the paint the professionals use

Painting systems for roofs – primers and preparatory products

Roof primers have two main functions:

1. They must adhere strongly to the old coating and/or bare metal as well as being a base for subsequent topcoats, including repaints applied many years into the future.
2. They must protect the galvanised iron or Zinalume from corrosion.



Resene Galvo One (see Data Sheet D41)

- Probably the most specified and used roof primer in New Zealand.
- Resene Galvo One **'welds'** itself to new and old, including lightly rusted, galvanised iron and Zinalume.
- Resene Galvo One is solventborne.
- Drinking water may be collected from roofs primed with Resene Galvo One and then topcoated with Resene Hi-Glo or Crown Roof Paints.
- Resene recommend that Resene Galvo One is overcoated within three months.
- For roofs within 500 metres of the sea Resene recommend a second coat of Resene Galvo One is applied.



Resene Galvo-Prime (see Data Sheet D402)

- An excellent waterborne primer for new galvanised iron and Zinalume.
- Fast drying and easy to use. It is not uncommon for professional painters using airless spray equipment to apply a coat of Resene Galvo-Prime and two coats of Resene Hi-Glo on a roof in a single day.
- Resene Galvo-Prime will perform as well as Resene Galvo One on new roofs (up to 3 months old). However Resene Galvo One performs better on weathered galvanised iron surfaces and should be preferred over Resene Galvo-Prime.



Resene Cool Primer (see Data Sheet D402C)

- Developed as part of the Resene Cool Colour System along with the Cool Colour topcoat.
- In most cases it will reduce the heat absorption of the roof. However the level will be dependent on the topcoat colour.
- May be applied directly over new Zinalume, galvanised iron or over an existing paint system.
- The benefit is partially derived from its colour so it must not be tinted.

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Resene Roof Wash and Paint Cleaner (see Data Sheet D88)

- Roof Wash and Paint Cleaner is specifically developed to remove the form oils and other surface contaminants from new roofs.
- It is essential that new roofs are washed down before priming. A large soft bristled broom is ideal.
- **NOTE: Waterblasting on its own will not remove form oils from new Zinalume or galvanised iron.**



Resene Moss & Mould Killer (see Data Sheet D80)

- Moss and mould will grow on New Zealand and Australian roofs just as it will on weatherboards and concrete and it must be killed and removed before painting.
- Mould and lichen will not grow on bare galvanised iron or Zinalume.
- Roofs that are partially or completely shaded by trees are particularly conducive to mould and lichen growth.



The lichen will need to be scraped off after first treating with Resene Moss & Mould Killer.



The discolouration on the roof is mould.



Resene Deep Clean

While too slow acting for most repainting situations, Resene Deep Clean is ideal for concrete, slate, decramastic and tile roofs if you want to kill the moss and mould and clean them up.



Resene roof paint systems - topcoats



Resene Hi-Glo (see Data Sheet D31)

- Resene Hi-Glo Acrylic is made with UV resistant pigments and tough polymers to give a durable, long life and high gloss finish.
- Dries quickly and two coats may easily be applied in a day.
- Use colours from the Hi-Glo Roof Chart. They are optimised for durability and UV resistance.



Resene Hi-Glo Cool Colour (see Data Sheet D31C)

- This is standard Resene Hi-Glo with the addition of heat reflecting pigments, effectively reducing the amount of infrared radiation the coating absorbs and therefore how hot it gets. When roofs get too hot, the ceiling space below also heats up and results in the house heating to uncomfortable levels.
- Allows you to use darker, deeper colours where previously lighter shades would have been needed (and possibly an air conditioner).
- The benefit gained in using the primer will depend on the topcoat colour.

Ultimately the choices of which primer and topcoat to use is straightforward once you know:

- **The level of quality you want.**
- **The condition or state of the roof.**

Things to consider

1. What sort of roof you have?

- Most roofs are either galvanised iron or Zinalume, but there will be significant differences in the age and condition of the roof and this can change the system we recommend. Is the roof already painted?
- Is it corrugated or longrun?
- We also cover COLORSTEEL®, which will generally need repainting after 12-15 years.



An example of longrun (or tray section) roofing.



An example of corrugated iron roofing.

2. How old is the roof?

3. What is the condition of the roof and paint system?

- Roofs in good condition are easy to paint.
NOTE: Old uncoated roofs may look sound but will have a vastly reduced layer of zinc left and may need a second coat of primer.
- Flaking and rusting roofs need to be well prepared before any topcoats are applied.

4. Is the home (or building) close to the sea – say within 500 metres?

- Roofs close to the sea should have two coats of primer applied.
- The underside of exposed galvanised soffits **must** have extra coats of primer.

5. Roughly how big is your roof?

- To determine paint quantities and select the most appropriate accessories you need to know if its longrun or corrugated as a corrugated roof roller is useless on a longrun (tray) roof.



Access to these roofs will be difficult and potentially dangerous.



6. Are you painting the roof yourself?

- If you are painting the roof yourself, you will need to have information on how to:
 - i) Prepare the roof for painting.
 - ii) How to apply the paint, particularly if using a MIOX or aluminium colour.
 - iii) Paint and prepare the roof safely.

7. What colour do you want?

- Remember Resene roof colours are carefully selected for UV stability. Other colours may be more subject to fading. Light colours will show up defects in roofs. Resene also has colour matches for most 'COLORSTEEL®' colours. MIOX containing colours are the most durable.

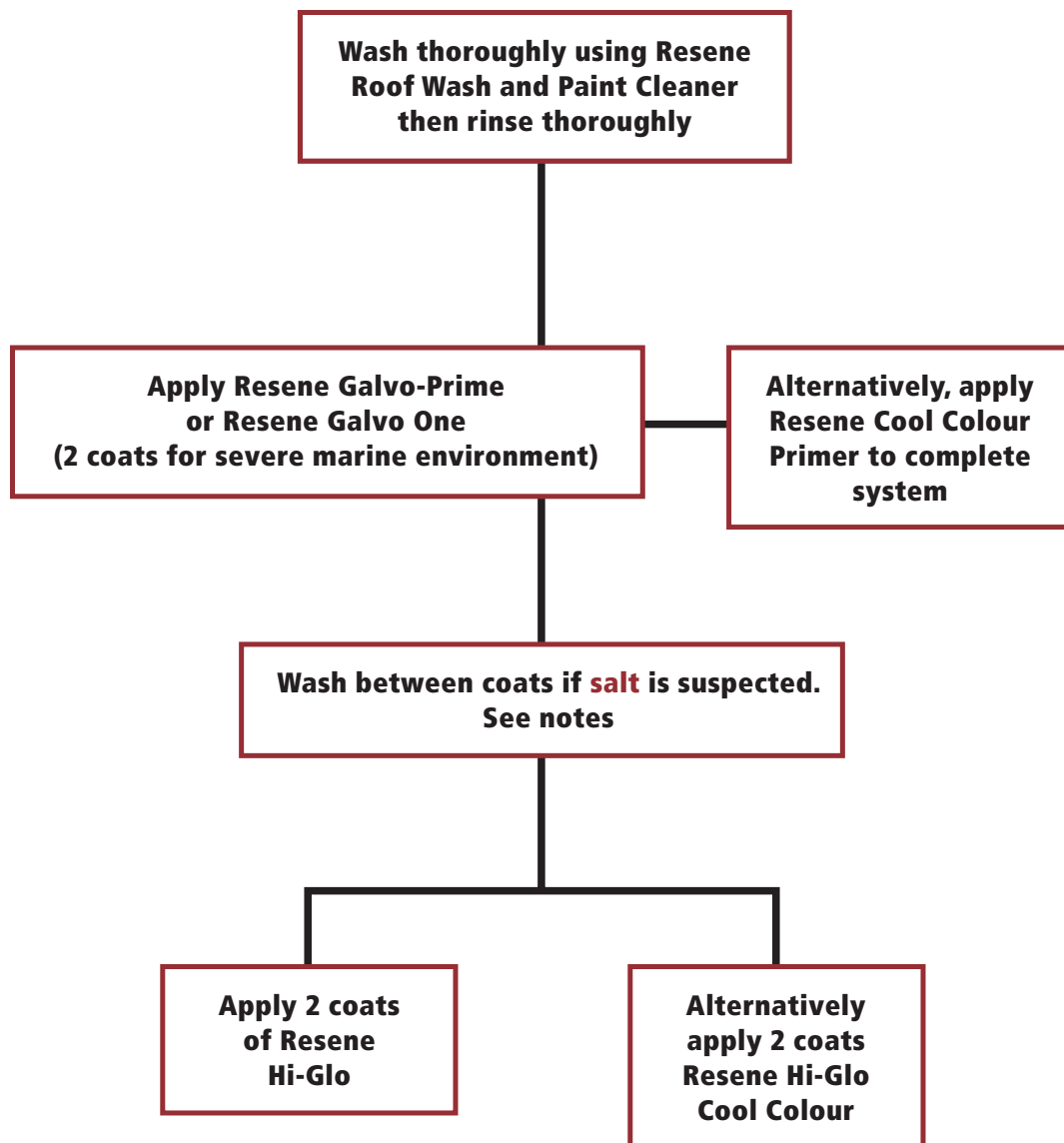
8. Have you considered a Cool Colour to minimise heat retention?

9. Do you collect drinking water from the roof?

- This is more likely to be the case with rural homes or holiday baches.
- If the answer is yes, disconnect the drainpipes until the Resene Galvo One is topcoated and for at least the first decent rain shower.



New galvanised/Zincalume (up to six months old)



¹ To optimise the benefits of the Resene Cool Colour topcoat use Resene Cool Primer.

New galvanised/Zincalume (up to six months old)

Things to consider

- **What sort of roof do you have?**
- **Do you know how old the roof is?**
- **Do you live close to the sea, say within 500 metres?**
- **Is access a problem?**
- **What is the floor area of your house?**
- **What colour do you have in mind?**
- **Have you considered Resene Cool Colour paints?**

Notes:

- New galvanised iron is much less common today than 10 years ago. In the roofing market it has been replaced by Zincalume, which as the name indicates is a blend or mixture of zinc (galvanising) and aluminium.
- During the manufacturing process (often called 'forming'), an oil or thin acrylic coating is applied to the surface of each sheet. This layer will remain on the surface until it either erodes away after exposure to the weather (this can take upwards of a year) or it is removed manually. This is why Resene Roof Wash and Paint Cleaner is recommended for new Zincalume or galvanised iron.

To work, the primer must be applied to the metal surface, as any unremoved form oil or acrylic layer will inevitably lead to the paint delaminating or falling off.



- The overlap areas of the roof should be primed top and bottom before a new roof is put up. These areas will always corrode first if this isn't done leading to premature rusting.
- Waterborne Resene Galvo-Prime may be used in place of solventborne Resene Galvo One. It is better for the environment and performs as well or better on new iron. However, the older the iron the more likely it is there will be corrosion of the zinc and aluminium. This is often called white rust. Resene Galvo One is much more effective over white rust than Resene Galvo-Prime.
- If two coats of primer are required it is fine to mix and match. So Resene Galvo-Prime or the Resene Cool Primer may be applied over Resene Galvo One.
- Any salt that is deposited on the roof between coats or after preparation must be rinsed away. In practice this means if the roof is near the sea and there has been an on shore breeze, hose the roof down and allow to dry before applying the next coat.

Key accessories essential to complete the job

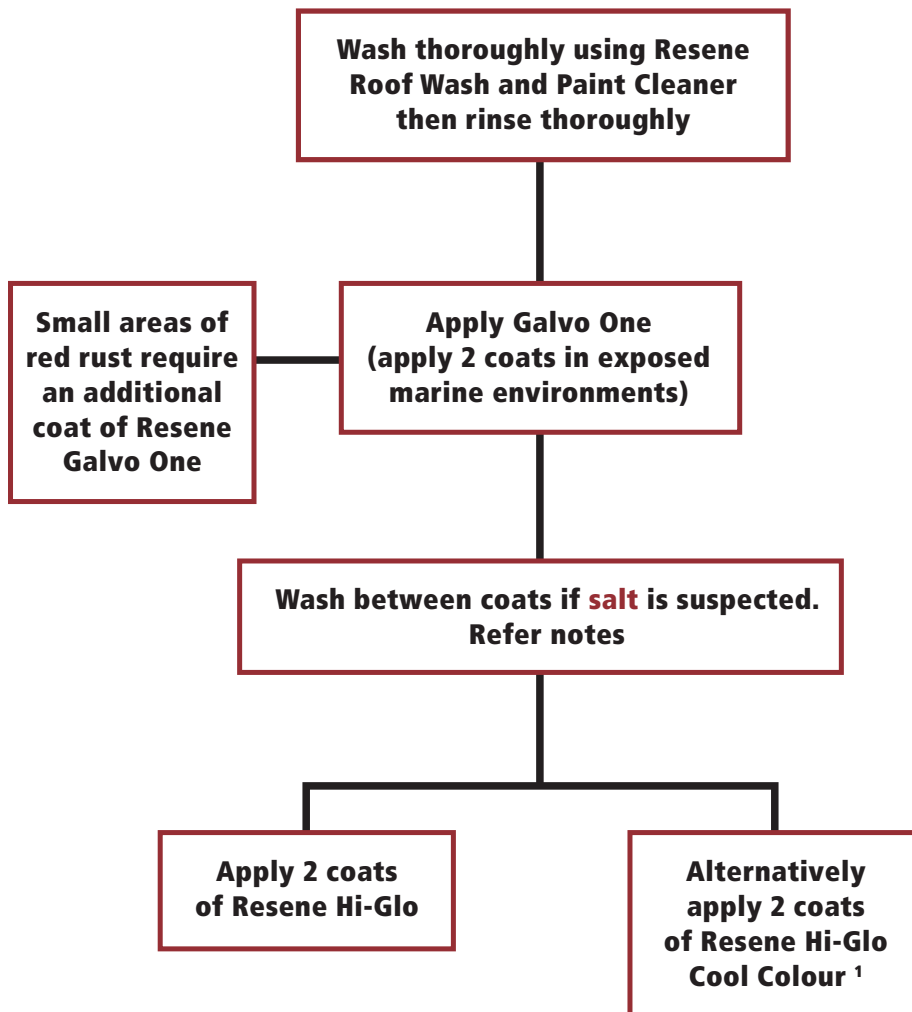
- PAL corrugated roller kit (if painting corrugated iron)
- Resene black 75-100mm brush for cutting in flashings and the ends of sheets, Haydn Genius or PAL Legend if painting longrun or trough section roof
- Resene Hot Weather Additive
- Resene Roof Wash and Paint Cleaner
- Roller extension pole
- Turps for Resene Galvo One

Add-ons – to make the job easier or quicker

- Gloves
- Hand cleaner
- Paint pots (especially when 10 litre pails are bought)
- UV protection



Weathered unpainted galvanised/zincalume



¹ To optimise the benefits of the Resene Cool Colour topcoat use Resene Cool Primer.

Weathered unpainted galvanised/zincalume

- Things to consider**
- **What sort of roof do you have?**
 - **Is your roof painted?**
 - **Do you know when it was last painted?**
 - **Is it faded or chalking?**
 - **Do you live close to the sea, say within 500 metres?**
 - **Is access a problem?**
 - **What is the floor area of your house?**
 - **What colour do you have in mind?**
 - **Have you considered Resene Cool Colour paints?**

Notes:

- Just when a galvanised roof should be considered 'weathered' is a judgement call. Typically weathered galvanised iron or Zincalume will be dull, almost mottled in appearance. Almost certainly white rust will be starting to form.
- Resene Galvo One is much better at dealing with white rust than the waterborne Resene Galvo-Prime and Resene Cool Primer. So if the roof has been left unpainted for approximately 6 months, use Resene Galvo One. If it is close to the sea (1km) then a second coat is highly recommended.
- Old unpainted roofs will eventually start to rust as the protective galvanising layer erodes and the iron is exposed. If it is not too bad, say a 'dusting' of red rust in a few places, rather than a heavy red rust colour, then apply a second coat of Resene Galvo One on these areas. Alternatively Resene Galvo-Prime or Resene Cool Primer may be used as the second coat.
- Any salt that is deposited on the roof between coats or after preparation must be rinsed away. In practise this means if the roof is near the sea and there has been an on shore breeze, hose the roof down and allow to dry before applying the next coat.

Key accessories essential to complete the job

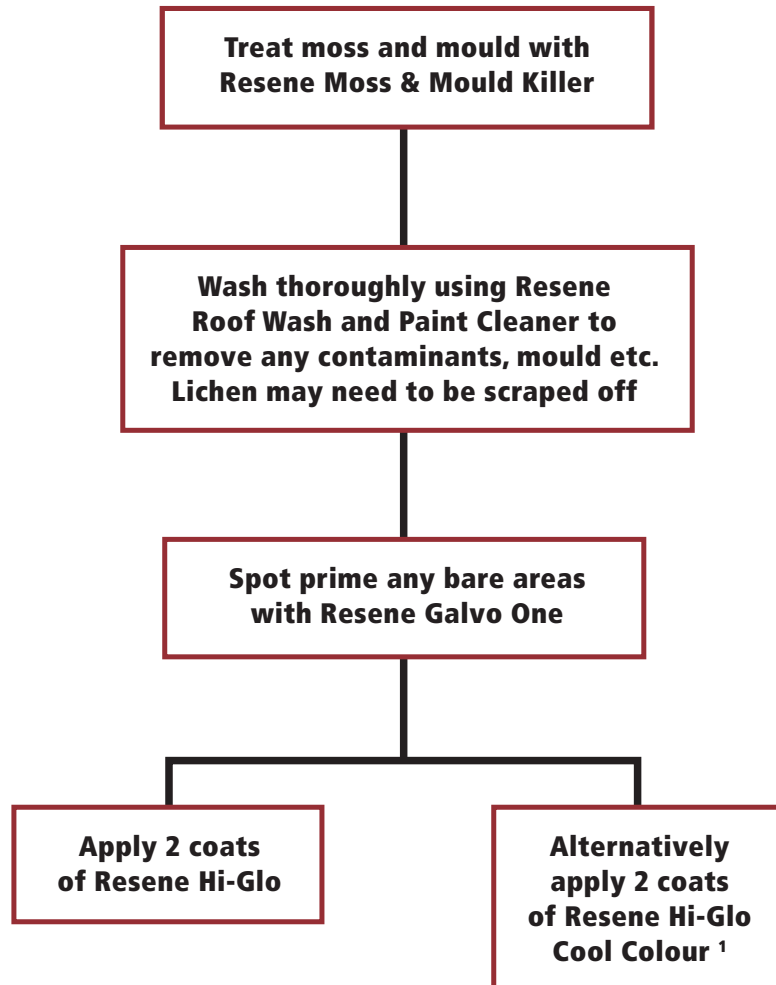
- PAL corrugated roller kit (If painting corrugated iron)
- Resene black 75-100mm brush for cutting in flashings and the ends of sheets, Haydn Genius or PAL Legend if painting longrun on trough sections
- Resene Hot Weather Additive
- Resene Roof Wash and Paint Cleaner
- Roller extension pole
- Turps for Resene Galvo One

Add-ons – to make the job easier or quicker

- Gloves
- Hand cleaner
- Paint pots (especially when 10 litre pails are bought)
- UV protection



Repainting roofs in good condition



¹ To optimise the benefits of the Resene Cool Colour topcoat use Resene Cool Primer.

Repainting roofs in good condition

- Things to consider**
- **What sort of roof do you have?**
 - **Do you know how old the roof is?**
 - **Do you live close to the sea, say within 500 metres?**
 - **Is access a problem?**
 - **What is the floor area of your house?**
 - **Do you have any moss, mould or lichen on the roof?**
 - **Do you have any rusted areas?**
 - **What colour do you have in mind?**
 - **Have you considered Resene Cool Colour paints?**

Notes:

- Existing roofs in good condition simply need thorough washing with Resene Roof Wash and Paint Cleaner to remove chalking, dirt and salt deposits, followed by a good rinse with clean water. Remember to disconnect spoutings if rainwater is collected.
- Consider using a Resene Cool Colour to minimise heat retention if selecting a dark colour.
- Resene Moss & Mould Killer will be needed if there is any moss and mould present, often where trees overhang roofs. Lichens will need to be scraped off.

Key accessories essential to complete the job

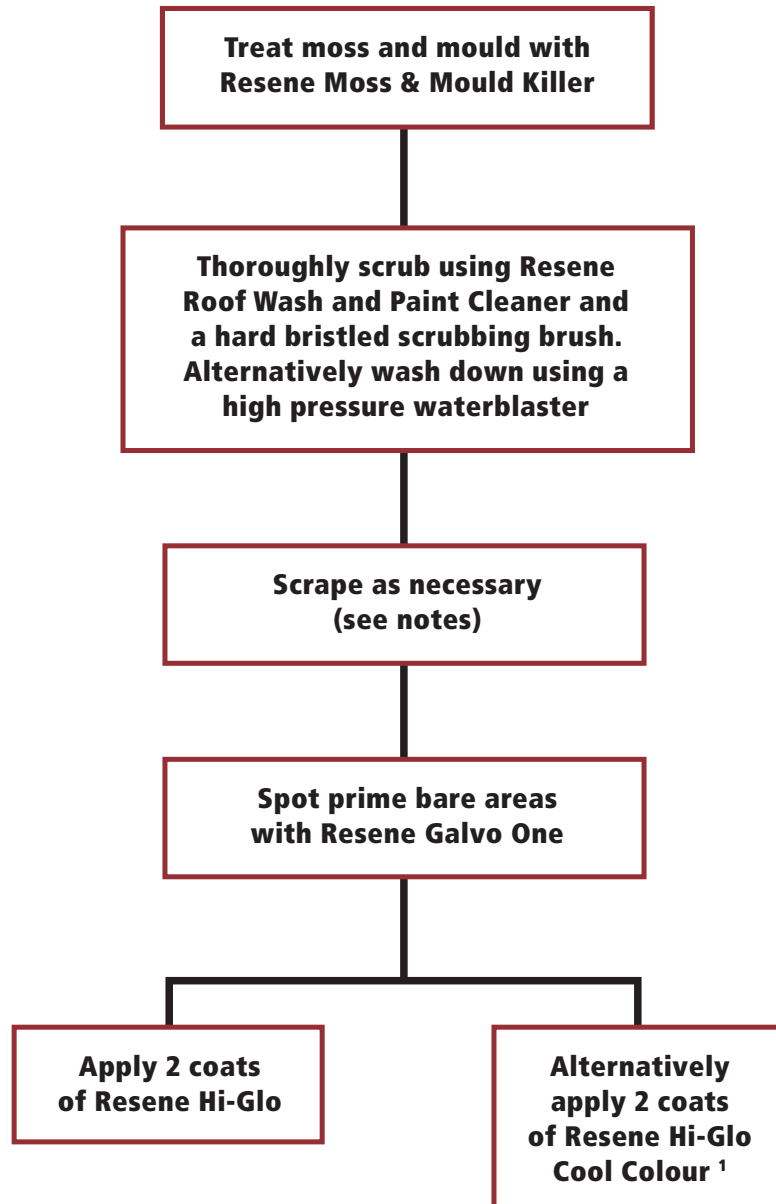
- PAL corrugated roller kit (if painting corrugated iron)
- Resene black 75-100mm brush for cutting in flashings and the ends of sheets, Haydn Genius or PAL Legend if painting longrun on trough section
- Resene Hot Weather Additive
- Resene Roof Wash and Paint Cleaner
- Roller extension pole
- Turps for Resene Galvo One

Add-ons – to make the job easier or quicker

- Gloves
- Hand cleaner
- Paint pots (especially when 10 litre pails are bought)
- Scraper to remove lichen
- UV protection



Repainting roofs in poor condition



¹ To optimise the benefits of the Resene Cool Colour topcoat use Resene Cool Primer.

Repainting roofs in poor condition

- Things to consider**
- **What sort of roof do you have?**
 - **Is your roof painted?**
 - **How long ago?**
 - **What sort of condition is it in, any flaking or rust present?**
 - **Do you live close to the sea, say within 500 metres?**
 - **What colour do you have in mind?**
 - **Have you considered Resene Cool Colour paints?**
 - **What is the floor area of your house?**
 - **Is access to the roof likely to be a problem?**

Notes:



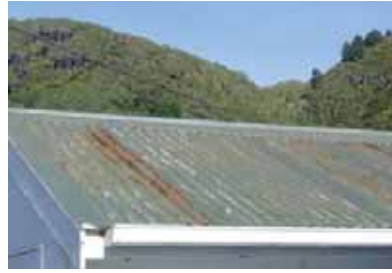
- Often roofs with flaking paint will also be dirty and have some mould and lichen growth. Preparing them is likely to be time consuming and difficult to judge the level of preparation needed. A balance between removing the paint that is unsound and not damaging the roof must be found.
This is why Resene recommend scrubbing with Resene Roof Wash and Paint Cleaner and a hard bristled brush to waterblasting.
 - Hard wire brushing or sanding should be confined to the red rusting areas only. This will avoid damaging the protective galvanised layer, which will simply lead to more rusting.
- The prepared area must be primed promptly. Do not leave overnight as dew causes the edges of the paint to lift and you will need to start over. Collect any removed paint and check that the gutters and downpipes are cleaned out.

Key accessories essential to complete the job

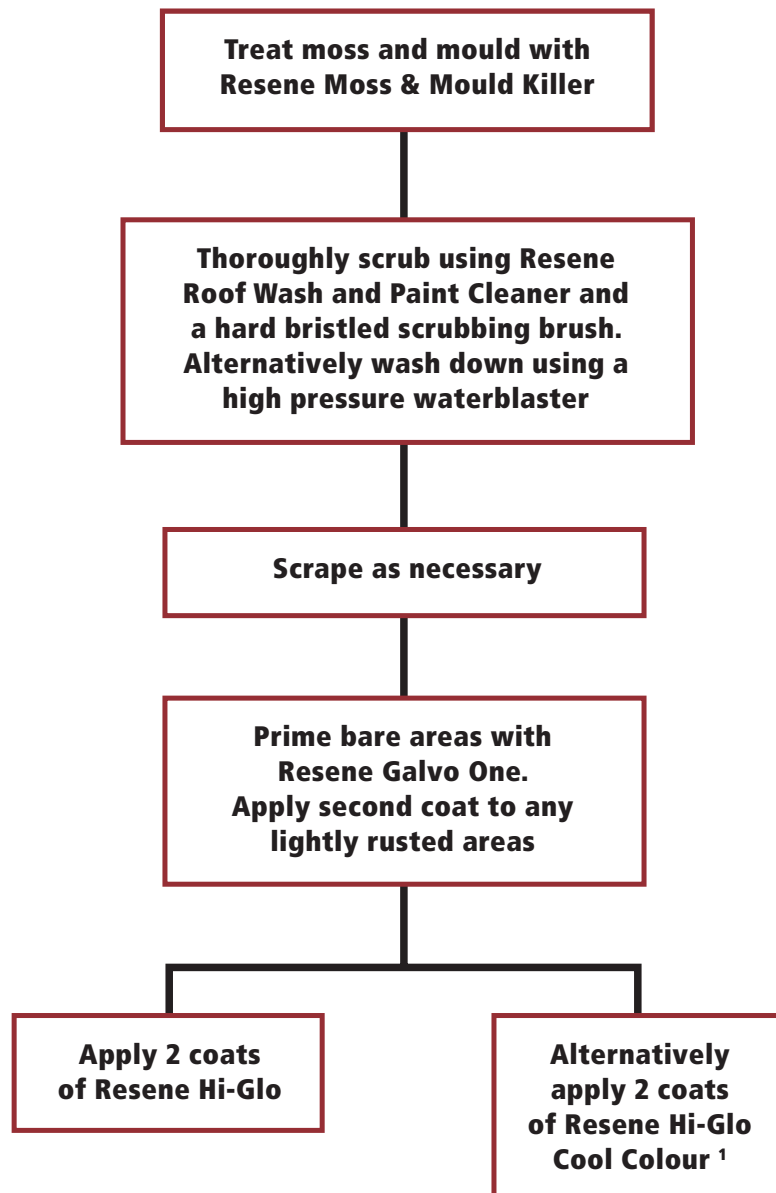
- PAL corrugated roller kit (if painting corrugated iron)
- Resene black 75-100mm brush for cutting in flashings and ends of sheets, Haydn Genius or PAL Legend if painting longrun on trough sections
- Resene Hot Weather Additive
- Resene Roof Wash and Paint Cleaner
- Roller extension pole
- Turps for Resene Galvo One

Add-ons – to make the job easier or quicker

- Gloves
- Hand cleaner
- Paint pots (especially when 10 litre pails are bought)
- Scraper to remove lichen
- UV protection



Existing roof paint in poor condition (flaking paint and red rusting)



¹ To optimise the benefits of the Resene Cool Colour topcoat use Resene Cool Primer.

Existing roof paint in poor condition (flaking paint and red rusting)

Things to consider

- **What sort of roof do you have?**
- **Is your roof painted?**
- **How long ago?**
- **What is the condition of the roof?**
- **Is there flaking paint and/or rust present?**
- **Do you live close to the sea, say within 500 metres?**
- **What colour do you have in mind?**
- **Have you considered Resene Cool Colour paints?**
- **What is the floor area of your house?**
- **Is access to the roof likely to be a problem?**

Notes:

- Older roofs that have been neglected often have flaking paint and 'white' rust and often some 'red' rusted areas. If the roof is badly corroded replacement is often a better option, either the entire roof or in some cases individual sheets.



- While Resene Rust-Arrest primer is excellent for preparing rusted areas it does not adhere well to the adjacent galvanised surfaces. Resene Galvo One is an excellent compromise, applied in multiple coats to achieve a high film build on any lightly rusted areas.
- An alternative is to use Resene Alumastic as a spot primer. It comes in 1 litre composite packs for this purpose.



Key accessories essential to complete the job

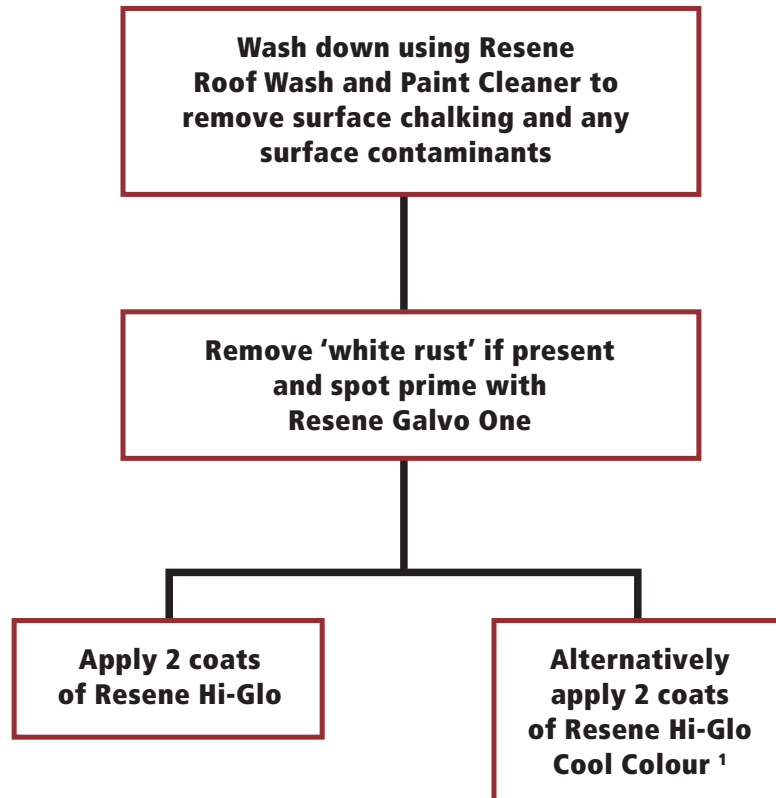
- Extension pole
- PAL corrugated roller kit (if painting corrugated iron)
- Resene black 75-100mm brush for cutting in flashings and ends of sheets, Haydn Genius or PAL Legend if painting longrun on trough sections
- Resene Hot Weather Additive
- Resene Roof Wash and Paint Cleaner
- Turps for Resene Galvo One

Add-ons – to make the job easier or quicker

- Gloves
- Hand cleaner
- Paint pots (especially when 10 litre pails are bought)
- Scraper for removing lichen
- UV protection



Repainting COLORSTEEL®/COLORBOND®



¹ To optimise the benefits of the Resene Cool Colour topcoat use Resene Cool Primer.

Repainting COLORSTEEL®/COLORBOND®

Things to consider

- **What sort of roof do you have? Is it a Biga Rib or corrugated?**
- **Is it faded and chalking?**
- **Do you live close to the sea, say within 500 metres?**
- **Do you know how old the roof is?**
- **Is there any 'white rust' present?**
- **What colour do you have in mind?**
- **Have you considered Resene Cool Colour paints?**
- **What is the floor area of your house?**

Notes:

- Older COLORSTEEL® and COLORBOND® roofs will be faded and chalked and in severe cases, white rust and corrosion will be evident. Use Resene Roof Wash and Paint Cleaner to prepare the surface, scrubbing any white rust with a nylon Scotchbrite scouring pad. Prime the affected areas with Resene Galvo One.
- Topcoat with Resene Hi-Glo. An adhesion primer is not usually required and Resene Hi-Glo (including Resene Hi-Glo Cool Colour) is our only recommendation for COLORSTEEL® and COLORBOND®.
- COLORBOND® is the Australian equivalent to COLORSTEEL®.
- Because we manufacture Resene Hi-Glo Roof, Resene Hi-Glo Cool Primer and topcoat with expensive adhesion promoters they have tremendous adhesion to both COLORSTEEL® and COLORBOND®.
- Crown Roof Paint along with most other products on the market is not able to be applied directly to COLORSTEEL®. Resene Hi-Glo will also stick to new COLORSTEEL®/COLORBOND®, provided it has had a couple of weeks' weathering.
- COLORSTEEL® and COLORBOND® profiles are usually either corrugated or Biga Rib.
- See appendix for more information on painted COLORSTEEL®.
- Refer to Resene if there is delamination present (as there is in the photo) as this could represent a COLORSTEEL® system failure.



Key accessories essential to complete the job

- Extension pole
- PAL corrugated roller kit (if painting corrugated iron)
- Resene black 75-100mm brush for cutting in flashings and ends of sheets, Haydn Genius or PAL Legend if painting longrun on trough sections
- Resene Hot Weather Additive
- Resene Roof Wash and Paint Cleaner
- Turps for Resene Galvo One

Add-ons – to make the job easier or quicker

- Gloves
- Hand cleaner
- Paint pots (especially when 10 litre pails are bought)
- Scraper to remove lichen
- UV protection

Other Resene tools



EZYPAINT – Easy virtual painting, testing colour combinations using our extended gallery of typical houses, or virtual painting their own homes.

Resene EzyPaint is free from www.resene.co.nz and available on CD Rom instore.



RESENE IS COLOUR– Don't forget our instore colour library and free colour cards. Remember most colours are available in Resene testpots so you can try out your favourite colour on the area you are planning to paint.



Resene Paints Ltd:
Certified since 1996

Choose **Environmental Choice Products**. They are not only better for the environment, but strong paint odours may cause a raft of nasty side effects, from skin irritations to asthma, headaches and dizziness.

Environmental Choice products are a healthy choice!



RESENE COLORSHOP CARD – Enjoy special privileges and discounts.



RESENE SHOPCARD – Ask your Resene ColorShop staff member for a copy of the Resene Shopcard with their details so you can quickly contact the Resene ColorShop and staff member should you have any questions once you get home.

How much roof paint is needed?

For corrugated iron a good rule of thumb is to take the floor plan area and add an additional 40% to allow for the pitch of the roof, the corrugations and soffit overhangs. (*Corrugated iron is 10.5% greater in area than its flat measure.*)

- For longrun and other tray sections, which have a greater overall surface area, double the floor area to work out the paint volume.
- If a tiled roof is being painted then the floor area should also be doubled.
- You will usually use between 1 and 4 litres of primer if the roof is in reasonable condition.
- Use a spreading rate of 12m² per litre for each coat of Resene Hi-Glo (or 6m² per litre for two coats).

The following is an example of a calculation to work out how much paint a 150m² home with a new galvanised corrugated iron roof will need:

Area + 40% divided by spreading rate gives the usual quantity of paint needed.


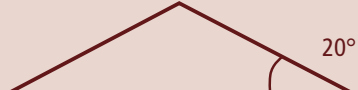


$$\begin{aligned} \text{Primer } 150 + (40\%) &= 150 + 60 = \underline{210} \\ \text{@12m}^2 \text{ per litre} & \qquad \qquad \qquad \underline{12} = 18 \\ & \qquad \qquad \qquad = 5 \times 4 \text{ litre cans} \\ & \qquad \qquad \qquad \text{or} = 2 \times 10 \text{ litre pails} \end{aligned}$$

and

$$\begin{aligned} \text{Hi-Glo } 150 + (40\%) &= 150 + 60 = \underline{210} \\ \text{2 x coats @12m}^2 \text{ each} & \qquad \qquad \qquad \underline{6} = 35 \\ & \qquad \qquad \qquad = 4 \times 10 \text{ litre pails} \end{aligned}$$

Primers need to be included in the calculation. For example on new roofs there is a **full** coat of primer @ 12m² per litre.

The following table may help you to determine how much paint you need.

Roof angle		Corrugated		Trough section	
 10°	Topcoat	18.6	2 x 10 litres	25.4	3 x 10 litres
	Primer	9.3	1 x 10 litres	12.7	1 x 10 litre 1 x 4 litre
 20°	Topcoat	19.6	2 x 10 litres	26.6	3 x 10 litre
	Primer	9.8	1 x 10 litres	13.3	1 x 10 litre 1 x 4 litre
 30°	Topcoat	21.3	2 x 10 litres	28.9	3 x 10 litres
	Primer	10.6	1 x 10 litre	14.4	1 x 10 litres 1 x 4 litre
 40°	Topcoat	24.1	2 x 10 litres 1 x 4 litre	32.7	3 x 10 litres 1 x 4 litres
	Primer	12	1 x 10 litre 1 x 4 litre	16.3	1 x 10 litres 2 x 4 litre

Volumes estimated at theoretical coverages for respective paints.

We have based the measurements on a home with a ground floor area of 100 square metres and have factored in the slope of the roof and the type of roofing material used, corrugated iron or trough section roofing.

Take the size of your house and multiply the litres by the same factor and your best guess on the angle of the roof. So if the house is 170m² simply multiply the volume we have calculated by 1.7.

For example, if it has a 30° degree pitch and is corrugated then you will need 1.7 x 21.3 litres or 36.2 litres.

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Aluminium based colours

These look brilliant sprayed but they are less impressive if rolled or brushed.

Although both may be done we recommend brushing in preference to rolling on corrugated iron, using the techniques. The photos to the right show Resene Hi-Glo Winchester (an aluminium based colour) being applied to primed corrugated iron. The finish was very good but time consuming compared to spraying or rolling. The key is to maintain a wet edge, lay-off in the same direction and brush along the ridges rather than the hollows of the corrugations.

When spraying contractors should treat it in the same manner as MiO₂ colours.

Consider employing a professional contractor if you want to achieve the best finish with aluminium based colours.

NOTE: Resene Hi-Glo Aluminium is simple and straightforward to apply, it is only colours tinted from it that present application issues.



COLORBOND® and COLORSTEEL®

Both brands are owned by BHP, one of Australia's biggest companies and one of the world's largest producers of steel and steel products. COLORBOND® and COLORSTEEL® are the Australian and New Zealand brand names for some of their steel products, mostly roofing. They also produce flashings, fencing and the like.

COLORBOND® and COLORSTEEL® are sheets of Zinalume that have been coated with a factory applied, protective paint system. They are then formed into the finished products. For example, a window, roof flashing or a sheet of longrun.

In most cases the roofer will order the roofing sheets cut to size, for example if the length is 4.2 metres the roofing contractor or builder may order their sheets of COLORSTEEL® roofing precut to this length.

COLORSTEEL® and COLORBOND® products come in different grades and colours, depending on customer choice and the level of protection needed.

They also come with a very comprehensive warranty.

Colour

There are a number of issues that should be considered when selecting roof colours. They include:

1. The aesthetics, will the colour suit the dwelling?
2. How important is the colour to overall colour scheme?
Some truly stunning colour schemes that really add value to a property are possible when the roof colour is sympathetically incorporated in the overall colour scheme.
3. Balance, some roofs dominate the building and too strong a colour will only accentuate this, while the reverse may also be true.
4. UV resistance, our roof colours are chosen not only for their looks but for their UV resistance. Some colours (and pigments) resist UV light better and as roofs receive the full force of the sun much more so than the other claddings, colour selection is important.
5. Reflective value (or relative reflective value in the case of the Resene Cool Colours).
6. Environmental concerns. Some councils are very prescriptive over which colours may or may not be used.

No matter how you approach the selection of a roof colour, the key is to recognise that it is (in most cases) a significant element of the house. It should be considered in the overall context of the colour scheme and be sympathetic to the environment, nearby buildings and structures.

The roofs of the homes below are good examples of the roof colour contributing in a positive way to the overall look.



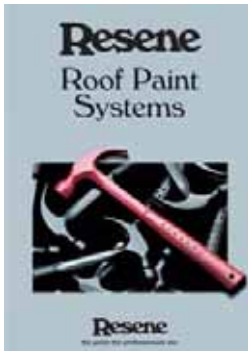
Colour charts

The Resene Total Colour System is very powerful. It enables virtually any colour to be offered in almost all finishes, so all colours are available as a roof colour. We do not really have any restrictions on where a colour can or cannot be used, however a roof receives a great deal of exposure to UV light and this is made worse by the angle of the roof.

A painted surface exposed at a 45 degree angle will receive twice as much UV light as a surface that is horizontal or vertical. This is also why the top edge of windowsills always fade and breakdown more quickly than the rest of the window.

Resene ✓ Popular Paint Systems

Painting roofs



While any of our colours may be used on a roof, Resene recommend you select roof colours from the Resene Hi-Glo roof chart.

As well as featuring colours which have been selected for their durability and looks the Resene Hi-Glo chart also features colours that are not available elsewhere, notably the MIOX and aluminium based colours.

The Crown Roof Range offers less choice in terms of colour (it doesn't offer a MIOX or aluminium for example) but does include most of the popular COLORSTEEL® colours and is a cheaper alternative to Resene Hi-Glo.



Crown was introduced as a budget option for those who want a reasonable quality of paint but cannot afford Resene Hi-Glo.

Colour choices

Most colours used in New Zealand tend to be dark shades, including popular COLORSTEEL® colours like Karaka, Ironsand and Grey Friars all of which have relatively low reflective values.

Titania (which is almost white) from the COLORSTEEL® range is also very commonly used, both as roofing and as a cladding, however mainly on commercial buildings.

Cool Colour

This is state of art and still evolving technology.

A Resene Cool Colour will absorb less heat than the same colour in a standard paint system (most of the comparisons are between Resene Hi-Glo Cool Colour and standard Resene Hi-Glo).

This is achieved by using unique specialty pigments (tinters) that we have combined into a Resene 'Cool Colour' tone along with a white primer and/or undercoat. The specialty pigments reflect infrared, which is responsible for 46% of the heating effect on a roof or other surface.

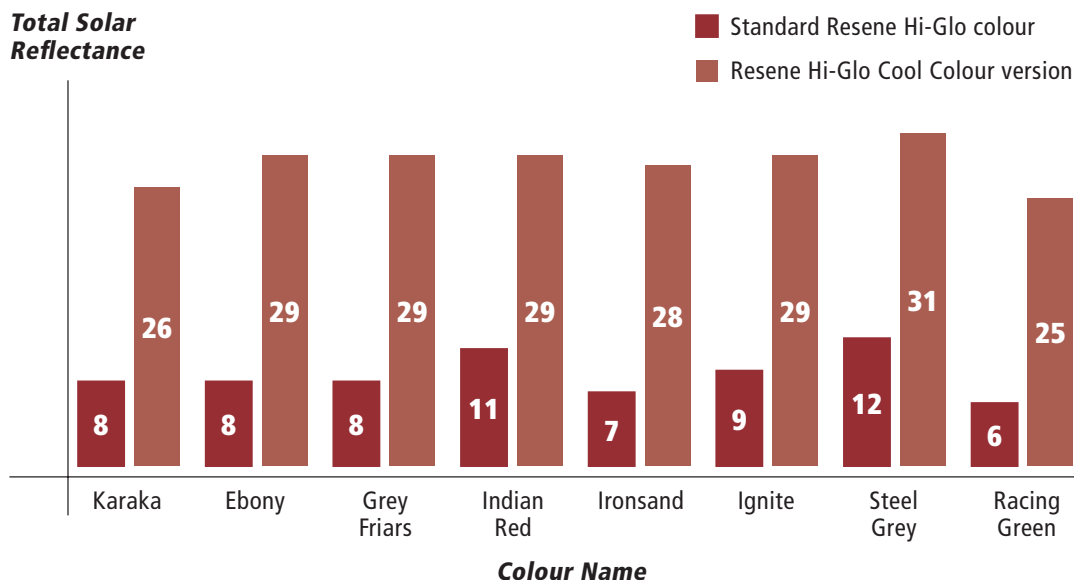
By reducing how much infrared is absorbed the cooler the surface will be.

The heat given off by a heater or fire is infrared heat and obviously hot. As a test simply roll one leg of your jeans up and stand in front of a heater, the bare leg will get much hotter faster.

The two colours below are an example of this technology. The darker shade using Resene Cool Colour technology will have the same heat absorption as the lighter shade.



The following table shows the Total Solar Reflectance (TSR) for standard Resene Hi-Glo Roof colours compared to the Resene Cool Colour TSR. Resene Cool Colours reflect considerably more heat than standard paint.



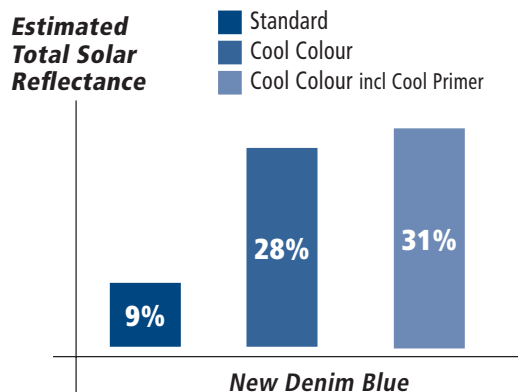
1. Where should Resene Cool Colours be recommended?

Any hot part of New Zealand and probably all of Australia. Or as an alternative to using light colours, which don't always suit the colour scheme or style of the house, especially traditional homes and villas.

2. Do I need the primer?

Most of the roof colours that have a Resene Cool Colour option will benefit by using the Resene Cool Primer first. So for new roofs this means simply switching from Resene Galvo-Prime to Resene Cool Primer. There are no additional coats required and the pricing is comparable.

Resene Cool Primer used in conjunction with Resene Cool Colour topcoats will give the optimum cooling benefit, however some Resene Cool Colour topcoats will work well without the Resene Cool Primer. Generally colours like black or dark greens will work well without the Resene Cool Primer, while colours such as blues like New Denim Blue will work best with the Resene Cool primer.



Reflectance values

Resene include reflectance values on colour charts. Reflectance values indicate how much visible light is 'reflected' from the surface, the scale runs from 0-100 with 0 being black and 100 being white. The deeper the colour the lower the reflectance value and the more heat it will attract, while the reverse is also true.

This is unfortunately a rather simplistic approach as the new technology used in our Resene Cool Colour range relies not on reflecting visible light but on reducing the absorption of the heat component of the light spectrum.

So while Resene Cool Colours may have a light reflective value of 30% it will attract significantly less heat and act like a colour with a much higher reflective value.

Many Councils and Regional Authorities have specified limits on colours that may be used on roofs. Some even state that light colours, including unpainted Zinalume, must be painted to stop reflection and visual pollution of the environment - better to have a deep green roof on the house below you than a bright silver.

Resene EzyPaint

As most roofs represent the dominant element of the exterior colour scheme, using Resene EzyPaint to decide on the roof colour (and the rest of the exterior colour scheme) is almost a prerequisite before committing to buy the paint and/or instructing a painter.

The three photos shown below, are of a house from Resene EzyPaint that has had the exterior colour scheme and importantly the roof colour changed using the software.



As many people would also be considering using COLORSTEEL® to replace their roof instead of repainting, the Resene EzyPaint programme also includes the COLORSTEEL® range.

Testpots

Resene have a full range of testpots of colours from the Hi-Glo roof chart.

This means that you can test the actual colour on a small section of your roof or guttering – or try out on a smaller piece or offcut of the roofing iron.

Commercial roof painters and reinstaters

While most commercial painters will and regularly do repaint roofs there are a number of companies who operate on a niche or specialist basis. Painting clay, terracotta and concrete tiles and, in New Zealand, Decramastic tiles, hence the reference to reinstatement.

There is nothing inherently special about the service they provide nor the products and systems they use. They have simply identified a segment or segments of the market and promoted their services to them.

Commercial roofs



Most warehouse and light commercial buildings are roofed using either COLORSTEEL® or galvanised iron and often the COLORSTEEL® or galvanised iron will also form part of the cladding system of the building. (The painter in the photo is repainting COLORSTEEL® cladding.)



This look has also drifted into residential construction, however the systems for repainting or painting COLORSTEEL® and/or galvanised iron cladding are the same for roofs, although some may prefer the lower gloss of Resene Sonyx 101 or Resene Lumbersider.

Usually the roofs are purely functional with little consideration given to the colour choice. Although this is not always the case, a change in use or ownership may warrant a colour change.

Many warehouse roofs are relatively flat and not visible. This is also the case for most high rise construction with most modern buildings (those built since 1970) using either COLORSTEEL® or trough section galvanised iron. Also popular are bitumen based torchdown membranes.



Corrosion of roofs

The essential elements for corrosion of mild steel are moisture, air and salt.

New Zealand has a wide range of environmental conditions but there are few populated areas that can be classified as being subject to low corrosion rates. The notable exception to this is the Central Otago area where the combination of distance from the sea and a very dry climate means that corrosion rates are low. The areas of the Central North Island where thermal activity takes place is another special designation where corrosion rates are high due to the products produced by thermal activity.

Australia has vast areas that are considered to be low corrosion areas, however the major population centres are located relatively close to the coast.

The use of galvanised steel roofing has had a long history in New Zealand with many dwellings of the early gold miners and gum diggers still remaining to this day. The galvanising process was invented in the 18th century; corrugation was introduced to provide structural strength to the fixed cladding.

During the manufacture of galvanised sheeting, a layer of zinc is applied to the steel substrate in a process that bonds the zinc to the steel. Typically the zinc layer is about 50 microns thick, or roughly the equivalent of a coat and a half of paint.



How does galvanising protect the underlying steel? Zinc is a much more reactive metal than steel and is converted to oxidation products before the steel corrodes, this is known as 'sacrificial protection'. In simple terms the zinc is sacrificed (or rusts) before the underlying base steel. The accompanying photo shows a galvanised handrail beside the sea. The corrosion is obvious as is the remaining layer of galvanising.

The zinc layer on a galvanised sheet is very reactive and this may reduce the effective lifetime of the cladding in areas of high corrosion rates. In 1994 a new roofing material, Zinalume, which was formulated to give significantly longer service life than a galvanised product, was introduced to the local market.

The protective layer on Zinalume is an alloy coating of zinc (43.5%), aluminium (55%) and silicon (1.5%). The alloy combines the corrosion protection of aluminium with the sacrificial protection of zinc, giving the advantages of both metals. The resulting alloy enhances corrosion resistance making it a preferred product for roofing and exterior cladding use. Zinalume coated steel will provide a significantly longer service life than galvanised steel and this is particularly true in marine environments.

It is possible to visually differentiate between new galvanised steel and Zinalume. The latter has a finely spangled silvery matt finish while galvanised steel is usually brighter and has a crystalline structure to the surface.

Galvanised steel and Zinalume may be painted to extend the effective lifetime of the roofing or cladding. Painting soon after installation is always recommended as corrosion will result in loss of the protective layer and also compromise paint performance.

Cold galv/galvanising

Many painting and structural steel specifications refer to cold galv (or galvanising) which is the application of a liquid coating to damaged galvanising usually as a result of on-site welding or installation damage.

Resene offers Resene ArmourZinc 110, which we also call Cold Galvanising.

Most zinc rich primers are used on structural steel. However they do have a place as part of a roof coating system.

Resene ArmourZinc 110 may be applied to old eroded, but not heavily oxidised, zinc to replace zinc that has eroded.

It must still be primed with Resene Galvo One or Resene Galvo-Prime but it is very effective in replenishing the lost zinc on old galvanised surfaces. As it cannot be applied to red rust and it still needs priming its use is generally limited.

Red rusting

When the zinc coating eventually disappears, by slowly eroding with time, or is damaged, the exposed steel reacts quickly with the elements causing red rusting or oxidising. Because roofing materials are thin the condition is serious if not properly addressed.

Minor areas may be primed with Resene Rust-Arrest after removing loose rust. Roofs with extensive 'red' rusting need to be carefully assessed. Some may need to be entirely painted with self priming Resene Alumastic.

Sometimes advice will be necessary to determine whether to re-roof or try a specialist coating system. Contact Resene in these situations.

White rusting

White rusting is the visible white salts formed with zinc and surface moisture usually trapped between meeting surfaces, such as overlaps or under paint films. This must be removed to provide adhesion for paint systems and is best scrubbed off with a stiff brushing using Resene Roof Wash and Paint Cleaner followed by rinsing and drying before painting. 200 grit zinc stearate sandpaper is very effective as well, although very time consuming.

The two photos below both show white rust. The top of the galvanised roller door shows how white rust has formed in the top where it does not get rain washed and is subject to the prevailing wind meaning salts and other contaminants are 'blown' there and are not washed away. The second photo graphically shows white rust on a galvanised handrail. It is only a matter of time before red rust will also form.



Drinking water collection

While not common in metropolitan areas, drinking water is often collected from roofs on rural homes and baches.

It is very important that water collected from roofs is not contaminated.

Firstly when a roof is painted the downpipes that feed to the water supply and/or holding tanks must be disconnected until after the first heavy rain shower. This is so any surfactants from the paint will be washed away and not contaminate the water supply.

Secondly, it is important not to use paints, usually primers, which contain lead or other heavy metals. Over time they leach through the roof paint film and end up in the water supply.

Lead-based paints, including those based on calcium plumbate, were often used on galvanised iron.

Resene roof primers are free of lead and safe to use. Resene Vinyl Etch and Resene Rust-Arrest used to contain chromates, which meant they were unsuitable for use on roofs from which drinking water was collected. However they have been reformulated to be chromate free and are now safe to use under Resene Hi-Glo. Resene Galvo One must still be overcoated before drinking water is collected.

Glossary of roofing terms (Some of the common names)

Canterbury prickles	Are the ridge pointed over-flashing used on tray roofs.
Flashing	Is an overlay cover to waterproof a structure. Roof flashings are used at the <u>ridge</u> (top) and <u>gables</u> (ends of the roof). <u>Hip</u> flashings cover the intersecting roof planes.
Gable	Is formed at the ends of simple roof pitch.
Galvanised iron	Is thin steel sheeting coated with a layer of zinc, protecting the steel from oxidising or rusting.
Hip	Denotes the roof shape derived when all elevations follow a common fascia height and is the intersection of the roof angles.
Mansard roofs	Are where the roofing material is taken down over the walls.
Pitch	Is the angle of a roof and may vary from almost nothing (flat) to steep. Tiled roofs usually start from 32.5° angle to ensure weatherproofing.
Ridge	Is the apex of a roof and therefore usually has a 'ridge flashing' detail.
Valley	Is the internal angle of roof intersections.
Zincalume	Is a similar protective coating over steel, but is a mixture of aluminium and zinc with improved resistance to oxidation than galvanising.

High performance roofing systems

Resene Alumastic



High performance paint systems applied to a roof are usually applied when corrosion protection is required for galvanised steel or Zincalume roofs that are located in a high corrosion zone, such as close to the sea. These systems usually involve the application of a primer, intermediate coat and a topcoat. Each component of the system is required to maximise corrosion performance and provide a durable coloured finish.

Resene Alumastic is an ideal product for the refurbishment of old unpainted galvanised (or Zincalume) roofs, longrun or corrugated, when colour is not of great importance. The protective zinc layer on galvanising or Zincalume slowly disappears as the unpainted surface weathers - this is referred to as a sacrificial process as the zinc layer reacts instead of the base steel. Red rusting appears at the point when the entire zinc layer has disappeared from the roofing material and if this is not addressed it will need to be replaced.

Resene ✓ Popular Paint Systems

Painting roofs

Resene Alumastic is a high solids, aluminium pigmented, two component epoxy paint that may be applied to sound or corroded areas after roof preparation and will extend the effective life of the roof. The product works by providing a barrier between the roof and the environment. A reasonably high build of product is required for the barrier to be effective and this is best achieved by spray application using an industrial unit, such as a Graco Ultra 795 spray unit. Airless spray application can achieve the necessary film builds needed (150-200 microns) in a single application. The product may be rolled or brushed (brush application suitable for small areas only) but application by either of these methods results in a lower film build and multiple coats are needed to achieve the desired film build.

Resene Alumastic in effect replaced the roof galvanising and is an extremely cost effective alternative to either a three or four coat decorative system (one or two coats of Resene Galvo One followed by Resene Hi-Glo) or reroofing.

It is ideal for large commercial buildings, generally flat or slightly pitched, where a highly decorative finish or colour is not required.

But like the old Model T Ford (which you may recall only came in black), Resene Alumastic comes in a silver colour only and will dull relatively quickly to a matt silver finish, not dissimilar to the colour of aged galvanising.

For large roof areas a tradesperson experienced in the airless application of two component paint products should be used.

Application of Resene Alumastic can increase the effective life of a roof by up to 10 years or longer. This will depend upon the condition of the existing roof and its location.

A word of caution, Resene Alumastic is not suitable for application to an existing roof paint if the paint is alkyd or acrylic based.



How it works

Because Resene Alumastic is an epoxy, it will not allow moisture and air to easily pass through its film, where a waterborne coating will allow this to occur relatively easily.

Also it contains aluminium flake raw material, which layers itself in a similar way to fish scales and this reduces water ingress as well as making it very durable.

Issues

1. Resene Alumastic works by virtue of its high film build 150-200 microns and the impervious nature of the epoxy resin used. Applying Resene Alumastic at low film builds 70-100 microns will mean premature failure.

This is the biggest issue – applicators simply not applying enough to allow the system to work.

2. Apply additional coats to any rusted areas before applying the body coat to the roof (small areas are easily coated using a brush).
3. If brushing then multiple coats will be needed.

How to wash down a roof

If it's new or doesn't have any flaking paint simply use Resene Roof Wash and Paint Cleaner and a soft bristled scrubbing brush. Lightly wet the area that you want to prepare and scrub in a direction you are comfortable with, left to right or right to left. Once done, rinse with freshwater.

BUT

Only wet and wash about 500-750mm at a time so as to avoid any possibility of stepping and slipping on the wet roof.

The following two sequences show how to wash down a new roof and an older roof.

Resene ✓ Popular Paint Systems

Painting roofs



Cleaning a new roof

The objective is to remove the form oil from the new roofing iron. A large bucket is being used to accommodate the large soft bristled brush (similar bristles to a car wash brush).



Firstly wet the roof with fresh water – dampen only the area to be washed.



Scrub the roof – just as you would a car but only wash an area that you can easily reach. Remember if you walk on a wet roof you risk slipping.



Avoid getting too close to the edge.



Once finished rinse the area thoroughly, and then repeat the process on the next section of the roof.

Older roofs

Follow the same process as a new roof, however the roof will need a much more thorough scrub to remove not form oils but the chalky residue of oxidised paint and any other contaminants.



The two photos below show the roof before and after washing. It is very chalky with dirt and mould residue visible. After washing the chalk (oxidised paint), dirt and mould have been removed. The bare galvanised areas will need to be spot primed before painting.



before



after

Lap priming



Due to the issue described above, all four edges, both top and bottom of new galvanised iron or Zinalume should be primed to about 150mm in from the edge. This is called lap priming and is usually the role of the roofer or person installing the new roof.

This also includes the drip edge that hangs over a gutter, often the first place corrosion starts.



The photo on the left shows corrosion along the edges, which would have been significantly reduced had the laps been primed.

MIOX – Micaceous iron oxide paints and colors



This use of MiO_2 in paints, particularly protective coatings, goes back almost 50 years. Mostly they were used as a topcoat for steel structures including the Auckland and Sydney Harbour Bridges.

MiO_2 is a grey scale like pigment, which overlays each other in the same way the scales on a fish do and just as fish scales protect the fish, they protect the surface. The barrier properties of the MiO_2 pigment will help protect the substrate over which it is applied.

MiO_2 is usually combined with an alkyd resin (like the one used in Resene SuperGloss Enamel). Both are very similar and both have been superseded by waterborne MiO_2 containing roof paints and as protective coatings by more advanced systems including epoxies, such as Resene Alumastic, and acrylic urethanes, such as Resene Uracryl. The roof of the home in the adjoining photo was coated in Resene Mica Bond. The lap marks are now clearly visible as the paint has eroded over time.



In terms of recoating with Resene Hi-Glo, either a standard, MiO_2 or Resene Cool Colour will adhere well to a sound substrate.

It is worth noting that MiO_2 containing paints are both very durable and slip resistant compared to standard waterborne roof paints.

Application

Metallic pigmented paints are more difficult to apply than standard colours. This is due to the need for the metallic pigments to align correctly when applied, otherwise the appearance will look patchy. While this will reduce over time as the coating weathers and is only a cosmetic compromise (the protective properties of the paint are unaffected), it is better to avoid this potential issue by following the recommendations below.

Corrugated iron

- Mostly customers will use a corrugated roof roller. This is fine to use with MiO_2 but always:
 - Lay-off in the same direction – usually down the roof.
 - Roll over the top (or as close to the edge as you can) of any brushed areas.

Longrun (trough section)

- This is more problematic as it must either be brushed or sprayed.
 - Brush down one or two troughs at a time.
 - Always lay off in the same direction, usually down the roof.
 - Return to the top of the section you are painting and repeat. Do not brush back up the roof if you brushed down it first.

When spraying, either corrugated or longrun, spray in the same direction, particularly with longrun. Spray a trough at a time returning to the top before starting the next section.

NOTE: Most problems we encounter are because the painter chose not to follow these steps when spraying. It is obviously easier to work in a zig zag pattern, going down and then up the roof with a spraygun rather than return to the top each time.

The result is a patchy roof.

Other roof types

Asbestos cement/Super Six roofs



Asbestos was mixed in with cement to produce a relatively lightweight, fire resistant and durable roofing material, sold as tiles or more commonly as corrugated 'Super Six' roofing. Before production of asbestos containing products including roofing ceased in the early '80's, many warehouses, factories and other commercial buildings as well as a significant amount of New Zealand's and Australia's residential buildings were roofed using materials that contained asbestos.

Asbestos presents a danger to humans as ingestion of it may cause Asbestosis and other, usually respiratory illnesses.

Asbestos fibres contained in products like 'Super Six' are 'safe' as long as they are not disturbed. This is why it is safe to have a Super Six roof but not to do anything to it that may disturb and dislodge any asbestos fibres.



In practice this means waterblasting or aggressive cleaning is not permissible. The same restrictions also apply to old asbestos containing fibre cement sheets. Any residue from cleaning also needs to be collected and disposed of in accordance with local and national government regulations. Reroofing is an issue, with approved handlers required if the roofing is removed. Generally new roofing, COLORSTEEL® is usually laid directly over the top.

If you do want to paint an asbestos containing roof you may, but you will be very limited in how you prepare the roof. Saturate the surface with Resene Moss & Mould Killer and, using a hard bristled scrubbing brush, scrub the surface to remove both residual mould and moss and years of accumulated dirt and contaminants. The process will also dislodge asbestos fibres. The surface must remain wet while being cleaned and 'all' the scrapings, dirt, mould etc **must** be collected and disposed of correctly.

The surface should then be saturated with Resene Sureseal or Resene Waterborne Smooth Surface Sealer and painted with Resene Lumbersider or even Resene X-200.

In reality this is very difficult to do and beyond most DIY customers.

Our recommendation is that the roof is either replaced or sheeted over.

Bitumen

Before the torchdown, fibreglass reinforced roofing membranes became available in the late 60's and early 70's bitumen was a coating for flat roofs – usually commercial.

The attached photos show a typical flat roof coated in bitumen and the close up shows how it has cracked over time. (The bright object is a NZ\$2 coin).



In terms of recoating we recommend the following:

If aesthetics and heat transfer are not issues then simply clean down and roll Resene Blacktop on using a hi solids roller.

However, if the roof is visible and the owners wish to improve its looks or more typically if they want to reduce the heat absorption then after cleaning apply a coat of Resene Membrane Roofing Primer and two coats of either Resene Lumbersider, Resene X-200 or Resene Hi-Glo (aluminium would give the best reflectance).



Butynol roofs

These are based on rubber compounds and are generally used on flat or almost flat roofs, including trafficable roofs or those that double as a deck. Often wooden decking or tiles are laid or placed over the top. This type of roof is often used on commercial buildings.



While not typically painted it is a relatively straightforward process to do so. Simply treat for moss and mould, wash thoroughly and apply Resene Membrane Roofing Primer followed by Resene Lumbersider, Resene X-200 or Resene Hi-Glo (aluminium for maximum heat reflection).

Concrete and terracotta (clay) tiled roofs

Concrete tiles are a popular roofing material and are usually left unpainted.



The following are issues relating to their use and painting:

- On weathering they become relatively porous and readily support moss and mould growth.
- Tiled roofs need to be steep, at least 30 degrees and this makes them difficult to walk on, clean and paint.
- Other than for cosmetic reasons there is no reason to paint them. Having said that, concrete tiles in particular are not renowned for their attractiveness and this is not helped by the steep angle of the roof, effectively making it a dominant feature of most homes.



- They may be cleaned using Resene Moss & Mould Killer but it is worth noting that scrubbing down and water washing may be tricky due to the overlay of each tile.
- To paint simply apply Resene Sureseal to even the porosity and two coats of Resene Lumbersider, Resene Sonyx 101 or Resene Hi-Glo. A coat of Resene Multishield+ or Resene Sun Defier is also worth considering.



- Cleaning down and applying Resene Concrete Stain is often the best option to add colour back to concrete tiles.
- If a tidy up to remove moss and rejuvenate old tiles is the aim then simply saturating the surface with Resene Deep Clean and letting nature do the rest is a good option.



Decramastic tiled roofs

Decramastic tiles erode over time and homeowners eventually face the prospect of either replacing or painting.

They are made from a pressed galvanised iron, which has had a bitumen basecoat applied over it, which in turn has stone chips embedded into it.



Over time the stone chips erode exposing the bitumen and eventually the galvanised iron, which will ultimately rust.

Painting is relatively straightforward but the topcoats will need to be sprayed if a reasonable finish is to be achieved.

The system we generally recommend is:

1. Treat for moss and mould and wash down thoroughly.
2. Spot prime any bare galvanising with Resene Galvo-Prime. While Resene Galvo One will perform better on aged galvanised iron it will also soften the residual bitumen coating, which the waterborne Resene Galvo-Prime won't.
3. Spot prime any large areas of bare bitumen with Resene Membrane Roofing Primer.
4. Using a brush apply Resene Resitex Coarse onto the areas where the stone chips have eroded away. While not perfect this will help make good the tiles.
5. Apply two coats of Resene Lumbersider, the lower gloss of which (compared to Resene Hi-Glo) will also help disguise any patchiness.

It is important when spraying the topcoats to first apply paint to the leading edge of each tile. There are extension poles available for spray units that simplify this process.

Traffiguard/Dexx and Vector 5

These systems and others like them are used for roofs and decking. They use very thick membrane style acrylics (although urethanes and other two pack systems are also used), which are reinforced with fibreglass chopped strand mat. This is a very similar process to fibreglassing.

The most commonly used systems are Traffiguard and Dexx. Both systems are proprietary and may only be applied by approved applicators.

In terms of painting, as they are predominantly acrylic, recoating is straightforward. Simply apply Resene Lumbersider or Resene X-200 but stick to light shades or at least no darker than the original system colour.



Painting chimneys



Painting chimneys is easy providing the substrate is sound. As unpainted plaster, stucco or brick chimneys may need sealing with Resene Sureseal in the first instance, as would a galvanised iron chimney need priming with Resene Galvo One or Resene Galvo-Prime. But once done there is no problem painting the chimney with Resene Hi-Glo in the same colour as the roof or in Resene Sonyx 101, Resene Lumbersider or Resene AquaShield if the chimney is treated as a separate element.

As a rule if it's galvanised and/or not a feature, either leave unpainted or paint the same colour as the roof using the roof paint.

If the chimney is a feature or at least an obvious element of the house then consider painting it in the same colour as the house, especially if it is located on the outside wall and protrudes through the roof line near its edge.



Painting roofs – safely



There is a very real place for professional roof painters where safety is concerned. Many roofs have difficult access or are very steep and dangerous for DIY painters. Many commercial painters would also turn down the opportunity to price a difficult roof repaint or simply subcontract the job to a painter who is better equipped and set up to complete the job.

Most accidents occur not on the roof but getting up and down from it, usually on a ladder. The following is useful advice for anyone planning on using a ladder.

- Before getting on a roof think carefully about where to begin preparation and painting and most importantly, where to finish because when you need to be able to easily climb off.
- Ladders need to be at the proper angle, at least one metre out for every three metres of height.
- Ladders must have four contact points, two with the ground and two with the building.
- Ladders must have at least three rungs higher than the roof level to be able to step off and on safely.
- Ladders will crush plastic spoutings a short length of timber inside the gutter will prevent this.
- Ladders need to be tied off at the top to prevent them slipping sideways and wind gusts blowing the ladder away.
- Ladders and power cables don't mix. Make sure that all access is well away from power lines. Aluminium ladders are particularly dangerous.
- If access by ladder is difficult, consider a tower scaffold to access the roof.



Once on the roof you should also consider and take the following safety issues into account.

- Always wear comfortable shoes with good grip. Quality rubber soles are best, plastic soles and stiff boots are dangerous, thongs are useless and bare feet are worse.
- Roofs get very hot, so be careful to protect against sunburn. Start painting early and if practical work on the shady sides. Remember if it is that hot that it hurts to stand on, it's also too hot to apply paint.
- Wet roofs are slippery! Be very careful when waterblasting and watch out for dew on roofs. Also a primed surface will be more slippery than bare galvanised iron or Zinalume, so extra care needs to be taken.
- A roof slope approaching 30° angle becomes very difficult to walk on and if the angle is any steeper then special equipment will be needed – refer to Hirequip for more information.
- A hooked roof ladder is useful for roofs that have an apex ridge. The hooked bracket is set over the ridge and moved along as sections are painted.
- Steep roofs really need a professional approach, both in terms of safety equipment, such as harnesses and safety lines and the painting techniques used. If you have a steep roof obtain professional painting advice. Often the cost of a professional is a pleasant surprise and provides an expert response.

Primer selection chart – unpainted galvanised/Zinalume

	Up to 3 months	3-6 months	6 months – 7 years	7 years plus
Typical NZ conditions	Resene Galvo-Prime	Resene Galvo-Prime	Resene Galvo One	Resene Galvo One (2 coats)
Severe marine exposure (up to 1km from the sea)	Resene Galvo-Prime or Resene Galvo One	Resene Galvo One	Resene Galvo One (2 coats)	Resene Galvo One (2 coats)
Always use Resene Roof Wash and Paint Cleaner before priming				

Problems and issues

Letting a roof weather

Anyone looking at painting a galvanised iron roof 30 years ago would have been advised to 'let it weather for 12-18 months before you paint it'. The theory behind this was that the roof primers available at that time did not adhere well enough to brand new galvanised iron but after 12-18 months the surface would have weathered sufficiently to allow primers to bite or key to the surface.

This advice was thrown out the door with the introduction of Resene Galvo One – a breakthrough, lead free primer with excellent adhesion to new galvanised iron.

However while the advice to let your roof weather before painting is no longer valid, it is unfortunately still believed by many.

As the galvanised iron weathers it starts to corrode and zinc oxide (ZnO₂) or white rust starts to form. White rusted, galvanised iron is more difficult to prime and paint successfully.

So we recommend that new roofs are primed and painted as soon as is practical - they will last longer if they are.

Patchiness

A patchy look to the paint may occur under the following circumstances:

- When paint is applied when the surface is too hot it becomes very difficult to maintain a wet edge. The addition of Resene Hot Weather Additive and a touch of water will help, as will painting in a way to avoid lapmarks and the wet edge problem.
- When painting too wide a 'drop' at a time. If it is very hot when painting only paint one trough section at a time, from the apex of the roof to the gutter, rather than do two or three sections at a time. Remember to return to the top before starting the next section.

Primerless systems

Some paint manufacturers offer paints that may be applied direct to galvanised iron and Zinalume without a primer.

While paint technology is improving all the time and primerless systems do have their place, for example Resene Lumbersider may be used direct to timber and Resene Sonyx 101 on concrete, they will not perform as well as if they were applied over a well primed surface for the following reasons:

- Primers contribute to the system's film build, especially over edges where paint failures tend to occur first. Primerless systems encourage painters and DIY customers to take a shortcut and only apply two coats instead of the recommended three.

- Primers are specifically formulated to cope with the characteristics of each substrate. Timber presents very different issues to that of concrete and/or galvanised iron.
- Any product that is developed to be applied over a number of different substrates will mean compromises are made or potential issues will not be fully addressed. This applies equally to the topcoat as well as the primer.
- Worse, while some products make the claims on the front of label about not requiring a primer, on the back they have a large number of exclusions and recommendations that counter this.
- Our philosophy and approach is to sell the **best system** and this will inevitably include a specialist primer or sealer as well as the topcoat.

Too cold

The reverse is also true, if the roof is too cold, the paint may not form a suitable paint film and ultimately will lose adhesion and fail, if it doesn't wash off in the rain first.

As a rule avoid painting in temperatures below 10 degrees or if it is likely to drop to this temperature before the paint dries.

Too hot

Applying Resene Hi-Glo or any roof paint when the roof surface is too hot may cause the paint to flash off (dry) too quickly, resulting in a weakened paint film. In extreme cases it will powder, lose adhesion and simply fall off.

Previously painted roofs are particularly susceptible as they are typically darker than new unpainted Zinalume and therefore get very hot under direct sunlight.

Simply walking on them, even in shoes, is unpleasant. If a roof is too hot the addition of Resene Hot Weather Additive will not be sufficient to avoid paint failures.

Avoid the heat of the day and avoid painting in direct sunlight. If the surface is hot to touch then it is too hot to paint.

NOTE: Freshly painted roofs may have a slight 'tack' on a hot day. This is because the paint film will still be curing several weeks after its initial application. This is not really an issue.

Waterborne paints going directly onto galvanised iron

This advice predates many of the so-called 'primerless systems' and is based on the fact that waterborne paints stick very well to weathered galvanised iron.

Unfortunately they contained no anti-corrosive properties and allowed moisture to pass through and hasten the corrosion of the zinc layer. Once started it is only a matter of time before the waterborne paint starts to flake off.



Almost certainly a primer was not used on this roof or the garage door on the next page.

Resene ✓ Popular Paint Systems

Painting roofs

Our recommendation and it has been for 40 years is to use a Resene primer on new and weathered galvanised iron and Zinalume before topcoating with Resene Hi-Glo.



Questionable technologies

Be wary of any paints that claim to be very heat resistant or super durable (20 years plus). It is Resene's experience that while the claims often have a basis in science they are extravagant at best and just a plain ripoff at worst.

Most so called super durable paints also use acrylic resins and will not outlast Resene Hi-Glo despite what the advertising and/or warranties might claim.

Resene Hi-Glo – the value proposition



Resene Hi-Glo Roof has the deserved reputation of being a highly durable roof paint:

1. The resin is tough but flexible enough to cope with the expansion and contraction of the Iron.
2. It is the highest gloss of all the roof paints on the Australasian market. The higher the gloss the more resin there is and less inert fillers that reduce the gloss and the cost, but at the expense of quality.
3. Resene tinters are very concentrated and more UV resistant than other tinters and that means we need less to achieve the colour and that in time means more durability.

Resene once compared how much tinter was needed to tint Resene Hi-Glo Country Green with the same colour in a competitor roof paint – Resene needed just over a testpot full in a 10 litre pail while the competitor needed almost a litre. This has a direct impact on the durability of the paint and colour.

Durability is important because not only will it be longer between repaints but ultimately the roof will last longer.



Rusty roofs

Preparing rusty roofs

Rust on a roof is very difficult to deal with. If it is widespread and well advanced then replacement of the roof may be the best option.

If it is a light dusting then an additional coat or two of Resene Galvo One will suffice.

The rust may only be on the nail head (as in the photo right) or on a fitting (like a Sky receiver). Apply the primer direct to the rust affected area.



Surface corrosion – the rust is visible on the surface but it is not affecting the integrity (or strength) of the steel. Scrub thoroughly using a 3M scouring pad (a wire brush will simply remove a lot of the residual galvanising making the solution worse) and apply two or three coats of Resene Galvo One.



Here the rust is more obvious and advanced. Two coats of Resene Galvo One will **not** be sufficient in this case. Wire brush or sand to remove the worst of the red rust but be careful not to damage the surrounding galvanised areas. Apply one to two coats of Resene Rust-Arrest to the rusted areas only. Resene Rust-Arrest does not adhere well to galvanising or waterborne paints so use it only on red rusted areas. An alternative is to use Resene Alumastic but it will need to be applied at very high film builds 150 microns or thicker to be effective.



Here the rust is well advanced, we would recommend the affected sheet is replaced.



This rusted commercial roof is a prime candidate for Resene Alumastic, without it the roof will need to be replaced within 2-3 years. Treated with Resene Alumastic, the roof should last for 10 years or more with regular maintenance.



Salt

Airborne salts are an issue for roofs for two reasons. Firstly when they are painted or repainted, salts may accumulate on the surface of the bare galvanised iron, Zinalume or the painted surface and unless washed off will cause corrosion to occur sooner than would otherwise be the case. Metals including iron, zinc and aluminium will corrode quicker if salt and moisture are present either on the surface of the metal or in the atmosphere. This corrosion process is accelerated further if they are both present.

The second issue is that salts gather in crevices and laps of the roof and again will cause corrosion, invariably on the underside of the overlapping sheet of roofing.

Salt must be removed between coats of paint and before applying a roof primer.

In practice this means that the salt may need to be hosed off the roof between coats of paint or after preparation.

Selecting brushware and rollers



Painting a roof can be tedious, unpleasant and hard on your back, so anything that will help improve the process should be welcomed. Using the best possible paint, Resene Hi-Glo, is a start (the longer between repaints and the better the coverage means less time on the roof) but using the best quality tools will also make a big difference.

Longrun

Aside from spraying there is no real alternative to brushing a longrun roof and the best possible brush, sized to suit your ability and strength is recommended. In the flowcharts we have recommended a PAL Legend (left) or as a slightly cheaper alternative, the Haydn Genius (right).



In terms of size, the larger the brush the bigger the paint pickup (how much paint it holds and how far you can paint before putting the brush back in the can for more). But the heavier it will feel, especially as the day progresses, so a 75mm-88mm Legend brush is ideal.



Corrugated iron

Use a corrugated iron roller handle and sleeve unless applying an aluminium based colour. The ridgeline, edges and any raised sheets will need brushing. This may still amount to a large area so a good quality brush is still recommended. In terms of size this is less critical but a 75mm-88mm Legend brush would be ideal. Again as an alternative a Haydn Genius will perform well and is slightly cheaper.

Some painters prefer to use a corrugated iron brush attached to an extension pole instead of a roller. These also work well especially over nail heads etc but getting a tray or bucket that both fits the brush and won't slide down the roof may be an issue. A plastic bin might be the best option providing it can be secured.



Priming

If the roof is new, then Resene Galvo-Prime should be used and the brush selected for the topcoat will also be suitable for the primer so only one good brush should be needed. In terms of a roller a second or replacement corrugated sleeve is a necessity, however as cleaning the roller out after using the primer is very difficult.



If the roof is older and unpainted then Resene Galvo One will be required and as this is solventborne the Haydn Eclipse is recommended with the same size and selection criteria used above. As a value alternative use the Resene Supa brush.

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Painting roofs

It is preferable to brush primers as this 'works' the primer into the surface more than a roller will and improves the primer's adhesion to the galvanised iron. But the reality is that this is a huge amount of extra work so for corrugated iron you may wish to use a corrugated roller.

However with longrun there isn't an option so use a good brush.



Spot priming

Really depends on how much spot priming is required. As a rule use a Resene Supa brush they are of a reasonable quality and excellent value. If rust is present and Resene Rust-Arrest is used, then depending on how big the area is, use a 25-50mm Resene Supa brush for spot priming or a large artist brush for areas like this nail head.



Avoid applying Resene Rust-Arrest to any areas other than the rusted areas as it has poor adhesion to old paints and bare galvanising.

Spraying

Most painters spray roofs and very few professional contractors would consider doing otherwise. If they are not set up to spray a roof they are quite likely to subcontract the work to someone who is.

Spraying is quick and results in a great finish. However it does require skill so it is not usually something a DIY customer should take on. Our advice is to contract a professional if you want to have your roof sprayed. In the longrun it could be more cost effective and less hassle. Additionally it should be noted that metallic colours look their best when sprayed especially the new aluminium based colours.

Roller handles

Again a wooden handle may be purchased for under \$10.00 and will be perfectly adequate. But aluminium extension poles are better and more robust and may also be an easier option for harder to reach parts of the roof.

Scrapers

In most cases a scraper will not be needed when preparing a roof. However it will if there is any lichen present.



We have recently introduced new scrapers to compliment our range. They are imported by Haydn and are a medium quality scraper compared to the PAL scraper, which is constructed using a higher grade of stainless steel a hardwood handle and brass fittings so it will last longer and not rust.



If you are undertaking a lot of painting then use the better scraper – however if you are not and in the roof example have a couple of areas of lichen to scrape away then use the medium quality Haydn scraper.

Remember, if you need advice or information for your decorating project don't hesitate to contact Resene for further assistance.

Resene

the paint the professionals use

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