



P1 TECHNICAL GUIDANCE

INSTALLATION MANUAL

P1 FLEXIBLE HYBRID POLYMER ROOFING SYSTEM

Preparation, priming, application and detailing guidance

- Single point insurance-backed
- Product and workmanship guarantee
- P1 approved installer scheme

VERSION 1.0



INSTALLATION MANUAL

CONTENTS

01	Introduction	3
02	Before You Start	4
03	Health and Safety	6
04	Preparation of Existing Roof Surfaces	7
05	Fixing Trims	10
06	Taping Trim Joints and Other Local Reinforcements	10
07	P1 SA Foil-Faced Carrier Membrane	11
08	Priming	12
09	P1 System Application	18
10	Flat Roof Detailing Guidance	23
11	Applying P1 System: Do's and Don'ts	24
12	Cleaning Tools	25
13	Repairs	25
14	Waste Disposal	25
15	Appendices	26

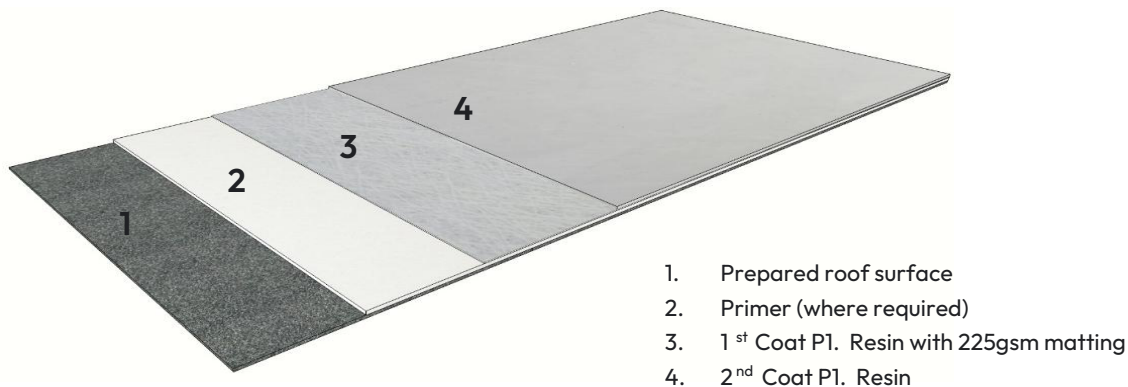


Flexible Hybrid Polymer Roofing System

One system. One standard. One solution.

1. Introduction

The P1. System is a liquid applied waterproofing system with full overlay and new deck capabilities. Combining the best elements of fibreglass with the versatility of overlay systems, no other flat roof solution performs at this level across so many applications. The illustration below shows a typical installation:



This manual has been prepared based on application on a well-ventilated roof area. Additional PPE and ventilation may be required in enclosed / poorly ventilated areas - Consult Technical Services for advice. For further information on Health and Safety, please refer to Section 4.

Please Note: All temperatures within this manual are Air Temperatures unless otherwise stated.

1.1 Key Features

- A unique flexible hybrid polymer waterproofing system with the optimum combination of flexibility and robustness.
- RapidCure technology for extremely fast application with cure times as low as 30mins.
- Ability to be applied direct to existing roof coverings allows for economical refurbishments with minimum disruption.
- Fire performance: Can Achieve BROOF(t4), the top rating achievable for a flat roof system and designating P1. System as unrestricted under the national Requirements.
- Standard colours are Dark Grey and Light Grey.



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2. Before You Start

2.1 Assessing the Existing Roof

2.1.1 Determining Suitability for Over-Coating - Existing Roof Condition

The existing roof build up should be inspected for defects, made good where required and retained. Core samples should always be taken to confirm the exact roof build-up and its condition (see Appendix A for further details). If any wet or saturated insulation or decking is found, careful consideration should be given to a complete strip or the installation of permanent roof ventilation. Areas where the insulation or underlying substrate has collapsed or is defective or decayed, should be cut out, repaired and reinstated on a like-for-like basis to provide a good solid base for the coating system. For guidance regarding the preparation of existing roof surfaces refer to Section 5.

2.1.2 Determining Suitability for Over-Coating - Substrate Compatibility

P1. System is a highly versatile system that can coat a wide range of common roof surfaces that include felt, asphalt, concrete/screed, liquid applied coatings and single-ply. If the substrate is not described here, or if you are unsure, then you should carry out an adhesion test as described in Appendix B.

2.1.3 Ponding Water

Remember - if you're overlaying a roof then there will be no improvements to falls or drainage and existing problems with standing water will remain. Although standing water is not detrimental to the P1. System it could be hazardous to foot traffic in icy conditions. We strongly recommend discussing this with your client before you start.

2.1.4 Compliance with Building Regulations / Standards

You should ensure that the design of the roof to which the P1. System is to be applied is in accordance with current regulations, codes and good practice. For further guidance consult regulations / standards for your relevant region / territory regarding compliance with regulations or seek professional advice.

2.1.5 Measuring Your Roof

It is important to accurately measure your roof to determine the amounts of materials required. The roof area should include all areas to be coated including upstands and perimeter details e.g., existing trims.

2.2 Shelf Life / Storage

2.2.1 Shelf-Life

Minimum shelf-life: 12 months from date of manufacture (when stored in the appropriate conditions and in the original, unopened container).

2.2.2 Storage Conditions

Store the products in the original unopened containers in cool dry conditions and out of direct sunlight.

Minimum Temperature: 0°C

Maximum Temperature: 25°C



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Note: If stored at low temperature the products should ideally be brought up to at least 10°C before application begins: at this temperature the product will be easier to apply.

The resins should be protected from extremes of temperature before use. Storing the materials at around 15°C for 24–48 hours before use will ensure optimum performance.

2.3 Weather Considerations

2.3.1 Temperature Guidelines

Minimum Temperature: 3°C.

Maximum Temperature: 30°C.

The temperature should be stable and at least 3°C above dew point (the temperature at which condensation can occur).

Surface temperature should always be taken into consideration. See notes below.

2.3.2 Low Temperature Application Guidance

At a low temperature the surface temperature may be lower than the air temperature. If the surface temperature is at or below freezing point, or below dew point, the application must be postponed.

An accelerator can be used for low temperature applications. If an accelerator is used, the system can be applied providing that the deck temperature is at least 1°C.

2.3.3 Relative Humidity

Maximum Relative Humidity: 95%

Note: If the humidity is rising or the temperature is falling there is a potential risk of rainfall or condensation.

2.3.4 Rainfall

Product must not be applied during rainfall or during periods of any other form of precipitation, including snowfall, sleet, or hail, or in misty or foggy conditions.

If rainfall is known to be imminent the application should be postponed.

If rainfall does occur during application the product will be damaged and may require additional applications to rectify. Rainfall and ponding during cure can also give rise to blooming (“white” staining).

If precipitation has occurred, prior to application, the substrate will become wet and must be dried before commencing. If precipitation occurs during application, ensure that the substrate is dry before carrying on.

Maximum Substrate Moisture Content: 20% wood moisture equivalent scale (using a Protimeter)

2.3.5 Wind

In windy conditions it is more likely that the applied product will become contaminated by windblown leaves, or dust, etc. In this situation suitable remedial action should be taken.

Note: During and after application of the product the odour of the curing system will spread downwind.



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2.3.6 Weather Delays

There may be delays to the application due to inclement or cold weather.

After any weather delay the application can proceed - providing the surfaces are clean and dry. If normal overcoating windows have been exceeded the previously primed or coated sections will need to be re-primed and/or rejuvenated.

3. Health and Safety

3.1 Personal Protective Equipment (PPE)

Should be worn at all times. Refer to Safety Data Sheets for advice.

In addition to PPE, barrier cream and hand cleaner may be used for secondary protection and cleaning of exposed areas of skin.

3.2 Safety Data Sheets (SDS)

It is your responsibility to ensure that all relevant SDS documents are on site at all times. SDS documents are provided with your first order; additional copies of these sheets are available on request from Technical Services.

3.3 Risk Assessments / Method Statements

It is the responsibility of the contractor to ensure that adequate risk assessments including COSHH assessments) and method statements are carried out before work begins.

3.4 VOC / Odour Control

Most products contain volatile components, such as solvents; these components evaporate from the system during and post application. Some of the volatiles within certain products have a strong odour and others have a low odour. Some volatiles require hazard control measures and these are stated on the SDS sheets. Some hazardous VOCs (Volatile Organic Content) are assigned a 'Workplace Exposure Limit' (WEL): the legal maximum concentration in the air that an individual may be exposed to within a prescribed period of time. Some of these hazardous materials have also been assigned a 'Derived No Effect Level' (DNEL). Historic tests carried out on typical flat roofs indicate that neither the operatives fitting the system nor people within or in the vicinity of the building to which the system is applied, will be exposed to concentrations in excess of the WELs, the actual concentrations will be significantly lower.

It should be borne in mind that, whilst some of these VOCs have a strong odour and can be detected at low concentrations, the fact that they can be smelt does not mean individuals are exposed to hazardous levels.

The contractor carrying out the work is obliged to carry out a risk assessment and ensure sensible precautions are taken, such precautions would include checking the isolation of air intakes to the building and ensuring the avoidance of working within confined spaces: both could otherwise increase the exposure levels beyond those of our testing. It should also be noted that a low odour product has a lower level of malodorous VOC's and this does not eliminate the need for a risk assessment.



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To assure the occupants of the building, who may be concerned about an unfamiliar smell, warn them of the likelihood before work commences.

4. Preparation of Existing Roof Surfaces

4.1 Drying the Roof

It is important when applying products that the substrate or intermediate layers to which they are being applied are not wet. Application onto wet substrates is likely to cause a loss of adhesion that could lead to either localised or catastrophic failure.

The substrate should be **visibly dry**, and when measured with a “Protimeter” moisture meter a maximum moisture content of 20% WME is allowable for application of the P1. System. If the moisture content is greater than this the substrate should either be left to dry naturally or alternatively drying may be aided by using any of the following means.

- Wet and dry vacs
- Squeegees
- Mops
- Rags, towels, and sponges
- Specialised no flame, low heat driers and blowers.

When water has been removed by any of the above means it is still possible that the moisture content may be too high to allow application. Rechecks with the “Protimeter” should be carried out. The above methods are equally suitable for drying the substrate and removing moisture between coats.

The above methods are equally suitable for drying the substrate, and removing moisture between coats. Gas torches and normal electric driers should not be used: they can damage the substrate and the applied system. These types of heaters can also create a significant fire hazard.

For wet or saturated insulation or decking, careful consideration should be given to the installation of permanent roof ventilation. Areas where the insulation or underlying substrate has collapsed or is defective or decayed, should be cut out, repaired and reinstated to provide a good solid base for the coating system.

4.1.1 General Preparation (All Surfaces to be Coated)

- Remove any chippings from roof surface and any embedded chippings should be removed by a mechanical scabbling device or other means as necessary. Ensure the roof is able to carry the weight of any equipment.
- Special attention should be given to any solar reflective (especially aluminium pigmented) coatings, repair areas or other types of coating. Adhesion tests may be required for these areas (see Appendix B)
- Thoroughly clean down all areas to be treated, removing any dirt and debris, surface lying water, mould growth, moss, etc.
- Inspect all surfaces to assess soundness of existing substrates including any existing coatings, repairs and any test areas. This is to verify compatibility for the proposed coating system and to assess the need for priming.
- Remove any existing loose or poorly adhering materials and repair where appropriate. Repair, replace and reinstate any defective fixtures and fittings.
- Treat any areas of fungal growth or moss with an Anti-Fungal Wash to ensure all spores are destroyed. Powerwash to remove any residues.
- Ensure all surfaces to be coated are allowed to thoroughly dry out before any products are applied.



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- For wet or saturated insulation or decking, careful consideration should be given to a complete strip or the installation of permanent roof ventilation. Areas where the insulation or underlying substrate has collapsed, or is defective, should be removed, repaired and reinstalled.

4.2 Built-up Roofing Felt / Mineral Cap Sheets

- **This section is to be read in conjunction with General Preparation.**
- Areas of badly damaged or decayed felt should be replaced to provide a sound substrate for the system.
- Loose or dis-bonded felt must be re-bonded to the substrate.
- Any blisters should be made good by star cutting and re-bonding to the substrate. Allow to dry out before re-fixing.
- For any new sand faced felt membranes, Brush off any loose sand before coating.
- **Primer Required:** P1. Uni-Primer DP

4.3 Asphalt

- **This section is to be read in conjunction with General Preparation.**
- Apply 25mm dis-bondment tape to any cracks and joints - subject to movement - prior to application of local reinforcement.
- Any blow holes in asphalt are to be smoothed out or removed and levelled off using a suitable repair compound, i.e. sand cement mix with a suitable hardener.
- All large non-structural cracks and voids should be cleaned out and made good using a suitable repair compound.
- Allow repairs to cure prior to coating.
- **Primer Required:** P1. Uni-Primer DP

4.4 Liquid Applied Coatings

- **This section is to be read in conjunction with General Preparation.**
- Note - adhesion tests will be required to determine suitability for over-coating (see Appendix B for further details). **Beware silicone coatings: these are usually unable to receive a further coating and require stripping.**
- Removed any loose and flaking liquid applied materials by suitable means back to a sound firm edge.
- Ensure all surfaces are thoroughly scrubbed with clean Acetone prior to coating.
- **Primer Required** : No

4.5 Concrete / Screed & Brickwork

- **This section is to be read in conjunction with General Preparation. The following assumes that the existing concrete is free from structural defects. Consult Technical Services if in doubt.**
- Any spalled, loose, unsound concrete or brickwork should be broken out and repaired using a suitable repair compound.
- All smooth concrete surfaces to be treated should be lightly abraded with suitable equipment (e.g. vacu-blast, diamond disc grind etc) where necessary to remove laitance and/or remove other impervious matter, concrete curing membranes etc, until a clean, dry and open surface is attained.
- All large non-structural cracks and voids should be cleaned out and made good using a suitable repair compound.
- Wet or saturated substrates should be allowed to thoroughly dry out before any products are applied.



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- Apply 25mm dis-bondment tape to any cracks and joints – subject to movement – prior to application of local reinforcement.
- For newly laid concrete/screed, follow general guidelines allowing a curing time of at least 28 days or one week per 25mm, or preferably follow manufacturer's instructions. In the case of polymer modified material, refer to manufacturer's instructions.
- Finlock Gutters – Refer to concrete/screed preparation. Always insert an expansion detail at joints of gutters as follows. Once the gutter has been prepared fully and primed insert a 25mm dis-bondment tape on the joint before you apply your local reinforcements and full reinforced P1. System system.
- Primer Required: P1. Uni-Primer DP

4.6 Single Ply Membranes

- **This section is to be read in conjunction with General Preparation.**
- Note – adhesion tests will be required to determine suitability for over-coating (see Appendix B for further details)
- Any areas of loose or dis-bonded single-ply membrane should be suitably re-fixed prior to coating. Any localised damage should be repaired or made good as appropriate.
- Clean all surfaces with acetone prior to application of main system.
- Recommended Primers (Subject to Adhesion Tests):
Single-Ply PVC: P1. P1. Uni-Primer DP
Single-Ply TPO: P1. SP Primer 202
Single-Ply EPDM: P1. SP Primer 202
- Adhesion tests are required on all single-ply membranes. Always consult Technical before priming any Single-Ply surface.
- When cleaning with solvent, use clean solvent and clean rags.
- **Primer Required:** P1. SP Primer 202 (dependent on adhesion tests results).

4.7 Metals (Detailing only)

- P1. System may be used to coat small areas of metal (such as detailing work) or where the metal is a small part of an overall roof area. P1. System should not be used for directly coating major areas of metal, and in particular areas where significant movement of joints may take place.
- All rust, loose and flaking materials are to be removed by wire brush or other means and all debris removed. Any areas of significant rusting which cannot be removed should be treated with a suitable proprietary rust converter and allowed to cure prior to final priming.
- To all cleaned and degreased, non-oxidised galvanized steel surfaces, apply by brush Mordant T Wash solution (in accordance with manufacturers guidelines) and allow to react. A black deposit will indicate surface conversion. After conversion, wash with clean water and allow to dry.
- Abrade aluminium surfaces to be coated to get back to bright metal.
- Wet-abrade all lead to be coated to remove oxidation and patination. Dispose of the residues in accordance with current HSE guidelines prior to wiping with acetone
- Abrade all copper surfaces to be coated to get back to bright metal.
- Thoroughly clean all surfaces with acetone prior to application of main system.
- **Primer Required** : P.1 Metal Detailing Primer
- **IMPORTANT**– Refer to primer technical data sheets before use.



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5. Fixing Trims

5.1 Introduction

Trims are recommended for any new deck application and can be used to replace existing defective detailing.

Trims should be installed at all new deck roof perimeters including exposed edges, wall abutments and at joints to adjacent pitched roofs.

5.2 Trim Installation Instructions

5.2.1 General Guidance

- Treated trim support battens should be installed as required to the perimeters of the roof. The support battens will provide support to rear vertical face of the trims and will act as a point to bond or fix the vertical trim face.
- Trims must be mechanically fixed on the horizontal fixing arm to a suitable structure at 150mm maximum centres using approved large head fixings. When fixing direct to timber decks these should be a minimum 18mm galvanised clout nails (large headed). Fixing lengths should be increased if fixing through intermediate layers.
- In areas of high wind uplift and any trims with a face depth equal to or greater than 150mm must be mechanically fixed on the vertical face to the trim support batten at 300mm maximum centres using 18mm galvanised clout nails (large headed).
- All joints in the trims and the junction between the trims and the deck should be reinforced with P1. System Resin and 2 layers of 75mm wide 450gsm Matting as part of the main system application.

6. Taping Trim Joints and Other Local Reinforcements

6.1.1 General

Following installation of the trims, the trim joints, all square edge or cut board joints (non-T&G) will require local reinforcement with the P1. System and 450g matting. This also should be carried out to all details such as pipes and penetrations, steps or other vulnerable areas.

Ensure that the weather conditions are suitable prior to application. Provide suitable protection if any weather delays occur.

6.1.2 Trim Joints

- To all trim Joints apply P1. Resin and 2 layers of minimum 75mm wide 450gsm matting. Allow to cure.
- The process for application of base coat is detailed in section 8.
- Allow to cure.
- On completion of all local reinforcements the main process for application of base coat should then be followed for the full roof area.



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6.1.3 Board Joints

- To all square edged and cut board joints local reinforcement will be required. Apply P1. Uni-Primer DP and 1 layer of 75mm wide 450gsm matting. Allow to cure.
- Local reinforcement will not be required to interlocking OSB3 (TG4) board joints provided they are adequately filled with P1. Uni-Primer DP providing a closed, pinhole free surface.

7. P1. SA Foil-Faced Carrier Membrane

The P1. SA Foil-Faced Carrier Membrane is a 0.6mm high performance foil-faced bituminous carrier layer that provides a sound and firm surface for coating with P1. System.

The P1. SA Foil-Faced Carrier Membrane is essential when applying on to timber (OSB), tissue-faced insulation, Rockwool insulation or larger areas of metal to create a suitable substrate for P1. System.

It can also be used over highly porous surfaces as an alternative to priming with P1. Uni-Primer DP, and it can be applied over rough surfaces (such as mineral cap sheet) to provide a smoother surface that requires less resin material.

Prior to application the substrate must be primed with SA Primer – a solvent based roller applied primer

7.1 Self-Adhesive Primer Application

- Ensure the roof area to be bonded is solid, dry clean and free from ponded water.
- Do not apply if rain is imminent, remove all ponded water and allow at least 1 hour drying before applying the adhesive. **Do not use below 5°C. Do not use in the event of freezing temperatures within 24 hours of application.**
- SA Foil-Faced SA Carrier Layer requires the use of a SA Primer for optimum bonding to the substrate.

7.1.1 SA Primer

SA Primer (Roller) can be applied within the following temperature range:

Minimum Temperature: 5°C

Maximum Temperature: 30°C

- SA Primer is simply applied using either a brush or solvent resistant roller – for simple application without the need to invest in additional equipment.
- Once the substrate is prepared, the SA Primer should be applied at a rate of 4–8m²/litre on a Non-Porous Substrate (or at 2–4m²/litre on a Porous Substrate) with even coverage on the substrate. Do not allow the primer to pool or apply too much primer as it will increase drying time.
- Drying time will be determined by ambient and substrate temperature, humidity and air flow. For guidance purposes the SA Primer should be ready for application up to 20 minutes at 20°C. Check the primer with a gloved finger to ensure it is exhibiting tack rather than being wet to touch.
- When the Primer is suitably dry, apply the P1. SA Foil-Faced Carrier Membrane in accordance with the instructions below.



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7.2 Applying the SA Foil-Faced Carrier Layer

- P1. SA Foil-Faced Carrier Membrane rolls should be installed from the lowest point working up the roof ensuring overlaps do not create counter-gradient overlaps.
- All P1. SA Foil-Faced Carrier Membrane rolls should have a minimum 100mm overlap at side laps and 150mm at end laps.
- Once aligned remove half of the backing film at the lower end of the P1. SA Foil-Faced Carrier Membrane roll, apply the sheet, then remove the other half of the film, and press the membrane in place using a pressing / weighted roller taking care to avoid any air bubbles or wrinkles.

8. Priming

8.1 Priming Selector Table

The below table (Fig 1) highlights the priming requirements for different substrates prior to application of the P1. System.

If applying to timber (OSB), tissue-faced insulation boards, use P1. SA Foil-Faced Carrier Membrane instead of priming then directly coating with P1. System.

Please note: The priming requirements will vary on a project-by-project basis.

Fig 1

Substrate	Recommended Primer
Asphalt	P1. Uni-Primer DP
Concrete / Brickwork / Masonry	P1. Uni-Primer DP
Built-up Roofing Felt / Mineral Cap Sheet	P1. Uni-Primer DP
Liquid Applied Coatings*	Subject to Adhesion Tests*
Metals (Detailing Only)	P.1 Metal Detailing Primer
SA Foil-Faced Carrier Layer	Prior to application of SA Foil-Faced Carrier Membrane, prime with P1. SA Primer (Spray or Roller).
Screed	P1. Uni-Primer DP
Single Ply Membranes (TPO, EPDM or PVC) *	P1. SP Primer 202*
Solar Reflective Coating*	P1. Uni-Primer DP*
uPVC (Pipes, Rooflights, Upstands, etc)	No Priming Required (Abrade and Solvent Wipe)
Timber	Recommended -P1. SA Foil-Faced Carrier Membrane Direct application - P1. Uni-Primer DP

*Adhesion tests will be required to determine suitability for over-coating (see Appendix B for further details).



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8.2 P1. Uni-Primer DP

P1. Uni-Primer DP is applied at a coverage rate of 4-6m²/litre depending on surface roughness.

Rough or highly

porous surfaces will significantly reduce the coverage rate. All coverage rates are indicative only and it is your responsibility to ascertain the exact coverage rates on site.

P1. Uni-Primer DP is white in colour, so has the added advantage of keeping roof surfaces cool once applied before the application of the main P1. System.

8.2.1 Curing and Overcoating Times

Fig 2

	Timing
Pot Life	15-30 mins depending upon temperature and catalyst.
Cure Time	30-60 mins depending upon temperature and catalyst.
Min. Overcoating Time	30 mins after curing
Max. Overcoating Time	7 Days

Providing the correct addition of catalyst has been made cure should occur within the specified time. Application onto dark surfaces e.g. asphalt, in hot sunny conditions, can accelerate the cure.

When cured, the P1. Uni-Primer DP will become tack-free and mat in appearance. Overcoating should commence no sooner than ½ hr after the primer has cured. P1. System may be applied the same day, once the P1. Uni-Primer DP has cured; ideally within 48hrs to maximise adhesion but no later than 7 days. If the maximum overcoating time is exceeded, it is recommended the primer is acetone wiped and re-primed.

3 IMPORTANT STEPS TO FOLLOW

<u>Step 1 - TEMPERATURE</u>	<u>Step 2 - ADDITIVES (Accelerator)</u>	<u>Step 3 - CATALYST DOSAGE</u>
You should check ensure that the temperature is within the permitted range.	You should consider if an additive is required (accelerator).	Finally, you should carefully add the required catalyst. But only when you are ready to lay product.

THE TABLE BELOW (FIG 3) WILL HELP YOU TO DETERMINE THE CORRECT PRODUCT PREPERATION.

Installing outside of the temperature ranges may result in adverse effects.

P1. Uni-Primer DP is suitable for use between 1°C and 35°C.

8.2.2 Step 1 - Temperature

P1. Uni-Primer DP can be applied within the following temperature range:

Minimum Temperature: 1°C - with the use of Low Temperature Accelerators

Maximum Temperature: 35°C



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8.2.3 Step 2 - ADDITIVES - Low Temperature Accelerators

IMPORTANT - Before using additives, follow the table above (Fig 3) to check if they are needed. If not skip this step and move on to catalyst.

P1. Uni-Primer Accelerator allows application of the primer when deck temperatures are as low as 1°C.

When to use Low Temperature Accelerators

See the above table (Fig 3) for the temperature range the accelerator can be added. The accelerators are contained in an additive that can be added to standard resin products on site prior to use.

IMPORTANT: Low Temperature Accelerators are not a replacement for the catalyst.

Method

Add a full tin of Accelerator into a full tin of P1. Uni-Primer DP and stir thoroughly (taking care to ensure the full contents are transferred). Mix thoroughly to ensure that the Accelerator is evenly distributed in the product. Using a light mechanical mixer on a low speed is recommended (EPI Mixer or similar).

Once the Accelerator is mixed into the product you can decant into smaller quantities if required e.g. 1 or 2 litres (Sometimes useful if you are unsure how much working time you have).

If you have added the Accelerator but you do not wish to use it right away, we would advise that if you keep product to one side you write on the tins "Low Temp Accelerator added".

IMPORTANT: Low Temperature Accelerators are not a replacement for the catalyst.

Mix thoroughly, stirring for a minimum 2 minutes. Ensure the additive is thoroughly mixed into the primer. Only when you are ready to use the product should you add the catalyst powder.

Important Notes:

- When working large areas decant the primer into manageable quantities and always be aware of your pot life.
- The accelerator should not be added to products other than P1. Resin
- The accelerator must be mixed completely into the primer before adding Catalyst.
- Store the accelerator well away from Catalyst and other organic peroxides.
- Never allow the accelerator to come into direct contact with Catalyst or other organic peroxides.
- Read and familiarise yourselves with the TDS and SDS for each part of the P1. System.

8.2.4 Step 3 - Adding Catalyst

P1. Uni-Primer DP requires catalyst at a **minimum of 2 Scoops per 1 Litre** and a **maximum of 4 Scoops per 1 Litre** depending on temperature. To ensure that the curing process is not impeded:

- Never use less than 2 Scoops per Litre even in hot conditions
- Never use more than 4 Scoops per Litre even in cold conditions



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Fig 3

P1. Uni-Primer DP				
Temp Range	1-4°C	5-10°C	11-17°C	18-35°C
Catalyst Addition Rate	4%	4%	3%	2%
Additive	Accelerator Required	Accelerator Optional	N/A	N/A
Amount of P1. Uni-Primer DP (Litres)	Num. of Catalyst Scoops			
1	4	4	3	2
2	8	8	6	4
3	12	12	9	6
4	16	16	12	8
5	20	20	15	10
6	24	24	18	12
7	28	28	21	14
8	32	32	24	16
9	36	36	27	18
10	40	40	30	20

The table above (Fig 3) provides recommended catalyst addition rates depending on P1. Uni-Primer DP quantities and temperature ranges. Catalyst is added to P1. Uni-Primer DP in the form of level scoops using the scoop provided.

IMPORTANT - Adjust catalyst levels up or down as required to gain the pot life you require. Remember it is always possible to use intermediate levels (e.g. 2.5 scoops per Litre) to gain close control of the pot life.

In very hot conditions and particularly when carrying out detailing work, it is recommended that smaller mixes are considered to allow sufficient time to apply. Please note never to go below the minimum recommended catalyst addition rates.

Stir the P1. Uni-Primer DP thoroughly in the original container, mixing from top to bottom. Catalyst is added to Uni-Primer in the form of scoops using the scoop provided (see the table FIG 3 above for guidance).

Mix thoroughly, stirring for a minimum 2 minutes. Ensure the Catalyst is thoroughly mixed and evenly distributed into the resin.

IMPORTANT - The temperature ranges shown are to be used as a guide to the amount of Catalyst to use. Always test the pot life in the prevailing conditions by performing a test mix at the suggested catalyst level before you start application.

For dosage / addition rates, see above.



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8.2.5 P1. Uni-Primer DP Application

1. Before applying the P1. Uni-Primer DP, you should ensure that the primer is prepared correctly in accordance with the 3 steps above
2. Once catalyst has been stirred in apply the P1. Uni-Primer DP by roller (or brush if access restricted) to the prepared surface at the required coverage rate within the range of 4-6m²/litre. Ensure an even, uniform application across all surfaces.
3. Touch in any suspect areas where necessary and then allow to dry before over-coating. The cure time is approximately 30 - 60 minutes depending on application conditions.
4. When cured the P1. Uni-Primer DP will become tack-free and mat in appearance. Overcoating should commence no sooner than 30 minutes after the primer has cured. P1. System should be applied onto primed surfaces within 48 hours, ideally the same day. If a 7-day delay occurs between priming and the P1. System application, then it will be necessary to re-apply the primer.

8.2.6 P1. Uni-Primer DP Day Work Joints

If the contractor is unable to prime the full area in one go, the P1. Uni-Primer DP application may be continued the following day by applying further product, ensuring an overlap of approximately 50mm onto the previously primed area. If there has been precipitation, ensure that all surfaces including the overlap area are dried before commencing. If the primed area has become contaminated it should be thoroughly cleaned prior to application of further primer. Any contamination of the uncoated surface may mean that the surface will need to be prepared again. P1. System should be applied onto primed surfaces within 48 hours, ideally the same day. If a 7-day delay occurs between priming and the P1. System application, then it will be necessary to re-apply the primer.

8.3 P1. SP Primer 202

P1. SP Primer 202 is a single part, moisture curing primer for single-ply membranes.
subject to adhesion tests results, please refer to Appendix B.

This is only to be used

Apply, by brush or roller, one coat of P1. SP Primer 202 at an approximate coverage rate of 12-15m²/litre.

8.3.1 Curing and Overcoating Times

Fig 4

	Temperature	Timing
Pot Life	10°C	20 Hours
	30°C	3 Hours
Cure Time	30°C	Approx. 30 mins
	20°C	Approx. 30 mins
	10°C	Approx. 60 mins
	3°C	Approx. 60 mins
Min. Overcoating Time	n/a	30-60 mins (Touch Dry)
Max. Overcoating Time	n/a	7 Days



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8.3.2 Application of P1. SP Primer 202

1. Ensure surface to be coated are dry and have been fully cleaned, made good and prepared as in accordance with recommendations.
2. Mix the primer thoroughly shaking (min. 1 min) before application.
3. Brush-apply a thin coat of primer to the prepared substrate. Avoid excess build-up of material in all areas, and especially in corners. If necessary, use the brush to spread the material evenly and avoid greater layer thicknesses. Re-seal contrainer immediately after use to prevent curing.
4. The P1. System should be applied on the same day, once the primer has cured to maximise adhesion. If a 7-day delay occurs between priming and the P1. System application, then it will be necessary to re-apply the primer.

8.3.3 Daywork Joints

P1. SP Primer 202 application may be continued by applying further product, ensuring an overlap of approximately 50mm onto the previously primed area. If there has been precipitation, ensure that all surfaces, including the overlap area, are dried before commencing. If the primed area has become contaminated it should be cleaned prior to application of additional primer. Any contamination of the uncoated surface may mean that the surface will need to be prepared again. The primer should be overcoated with P1. System on the same day to achieve maximum adhesion. If the primer has not been overcoated with P1. System within 7 days, please consult Technical Services for advice.

8.4 P1. Metal Detailing Primer

P1. Metal Detailing Primer is a single part, moisture low viscosity primer for use on a wide range of metal details. The primer may be used for priming small areas of metal such as protrusions, stanchions, outlets and other small metallic details. Can be used on galvanised steel, stainless steel, aluminium and lead.

A single pack, fast drying metal primer in a resealable 250ml tin, making it ideal for detailing work. This product is supplied as a box of 6 and contains application brushes.

Apply by brush, one coat of P1. Metal Detailing Primer at an approximate coverage rate of 50ml - 150ml/m².

8.4.1 Curing and Overcoating Times

Application Temperature = 5 - 40°C

Fig 5

	Temperature	Timing
Pot Life	10°C	20 Hours
	30°C	3 Hours
Cure Time	Above 15°C	Approx. 15 Mins
	Below 15°C	Approx. 30 Mins
Min. Overcoating Time	n/a	30 mins (Touch dry)
Max. Overcoating Time	n/a	7 Days



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8.4.2 Application of P1. Metal Detailing Primer

1. Ensure surface to be coated are dry and have been fully cleaned, made good and prepared as in accordance with recommendations.
2. Mix the primer thoroughly by stirring or shaking (min. 1 min) ensuring that the mixing ball rattles freely before application.
3. Brush-apply a thin coat of primer to the prepared substrate. Avoid excess build-up of material in all areas, and especially in corners. If necessary, use the brush to spread the material evenly and avoid greater layer thicknesses. Re-seal contrainer immediately after use to prevent curing.
4. The P1. System should be applied on the same day, once the primer has cured to maximise adhesion. If a 7-day delay occurs between priming and the P1. System application, then it will be necessary to re-apply the primer.

9. P1. System Application

The P1. System is a liquid applied resin system with full overlay and new deck capabilities. Combining the best elements of fibreglass with the versatility of overlay systems, no other flat roof solution performs at this level across so many applications.

9.1 Measuring and Cutting the Fibreglass Mat Reinforcement

The main P1. System is reinforced with 225gsm Matting. It is important to note that on detailing (such as trim joints, dressing into outlets, etc) 75mm 450gsm Matting is specified to provide extra reinforcement and reduce weak spots.

It is important that fibreglass CSM reinforcement is stored in dry conditions. Before use, inspect the mat to ensure there are no damaged, defective or wet areas present.

Carefully measure the roof and assess how many strips of mat are needed, while allowing a 50mm overlap on each width of the mat.

Carefully remove the mat from its polythene bag and lay on a clean dry surface. Roll out the required length - if possible, always working with the fall of the roof (matting strips running perpendicular to the fall of the roof to avoid holding water).

Cut with a straight edge and a very sharp Stanley type knife, taking care to protect the roof deck or surface below. Re-roll the cut piece and store in a clean, dry place. Cut all you need for the roof before you start mixing the resin. The matting has one straight cut edge and one feathered (torn) edge. When overlapping rolls of mat, a feathered edge should overlap a straight edge. The overlap must not be less than 50mm otherwise a weak spot will be created.

9.2 Coverage Rates

- **IMPORTANT - The following coverage rates are indicative only and it is your responsibility to ascertain the exact coverage rates on site.**
- The amount of P1. Resin required varies on the roughness of the substrate. Rough or highly porous surfaces will significantly reduce the coverage rate.
- All coverage rates shown below are based on reinforcing the system with 225gsm fibreglass Matting reinforcement.



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- Please note that the coverage rates listed below for the main application only, make additional allowance as required for localised reinforcements and lap bridging (i.e reinforcing trim joints and detailing).
- *Rough or uneven or heavily mineralised surfaces may reduce the coverage rate - make further material allowances where necessary. All coverage rates are indicative only and it is the contractors' responsibility to ascertain their own coverage rates on site.

Fig 7

Roof Surface	Approximate P1. Resin Coverage	
	1 st Coat of P1. Resin with 225gsm Matting Reinforcement	2 nd Coat of P1. Resin
Smooth	0.9 - 1.2 Litres/m ²	0.5 Litres/m ²
Rough	1.2 - 1.7 Litres/m ²	

9.3 Preparing the Resin - 3 IMPORTANT STEPS TO FOLLOW

Step 1 - RESIN	Step 2 - ADDITIVES (Accelerator)	Step 3 - CATALYST DOSAGE
You should check what temperature of the deck to ensure it is within the range P1. System can be applied.	You should consider if an additive is required (accelerator).	Finally, you should carefully add the required catalyst. But only when you are ready to lay product.

THE TABLES BELOW (FIG 8) WILL HELP YOU TO DETERMINE THE CORRECT PRODUCT PREPERATION.

Installing outside of the temperature ranges may result in adverse effects.

Step 1 - RESIN / DECK TEMPERATURE

P1. Resin is suitable for use between 1°C and 30°C. Note accelerators are required for lower temperatures see below.

Step 2 - ADDITIVES (Accelerator)

An accelerator is available for use at lower temperatures (see notes below for detailed instructions).

Step 3 - CATALYST DOSAGE

Finally, catalyst is added to control the rate of cure.

P1. Resin

P1. Resin is suitable for use between 1°C and 30°C. Note accelerators are required for lower temperatures see below.

Fig 8

P1. Resin						
Temp Range	1-4°C	5-9°C	10-14°C	15-19°C	20-24°C	25-29°C
Catalyst Addition Rate	4%	4%	3%	3%	2%	2%
Additive	Accelerator Essential	Accelerator Recommended	N/A	N/A	N/A	N/A



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Amount of P1. Resin (L)	Num. of Catalyst Scoops					
1	4	4	3	3	2	2
2	8	8	6	6	4	4
3	12	12	9	9	6	6
4	16	16	12	12	8	8
5	20	20	15	15	10	10
6	24	24	18	18	12	12
7	28	28	21	21	14	14
8	32	32	24	24	16	16
9	36	36	27	27	18	18
10	40	40	30	30	20	20

9.3.1 Step 1 - Resin / Deck Temperature

P1. Resin is suitable for use between 1°C and 30°C. Note accelerators are required for lower temperatures.

9.3.2 Step 2 - ADDITIVES - Accelerators

IMPORTANT - Before using additives carefully check the temperature and follow the tables (FIG 8) above to check if they are needed. If not skip this step and move on to catalyst.

Low Temp Accelerator should only be added when temperature conditions permit and strictly in accordance with the tables (Fig 8) above.

The accelerator must be thoroughly mixed into the resin before catalyst is added. Accelerator and catalyst must never be allowed to come directly into contact with each other.

When to use Low Temperature Accelerators

Please refer to the above tables (Fig 8) for information on when to use the low temperature accelerators.

IMPORTANT: Accelerators are not a replacement for the catalyst.

Method

Add a full tin of Accelerator into a full tin of P1. Resin and stir thoroughly (taking care to ensure the full contents are transferred). Mix thoroughly to ensure that the Accelerator is evenly distributed in the product. You may use a light mechanical mixer if required (EPI Mixer or similar).

Once the Accelerator is mixed into the product you can pour into smaller quantities if required e.g. 5 or 2 litres (Sometimes useful if you are unsure how much working time you have).

If you have added the Low Temp Accelerator but you do not wish to use it right away, we would advise that if you keep product to one side you write on the tins "Low Temp Accelerator added".

Mix thoroughly, stirring for a minimum 2 minutes. Ensure the additive is thoroughly dissolved into the resin. Only when you are ready to use the product should you add the catalyst powder.

Important Notes:

- It is advisable to work with smaller mixes in hot weather. The less material you use to make a mix, the less chance there will be product that cures too quickly and goes to waste.



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- There may be a minor colour difference evident when accelerator / inhibitor is added. For this reason, product with additive and product without additive should not be used side by side on the same job if such colour difference is likely to be undesirable for the client.
- The accelerator should not be added to products other than P1. Resin
- The accelerator must be mixed completely into the resin before adding Catalyst.
- Store the accelerator well away from Catalyst and other organic peroxides.
- Never allow the accelerator to come into direct contact with Catalyst or other organic peroxides.
- Read and familiarise yourselves with the TDS and SDS for each part of the P1. System.

9.3.3 Step 3 - Catalyst

Catalyst should be added at the final stage immediately prior to using the product. The minimum level of catalyst is 2 measuring scoops per litre of resin.

P1. Resin requires catalyst at a **minimum of 2 scoops per Litre** and a **maximum of 4 Scoops per Litre** depending on temperature. To ensure that the curing process is not impeded:

- Never use less than 2 Scoops per Litre even in hot conditions. High Temperature Inhibitors are available to extend pot life and cure times in hot conditions.
- Never use more than 4 Scoops per Litre even in cold conditions. Low Temperature Accelerators are available to decrease pot life and cure times in cold conditions.

Catalyst is added to P1. Resin in the form of scoops (approx. 25ml) using the scoop provided.

The temperature ranges shown are to be used as a guide to the amount of Catalyst to use. Always test the pot life in the prevailing conditions by performing a test mix at the suggested catalyst level before you start application.

IMPORTANT -

Adjust catalyst levels up or down as required to gain the pot life you require. Remember it is always possible to use intermediate levels (e.g. 2.5 Scoops per Litre) to gain close control of the pot life. When working large areas decant the resin into manageable quantities and always be aware of your pot life.

Mix thoroughly, stirring for a minimum 2 minutes. Ensure the powder is thoroughly dissolved into the resin.

9.4 P1. Resin Application

Fig 7

Roof Surface	Approximate P1. Resin Coverage	
	1 st Coat of P1. Resin with 225gsm Matting Reinforcement	2 nd Coat of P1. Resin
Smooth	0.9 - 1.2 Litres/m ²	0.5 Litres/m ²
Rough	1.2 - 1.7 Litres/m ²	

1. Before applying the resin, you should ensure that the resin is prepared correctly in accordance with the 3 steps above.
2. All detailing should be completed prior to application to the main roof area. All trim joints should be reinforced with P1. Resin and 2 layers of 75mm wide 450gsm Matting (Taping Mat). Allow to cure.



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3. On the main roof area, apply by roller approximately two thirds of the required amount of resin (see coverage rates above) onto the roof surface. Roll out the 225gsm Matting over the resin, ensuring the mat is correctly orientated so the straight cut edge is overlapped by the feathered edge of the next strip. Work the CSM fibres into the P1. Resin before applying the remaining one third of resin. Leave matting to soften for 2 minutes and consolidate with the roller until the matting appears “swirly” and no straight fibres remain. Inspect thoroughly and if there appear to be any areas with insufficient resin (voids, prominent fibres or spots remaining white) apply extra resin as required. Ensure a closed, pinhole-free surface is achieved.
4. A second coat of P1. Resin should be applied at a coverage rate of 0.5Litres/m². Decant and add catalyst as previously described, applying by roller ensuring an even and uniform thickness across the entire roof area (including perimeter trims). **Allow to cure (min. 30 – 60 minutes in normal conditions) before walking over the membrane.** Check for pinholes / misses and rectify accordingly.

Important – The second coat should be applied as soon as possible, there is a maximum over coating time of up to 7 days. After this period cleaning with acetone and sanding will be required which will allow another 7 days over coating time. If left for longer than 14 days, reapply the first coat with reinforcement.

The 225gsm matting should be laid with 50mm side laps and 50mm end laps.

On horizontal surfaces, the majority of the P1. resin should be applied to the substrate prior to embedding the 225gsm matting.

On vertical work, care should be taken to avoid slump. The initial application of P1. resin prior to embedding the 225gsm matting should therefore be reduced but care should be taken to apply enough resin to produce a pinhole free surface. An increased quantity of resin applied on top of the 225gsm matting will therefore be required to achieve the systems total coverage rate and film thickness.

225gsm matting should be laid the same way up as it is rolled out. Pre-cut 225gsm matting should be rolled back up to prevent confusion. If 225gsm matting is laid upside down it can be difficult to lay and can cause rucking.

9.5 Day Work Joints

9.5.1 First Coat Application

Ensure on completion of a day's work that any mat that has been laid is completely embedded in P1. Resin by extending the application by at least 50mm. beyond the edge of the mat. The overlap area should be prepared by cleaning and drying the previously applied P1. Resin and wiping down with acetone to ensure maximum adhesion. Subsequent application will generally occur by simply applying the P1. Resin over the top of the existing cured product ensuring that the mat overlaps the existing mat by at least 50mm. Use masking tape to produce a neat joint and do not attempt to “feather” the application as applying thinly on the edge can result in under-cure.

9.5.2 Second Coat Application

The overlap area should be prepared by cleaning and drying the previously applied P1. Resin and wiping down with acetone to ensure maximum adhesion. Subsequent application will generally occur by simply applying the P1. Resin over the top of the existing cured product. Use masking tape to produce a neat joint and do not attempt to feather” the application as applying thinly on the edge can result in under-cure.



10. Flat Roof Detailing Guidance

- Any redundant roof details are to be removed prior to the commencement of works. The roof area underneath is to be made good as required, ensuring that it matches the build-up of the surrounding roof area.
- Termination details should have a minimum 150mm (or more in accordance with local flat roof design regulations) above the finished surface of the roof and should be terminated into a chase or have a suitable cover flashing, terminated with a termination bar, or a suitable weathering flange. Any details where this cannot be achieved should be periodically inspected and may require occasional maintenance.
- All detailing surfaces to be coated are fully prepared and primed as required in accordance with Section 5.



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11. Applying P1. System: Do's and Don'ts

DO

- ✓ Remember the 4 Cs to a successful installation:
 1. **Coverage** : know how much material you should use
 2. **Climate** : Awareness of rising and falling temperatures / how much hardener you need to use / should an additive be used
 3. **Consolidation** : ensure matting is fully worked into resin to achieve a “swirly” appearance
 4. **Care** : take time to follow guidance to ensure a high-quality finish to the job
- ✓ Protect nearby surfaces from drips and splashes.
- ✓ For larger roof areas you should consider “gridding out” the roof with chalk. Work out how many square metres a tin of P1. Resin will cover at the correct coverage rate. Mark out a grid with areas equal to the coverage of a tin to help ensure the correct application volumes.
- ✓ If the roof gets wet between coats, use a brush/mop to remove any large pools of water. Use a twin motor vacuum available from most hire shops, accompanied by a wet suction head to remove any remaining water. Note: A wet suction head is far more effective than a standard squeegee head. Once the roof is dry, use an acetone wipe* whenever the first coat has been rained upon.

*** To acetone wipe:** Pour a quantity of acetone into a bucket, soak a clean rag in the acetone, squeeze out any excess until not dripping, and then wipe each area of the first coat with the acetone rag. Change the rag for a clean one frequently to avoid transferring contamination. Work in small areas. Allow the acetone to vaporise off completely before progressing (around 5 minutes) and apply a second coat within 15 minutes of acetone wiping for best effect. Note - Acetone is a highly flammable liquid. Observe all safety precautions.
- ✓ Carry out a thorough inspection of the membrane after each coat to ensure a closed, pinhole-free surface has been achieved.

DO NOT

- ✗ Overlay an old roof without assessing whether it is sound, dry and free from defects. You should always carry out core tests to determine the existing construction and its condition (see Appendix A).
- ✗ Coat a single-ply roof or an unidentified roof surface without confirming adhesion can be achieved. You should carry out adhesion tests to check this (see Appendix B)
- ✗ Use a gas torch or any form of heat to dry the membrane.
- ✗ Pour acetone directly onto the membrane.
- ✗ Use Approved Rollers other than those supplied by your distributor. You might save money, but the roller fluff that falls off during application and looks an eye sore isn't worth it!



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12. Cleaning Tools

Acetone is the normal solvent for cleaning rollers and tools and for removing spills. Health and Safety information regarding acetone should be noted. Hands should be cleaned with a suitable hand cleaner.

Note – Acetone is a highly flammable liquid. Observe all safety precautions. Do not use Acetone close to any naked lights or electrical equipment. Wear appropriate PPE (minimum rubber gloves and safety goggles). Take appropriate precautions when disposing of Acetone-soaked rags – remember – flammable vapours can build up in confined spaces and present a fire risk.

13. Repairs

Repairs to the completed P1. System are straightforward. Simply clean the surface then acetone wipe before reapplying two coat system including 225gsm matting reinforcement

14. Waste Disposal

Used containers of hazardous products remain hazardous if they contain a residue of the original product. They must not be disposed with regular waste whilst in this condition, and must be treated as hazardous waste. Any remaining solvents should be allowed to evaporate. Coatings should be allowed to cure. Any remaining resin in the tin should be catalysed and allowed to cure.

Containers must have all traces of hazard warnings removed before disposal by painting over the label. Once both of these operations have occurred the used containers are rendered safe and thus may be disposed of.

Note: Health & Safety and environmental regulations may change and it is your responsibility to ensure that waste is disposed of correctly. Consult the Technical Department for further advice.



15. Appendices

15.1 Appendix A - Performing a Core Test

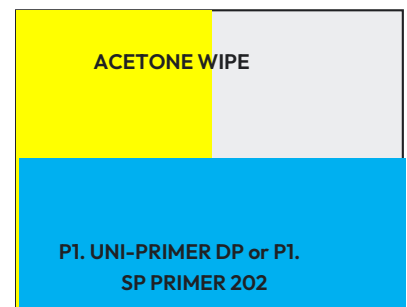
Core tests should be carried out prior to any overlay application to ensure that the full roof build-up is in a sound, dry condition and of a proper design in accordance with current regulations. A hole approximately 75mm wide should be bored through the roof. The tools required to create the hole will vary depending on the roof build-up, e.g. Stanley knife for cutting through felt, hammer and chisel for asphalt or concrete, a core bit drill for timber or a pad saw for insulation.

Once complete, the sample should be removed for inspection to determine whether all layers are totally dry and free from any signs of deterioration or rot. Any wet or defective roof areas are not suitable for over-coating and should be removed and replaced on a like for like basis. Once the sample has been assessed, return it into the hole and apply a one-coat application of P1. Resin with 225gsm matting reinforcement to a minimum area of 300mm x 300mm around the centre of the hole, ensuring a fully weatherproof seal has been achieved.

15.2 Appendix B - Performing an Adhesion Test

Adhesion test methodology will vary depending on the surface to be coated. The following is typical guidance that would be applicable for a single ply or unidentified coating.

Thoroughly clean an area to be tested approximately 300mm x 300mm. Scrub half the sample with acetone and wait until it fully evaporates. Next, decant and add catalyst at the required amount of P1. Uni-Primer DP and apply to half the sample in the opposite orientation to the acetone wipe. Alternatively use P1. SP Primer 202 if testing single ply.



Once the primer has cured, add catalyst at the required rate to decanted P1. Resin and apply by roller over the sample and embed cut-to-size fibreglass CSM, which should be fully consolidated with resin. **IMPORTANT** - Make sure to take a sketch, photo or clearly mark around the samples in order to record what preparation has been carried out.

Return to the sample 7 days later with a Stanley knife and attempt to dislodge the membrane from the surface, assessing each of the four areas for level of adhesion. If the surface is suitable for over-coating, you will not be able to lift the membrane from at least one of the four areas. If more than one area shows excellent adhesion, chose your preferred surface preparation.