

# RESTEC



1010

# GRP ROOF

High performance fibreglass system

## Application Manual



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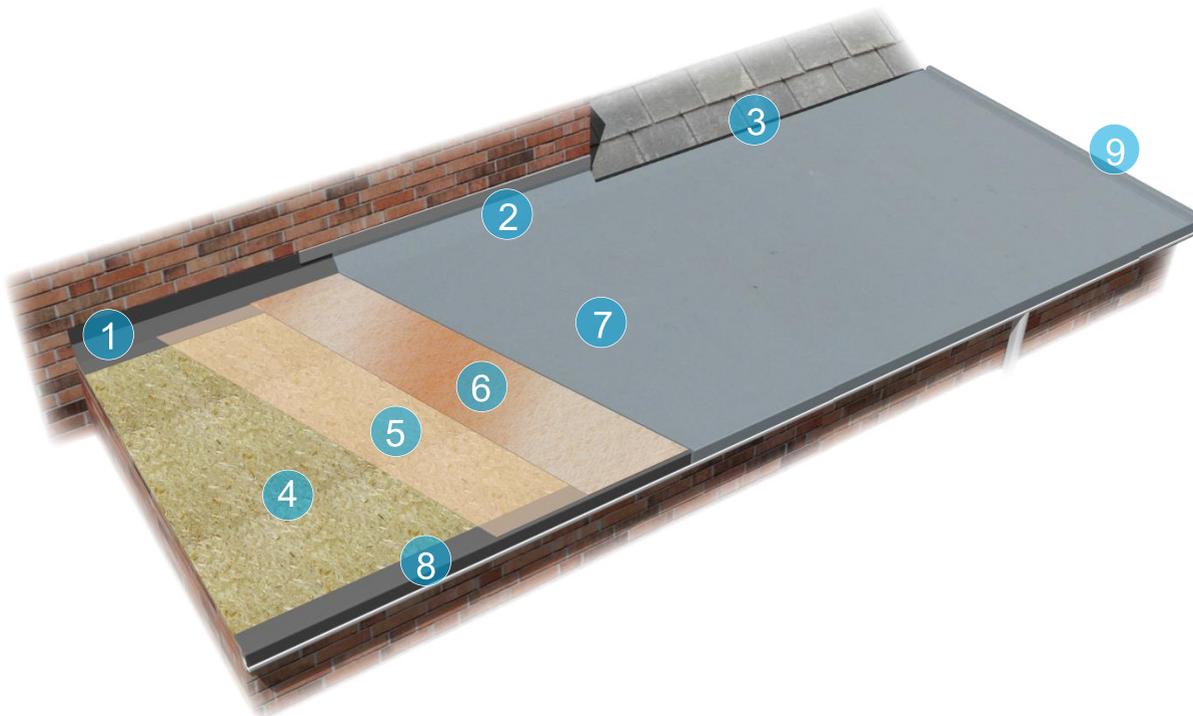
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Not sure if you've got the current version of the GRP Roof 1010 Manual? If in doubt you can download the latest version from our website at [www.restecroofing.co.uk](http://www.restecroofing.co.uk)

## 1. Introduction

When it comes to flat roof replacements, the GRP Roof 1010 System offers unrivalled performance at exceptional value and a genuinely long-lasting solution. Specially formulated to provide durable waterproof protection, GRP Roof 1010 has been developed by the leading polyester chemists at Res-Tec specifically for the purpose of flat roofing – unlike many other GRP roofing products. Every batch is made to a rigorous specification for consistent high quality roofing performance.

The illustration below shows a typical roof installation including some of the main components of the system.



- |                                 |                                      |
|---------------------------------|--------------------------------------|
| 1 Wall fillet trim              | 6 Reinforced GRP Roof 1010 Base Coat |
| 2 Cover flashing                | 7 GRP Roof 1010 Top Coat             |
| 3 Flat trim (underneath slates) | 8 Drip trim                          |
| 4 OSB3 TG4 deck                 | 9 Upstand fascia trim                |
| 5 GRP Roof 1010 Base Coat       |                                      |



## Key Benefits

- 20 year materials guarantee
- Simple and quick installation
- Fire tested to BS 476-3:2004 with an B<sub>ROOF(t4)</sub> and F.AB result meaning unrestricted use under Building Regulations
- LABC Registered Detail for assured compliance with building control
- Suitable for application in temperatures as low as 5°C or as high as 30°C
- Attractive finish to complement any home
- Anti-slip finish available for balconies
- Cold applied for maximum safety
- Formulated with fire protection
- Totally seamless, joint-free membrane
- Manufactured to ISO 9001 and ISO 14001 standards

## Res-Tec GRP Roof 1010 Properties

The GRP Roof 1010 System has been specially formulated not only to offer optimum performance once installed, but also for quick and easy application. Some of the key properties include:

<b>Purpose designed resins</b>	Combination of high durability and longevity
<b>"Toughened isophthalic" Top Coat</b>	Good durability, weathering , water resistance and aesthetics
<b>Special accelerator system</b>	Complete curing across temperature and catalyst range
<b>Modified for reduced styrene emission</b>	Lower odour in use
<b>Low viscosity</b>	Fast and easy mixing, wetting of fibres and conformability to detail
<b>Tailored thixotropy</b>	Good sagging resistance on vertical application / low ripple
<b>Rapid colour change mechanism</b>	Clear indicator that catalyst is added and well mixed to the Base Coat
<b>MEKP cure</b>	Mix and go - no waiting. Fast cure resins.
<b>Low tackiness</b>	"Walk-on" at an early stage - does not attract debris, quick to detail-sanding stage
<b>Pre-pigmented</b>	For ease of use and optimum colour consistency

## 2. Before You Start

### Component Checklist

Before you start, check that you have all the items you need. If in doubt consult your GRP Roof 1010 distributor.

#### Deck / Substrate and Fixings

- OSB3 TG4 deck
- Treated timber battens (for rigidity to edge trims)
- Fixings for OSB TG4 deck (ring shank nails, sheradised or plated woodscrews (min 75mm)
- Fixings for trims (18mm galvanised clout nails)

#### Main System Components

- GRP Roof 1010 Base Coat
- GRP Roof 1010 Top Coat
- Res-Tec Liquid Catalyst (for hardening the Base and Top Coats)
- ResTrims
- Chopped strand fibreglass mat reinforcement (450g/m<sup>2</sup> or 600g/m<sup>2</sup>)
- Taping mat (for trim joints and other details)

#### Additional Components

- Acetone (wiping trims before coating, wiping Base Coat if Top Coat Applied ? 24hours later, and cleaning tools)
- MS Polymer adhesive, such as Soudal Fix All (High Tack) adhesive or equivalent (for bonding trims).
- Anti-slip finish media (for balcony applications)

#### Additional Components

- Res-Tec solvent-resistant, blue striped nylon application rollers
- Catalyst dispenser
- Finishing tissue for neat detailing to trims
- Stirrer
- Paddle roller
- Application brushes (for difficult to reach areas)
- Res-Tec Calibrated Mixing buckets (for measuring resin quantities and mixing in catalyst)
- Res-Tec infra-Red Laser Thermometer (for measyring resin and deck temperatue)
- Protective equipment (latex gloves, respiratory/dust mask and safety goggles)
- Medium grit sand paper
- Scales for measuring by weight (optional)
- Cloths / rags

## Your Existing Roof

You should ensure that the design of the roof to which the GRP Roof 1010 System is to be applied is in accordance with current regulations, codes and good practice. For further guidance consult BS6229 (Code of Practice for flat roofs with continuously supported coverings), Local Authority Building Control regarding compliance with regulations or seek professional advice.

## Storage

Ideally the resins should be protected from extremes of temperature before use. Storing the resin at around 15°C for 24-48 hours before use will ensure optimum performance. For further details on storage consult the product labels.

## Plan Your Installation

It is recommended that you familiarise yourself with the installation procedure before you start. The next sections of this manual will cover in detail all you need to know to carry out the works. The key stages are as follows:

1. Fitting the OSB deck
2. Fixing the GRP trims
3. Taping the GRP trim joints and other local reinforcements
4. Applying the Base Coat
5. Applying the Top Coat

## Uses Advised Against

The GRP Roof 1010 System is not for consumer use and should only be installed by professionals.

## 3. Fitting the OSB3 Deck

### Introduction

Please note that the following is for guidance and this document should be read in conjunction with the relevant OSB3 board manufacturer's technical data sheets. Particular attention should be given to the board manufacturers recommendations regarding storage, conditioning, moisture content, fixing and protection of boards prior to application of the GRP Roof 1010 System.

***Top Tip - To avoid contamination of the OSB3 and resin, cut flashing chase before re-decking.***

## Preparation

The existing roof should be inspected to assess its condition. If the substrate is found to be unsuitable for over-decking (e.g. defective, decayed or structurally unsound) then it will need to be stripped and removed. The timber joists should also be inspected for defects including any wet/dry rot and made good where required.

Standing water should be avoided and if you think there is a potential for this to be a problem then you may want to consider incorporating falls (ideally a min. 1 in 80). This is normally achieved through the addition of timber firrings above the joists. If the roof is to be walked on then extra consideration should be given to improving the falls as standing water could be hazardous.

## Recommended OSB3 Type & Grade

This guidance document covers 18mm OSB3 TG4 (Tongue and Groove). These boards have 4 tongue and groove edges and are 2400mm x 600mm. These are the preferred OSB boards to use. Note OSB3 Square Edge versions are available which would require additional local reinforcements to the board joints (see Section 5 for details).



## Installation Instructions

1. 2400mm x 600mm x 18mm OSB3 T&G4 Boards should be fixed at max 200mm centres (4 fixings across the board width) and into every joist. A minimum of 20 fixings per board will be required.



2. Boards can be cut as required to fit the roof area. Care should be taken to not affect the tongue & groove joints – if square edges are present then they will need to be taped later (see Section 5)

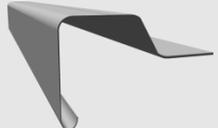


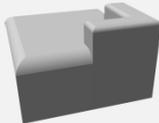
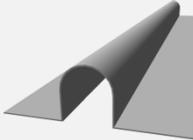
3. Boards should be laid staggered (see typical pattern right) with the larger gap in the T&G joint face up. This will usually be the writing side up on most boards.
4. The minimum expansion gap is 25mm at all abutments. This includes walls, chimneys, rooflights and the like. Flashings to the wall must be kept independent of the roof to allow movement and wall fillet trims must be used.
5. For large roofs (roofs over 50m<sup>2</sup> or roofs in excess of 10m in length) special expansion trims will be required. A gap of 25mm should be allowed between the OSB3 boards where expansion trims are to be fitted (see page 13).
6. Fixings should be minimum 75mm annular ring shank nails when fixing directly to the joists or equivalent screws. For warm roof constructions, specialist warm roof fixings will be required, penetrating the joists by a minimum 40mm. Please consult your GRP Roof 1010 Distributor for advice.
7. Boards should be overcoated as soon as possible, ideally the same day. If the boards cannot be waterproofed then they must be suitably protected from the weather at all times to avoid the possibility of becoming wet.

## 4. Fixing the ResTrims

### Introduction

ResTrims must be installed at all roof perimeters including exposed edges, wall abutments and at joints to adjacent pitched roofs. The table below details the type of trims available and where they need to be installed.

Trim Name	Drawing	Where they are fixed
Drip trims		Installed to any perimeter edge where water runs off into a gutter.
Upstand Fascia aka Raised Edge		Installed to edges where water <b>does not</b> run off

Corner Piece		Installed at external the corners of the roof
Wall Fillet		Installed to any edges that abut a wall
Cover Flashing		Used to provide weathering protection for wall abutment details
Flat Sheet		Installed beneath slates/tiles at edges that abut a pitched roof
Expansion		Installed for any roofs over 50m <sup>2</sup> or greater than 10m over a 25mm gap between boards

## Trim Installation Instructions

### General Guidance

- Treated timber battens (19mm x 38mm) should be installed as required to the perimeters of the roof (refer to individual trim for batten requirements).



- It is recommended that MS Polymer adhesive (such as Soudal Fix All (High Tack) adhesive or equivalent) is applied to the timber battens to provide additional security for the trims to protect against wind uplift damage. Ensure the trims are pushed against the adhesive to achieve optimum bonding.



- Trims must be mechanically fixed into the OSB3 deck using 18mm large headed galvanised clout nails at 150mm centres.



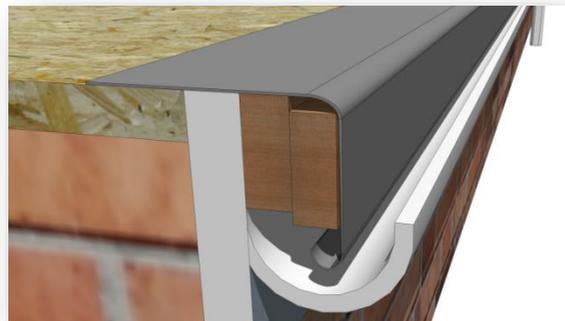
- When joining two lengths of trims together, ensure there is a minimum overlap of 50mm and use MS Polymer adhesive to secure in place prior to mechanically fixing.



- All joints in the trims and the junction between the trim and the OSB3 deck will need to be locally reinforced with 75mm taping mat and GRP Roof 1010 Base Resin.

### Drip Trims

- It will be necessary to install two timber 19mm x 38mm battens at these edges to ensure that the drip trim is located in the centre of the gutter. The second batten should be fixed approximately 10mm lower than the first
- If there is a potential for standing water issues, the gutter side of the OSB3 should be marked with the back of the drip trim and carefully rebated before it is nailed. The OSB3 can then be nailed and the drip trim fitted so that it finishes level with the top of the OSB3 (i.e. the drip trim is in fact "countersunk" flush with the top of the OSB3).



### Upstand Fascia Trims

- Because there is no gutter present at these edges, only one 19mm x 38mm batten will be required which should be installed to be level with the adjacent fascia board/OSB3 deck.



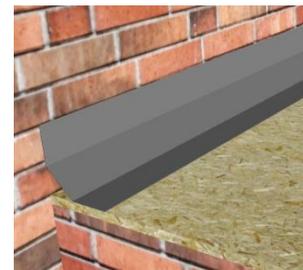
### Corner Pieces

- Corner pieces should be trimmed to size so that they exactly match the adjacent edge trims.



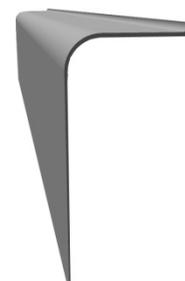
### Wall Fillet

- Ensure the vertical face of the trim sits parallel to the wall. **DO NOT** fix the vertical section to the wall.
- These trims should also be installed at any other right angle abutments.



### Cover Flashings

- The flashing trims should be fixed **AFTER** the application of the GRP Roof 1010 system.
- Before re-decking, a chase should be cut into the mortar of the brickwork using a suitable grinder into which the trim will be slotted in.
- Before placing the trim into the chase, apply a continuous bead of MS Polymer adhesive to the rear of the trim so that it becomes bonded in place.
- Once in place apply clear silicone sealant across the length of chase/trim joint to provide a weatherproof seal.
- NB - If there is already cover flashing in place (such as lead or similar) in sound condition it may not be necessary to install cover flashing trims.



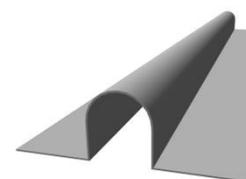
### Flat Trims to Pitched Roof Abutments

- The first two courses of slates/tiles should be removed as required prior to installing the flat sheet trim at pitched roof abutments.
- The trim must only be fixed to the OSB3 deck so that the section of the trim resting against the pitched roof is free to move with expansion movements.
- When applying the Base Coat, ensure that the nailed section is covered. NB - It is not necessary to extend the Base Coat across the whole trim, however the whole trim can be coated with Top Coat.
- Replace the slates/tiles upon completion of works after the Top Coat has fully cured.



### Expansion Trims (Only for Roofs over 50m<sup>2</sup> or Roofs in Excess of 10m in Length)

- Expansion joint trims should be placed centrally over a 25mm expansion gap between the OSB boards and mechanically fixed either side.
- When joining two lengths of trims together, ensure there is a minimum overlap of 50mm and use MS Polymer adhesive to secure in place prior to mechanical fixings.
- The joint and the fixings should then be locally reinforced and then the full reinforced Base Coat laminate can be applied over the trim.



## 5. Taping Trim Joints and Other Local Reinforcements

After all trims have been installed as per Section 4 it will be necessary to tape all the joints between the trims and where the trims adjoin the OSB3 deck in order to prevent stress cracking. Any details on the roof including pipes, outlets etc. should also be locally reinforced. **IMPORTANT** – Any OSB3 board joints which are square edge (i.e. not tongue and groove) should be locally reinforced as described below.

### Instructions

1. Pre-cut 75mm taping mat for each area requiring local reinforcement.
2. Thoroughly wipe the trims with acetone and allow the acetone to evaporate before coating.
3. Mix the Base Resin thoroughly in the original container until a uniform colour and haze is present. Then decant about 1 kg (0.8 litres) of the Base Resin into a calibrated bucket / suitable container on weighing scales.
4. **IMPORTANT** – You must catalyse the resin and guidance on this can be found in the next chapter. The colour of the Base Resin should change from blue to orangey-brown within two minutes. Any blue areas that remain should be stirred-in again prior to application.
5. Using a small brush or roller, apply the catalysed resin over the joint/detail and embed the taping mat into the resin.
6. Apply more resin as required to ensure the taping mat is thoroughly wetted out (no dry spots are visible). Remember that wetting takes a little time – so wait a couple of moments and re-roll before adding more resin unnecessarily.
7. Finally consolidate the joint laminate using a small paddle roller and ensure the fibres lie as flat as possible.



## 6. Applying the Base Coat

### Measuring and Cutting the Fibreglass Mat Reinforcement

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

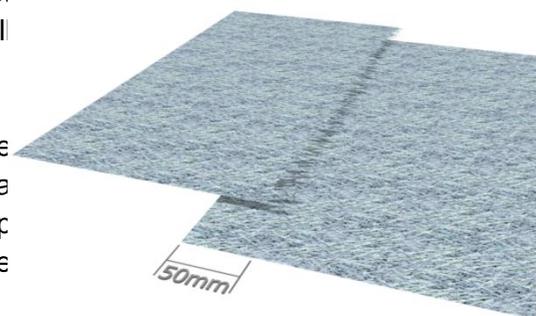
Carefully measure the roof and assess how many strips of mat are needed, while allowing a 50mm overlap on each width of the glass mat.



Carefully remove the mat from its polythene bag and lay on a clean dry surface. Roll out the required length - if possible always working 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. 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 fibreglass matting has one straight cut edge and one feathered (torn) edge. When overlapping rolls of mat, a feathered edge should go over a straight edge. The overlap must not be less than 50mm otherwise a weak spot will be created.



### Important Notes

#### Application Conditions

GRP Roof 1010 Resins should be applied in dry conditions between 5°C\* and 30°C ambient air temperature. Do not begin if conditions could fall outside of the temperature range or if rain appears likely. \* For Low Temperature applications, GRP Roof 1010 Base Coat Accelerator may be used – refer to Appendix D for details

### Coverage Rates & Quantities

**GRP Roof 1010 Base Coat is applied at a coverage rate of 1.2 Kg/m<sup>2</sup> (1.0 Litre/m<sup>2</sup>) when using 450g/m<sup>2</sup> fibreglass mat reinforcement.**

*NB: The coverage rate is 1.6 Kg/m<sup>2</sup> (1.33 Litre/m<sup>2</sup>) when using 600g/m<sup>2</sup> fibreglass mat.*

**IMPORTANT – Using too much resin is detrimental to the system. Always make sure you use the right amount.**

Table 1.1 below shows the quantity of Base Resin required for typical roof area sizes.

Roof Area	Amount of Base Coat required for Main Laminate when using 450g/m <sup>2</sup> mat		Amount of Base Coat required for Main Laminate when using 600g/m <sup>2</sup> mat	
	Approx. Weight	Volume	Approx. Weight	Volume
5 m <sup>2</sup>	6.0 kg	5.0 ltrs	8.0 kg	6.6 ltrs
10 m <sup>2</sup>	12.0 kg	10.0 ltrs	16.0 kg	13.3 ltrs
15 m <sup>2</sup>	18.0 kg	15.0 ltrs	24.0 kg	20.0 ltrs
20 m <sup>2</sup>	24.0 kg	20.0 ltrs	32.0 kg	26.6 ltrs
25 m <sup>2</sup>	30.0 kg	25.0 ltrs	40.0 kg	33.3 ltrs
30 m <sup>2</sup>	36.0 kg	30.0 ltrs	48.0 kg	40.0 ltrs
40 m <sup>2</sup>	48.0 kg	40.0 ltrs	64.0 kg	53.2 ltrs
50 m <sup>2</sup>	60.0 kg	50.0 ltrs	80.0 kg	66.5 ltrs
70 m <sup>2</sup>	84.0 kg	70.0 ltrs	112.0 kg	93.0 ltrs
100 m <sup>2</sup>	120.0 kg	100.0 ltrs	160.0 kg	133.0 ltrs

*Table 1.1 – GRP Roof 1010 Base Resin quantities required for typical roof sizes.*

NB - It is recommended that an additional 10% material is included in order to cover wastage during application.

### Catalyst Levels

**IMPORTANT – Read the further information regarding catalysing products in Appendix A & B**

The Base Resin is catalysed at a **minimum of 1%** and a **maximum of 4%** depending on temperature.

- Never catalyse less than 1% even in very hot conditions as this would result in an impeded cure of the resin.
- Never catalyse more than 4% even in very cold conditions as this would impede the curing of the resin.

Table 1.2 below provides recommended catalyst addition rates depending on resin quantities and temperature ranges. **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 start level before you start laying the main Base Coat. 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. 1.5%) to gain close control of the pot life.

Recommended Catalyst Addition Rate:		4%	3%	2%	1%
Temperature Range:		5 - 10°C	11 - 17°C	18 - 25°C	26 - 30°C
Amount of Base Resin		Amount of Catalyst to Add			
Volume	Weight				
1 ltr	1.2 kg	40 ml	30 ml	20 ml	10 ml
2 ltrs	2.3 kg	80 ml	60 ml	40 ml	20 ml
3 ltrs	3.5 kg	120 ml	90 ml	60 ml	30 ml
4 ltrs	4.7 kg	160 ml	120 ml	80 ml	40 ml
5 ltrs	5.9 kg	200 ml	150 ml	100 ml	50 ml
6 ltrs	7.0 kg	240 ml	180 ml	120 ml	60 ml
7 ltrs	8.2 kg	280 ml	210 ml	140 ml	70 ml
8 ltrs	9.4 kg	320 ml	240 ml	160 ml	80 ml
9 ltrs	10.5 kg	360 ml	270 ml	180 ml	90 ml

Table 1.2 – GRP Roof 1010 Base Coat catalyst addition rates.

**It is not recommended to catalyse more than ~10kg at a time. When working large areas decant the resin into manageable quantities and always be aware of your pot life.**

## GRP Roof 1010 Base Coat Application Instructions

1. Brush all loose debris from roof substrate. Check roof is clean, dry and no fixings protrude.
2. Check all boards and trim joints have been taped and feathered where necessary.
3. Stir the Base Resin thoroughly in the original container – mixing from top to bottom until a uniform colour and haze is present.
4. Pour the calculated amount of resin into calibrated bucket / suitable container on weighing scales and replace lid on resin can to prevent contamination or unnecessary losses to atmosphere. Do not attempt to mix more than 10 Kg / 8.5 litres at one time, and during the hot summer months this should be considerably reduced (see Table 1.1 on page 15 for quantity guidance).
5. Pour in the correct amount of catalyst (see Table 1.2 on page 16 for catalyst level guidance and safe use notes in Appendix A & B) direct into the measured out resin and mix thoroughly. The colour of the Base Resin should change from blue to orangey-brown within two minutes. Any blue areas that remain should be stirred-in again prior to application.



*Measured and decanted catalyst is added to the resin*



*Mix thoroughly to ensure all resin is catalysed*



*Once catalysed the resin turns orange/brown*

NB – MEKP catalyst is hazardous and corrosive. Be sure to wear all suitable PPE at all stages (including safety goggles and suitable rubber gloves). Read the full safety information before starting.

6. Apply GRP Roof 1010 Base Resin using roller working the resin evenly over the substrate to be matted at this point. Ensure that the resin is also worked into all OSB3 TG4 joints. Do not pour from bucket (this will create resin rich areas), rather dip the roller and spread for the most even coverage. Take care to work methodically and avoid standing in wet resin.



7. Place the matting onto the resin wetted boards, allowing for 50mm overlaps onto the trims. Ensure the mat is correctly orientated so the straight cut edge is overlapped by the feathered edge of the next strip. See page 14 for further details about measuring and cutting. All fixings must be covered with mat.
8. Apply a further light coat of resin (wet on wet) using the roller. Do not apply too much resin at this stage – it is unnecessary and may result in a weaker roof membrane if over-applied. Allow a little time for the resin to impregnate the mat before deciding whether more is needed (only where voids or prominent fibre can be seen or mat does not become transparent within a few minutes).



9. Work the resin into the mat using the metal paddle roller, allowing it to spread and soak thoroughly. Allow plenty of time for this operation. The mat will soak up the resin and turn from white to translucent. Consolidate well and roll out all air bubbles with metal paddle roller. Avoid rolling too vigorously as this will create unnecessary splashes with wasted material and risk of contaminating nearby areas.

Note: Pinholes, which are small “pock marks” on the surface of the finished roof, are not always caused by a lack of Top Coat resin, rather a lack of Base Coat or insufficient paddle rolling resulting in trapped air. More efficient use of the paddle roller will help to eliminate pinholes by highlighting bare and unsaturated areas



10. Inspect thoroughly and if there appear to be any areas with insufficient resin (voids, prominent fibres or spots remaining white) apply a little extra and repeat 9.
11. Carry on with the next piece of the fibreglass mat repeating the steps above, using 50mm overlaps ensuring the feathered edge is correctly orientated, until the roof is completely covered. Check as you go for complete fibre wet-out and prominent fibres. Curing time is normally between 30 and 120 minutes, dependent upon temperature and catalyst levels. When properly cured it should be virtually tack-free it should not be easy to dislodge glass strands from the laminate surface.

Accurate measuring of the immediate working area, appropriate resin quantities and uniform application will ensure the correct resin to mat ratio. When adequately cured to progress to the next stage.

### Inspection of Base Coat

Footwear must be thoroughly clean and dry, or base coat will be contaminated and the top coat will not fully adhere. Look for imperfections and fibre prominent areas to which a further thin application of base should be applied.

Prominent strands can be touch-sanded using sand paper. For any defective Base Coat, where necessary cut out the faulty areas and relay the Base Coat and matting – overlapping by 50mm in all directions (repairs are easier at this stage than later). When making the repair, tear a patch from the fibreglass matting to create a feather edge on all sides (this will make the repair less visible). The patch will bond to the main mat to form a joint-free surface.



## Applying the Base Coat – Do's and Don'ts

### DO

- ✓ Wherever possible, lay the Base Coat and the Top Coat on the same day, even on large jobs which must be done section by section. Where this is not possible – sanding and Acetone wiping\* is necessary before top coating.
- ✓ Protect nearby surfaces from drips and splashes.
- ✓ Tape underside of the any non-T&G board joints with masking tape to ensure that no resin can drip through the board gaps onto the floor area or equipment in the room below and close any up and over garage doors.
- ✓ If the roof gets wet after the Base Coat is laid but before Top Coat is applied, 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 Base 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 base 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 (this takes seconds) and apply Top Coat within 15 minutes of acetone wiping for best effect. Note – Acetone is a highly flammable liquid. Observe all safety precautions. Do not use acetone close to any naked lights or electrical items. 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

## DO NOT

- ✘ Begin laying basecoat where there is no realistic prospect of Top-Coating within 24 hours.
- ✘ Use a gas torch or any form of heat to dry the base coat.
- ✘ Pour acetone directly onto the Base Coat.
- ✘ Use a lick of base in lieu of abrading and Acetone wiping in an attempt to rejuvenate a Base Coat laid more than 24 hours previously.

## 7. Applying the Top Coat

### Important Notes

#### Application Conditions

GRP Roof 1010 Resins should be applied in dry conditions between 5°C\* and 30°C ambient air temperature. Do not begin if conditions could fall outside of the temperature range or if rain appears likely.

\* For Low Temperature applications, GRP Roof 1010 Base Coat Accelerator may be used – refer to Appendix D for details

#### Ensuring the Base Coat is Cured

The Base Coat must be adequately cured before applying the Top Coat. Depending on application conditions and catalyst levels this should be between 30 and 120 minutes (but may be longer in very cold conditions).

To check if it is cured enough to apply the Top Coat, using a gloved finger apply light pressure to the base coat – if the fibres within the matting are set and not easily disturbed then preparation for top coating can begin.

If it has been longer than 24 hours since the Base Coat was applied then it will be necessary to lightly abrade the entire surface with medium grit abrasive paper and then Acetone wipe as previously described prior to applying the Top Coat

#### Coverage Rates & Quantities

**GRP Roof 1010 Top Coat is applied at a coverage rate of 0.66 Kg/m<sup>2</sup> (0.5 Litre/m<sup>2</sup>).** Please refer to Table 2.1 below for quantity of Top Coat resin required for typical roof area sizes.

**IMPORTANT** – Accuracy with coverage rates is essential. Do not apply the Top Coat too thickly or it may crack or too thinly as it may not cure and will not give full waterproof protection.

**IMPORTANT – Using too much resin is detrimental to the system. Always make sure you use the right amount.**

Roof Area	Amount of Top Coat Resin Required	
	Approx. Weight	Volume
5 m <sup>2</sup>	3.3 kg	2.5 ltrs
10 m <sup>2</sup>	6.6 kg	5.0 ltrs
15 m <sup>2</sup>	9.9 kg	7.5 ltrs
20 m <sup>2</sup>	13.2 kg	10.0 ltrs
25 m <sup>2</sup>	16.5 kg	12.5 ltrs
30 m <sup>2</sup>	19.8 kg	15.0 ltrs
40 m <sup>2</sup>	26.4 kg	20.0 ltrs
50 m <sup>2</sup>	33 kg	25.0 ltrs
70 m <sup>2</sup>	46.2 kg	35.0 ltrs
100 m <sup>2</sup>	66 kg	50.0 ltrs

NB - It is recommended that an additional 10% material is included in order to cover wastage during application.

#### Catalyst Levels

**IMPORTANT – Read the further information regarding catalysing products in Appendix A & B**

The Top Coat resin is catalysed at a **minimum of 1%** and a **maximum of 3%** depending on temperature.

- Never catalyse less than 1% even in very hot conditions as this would impede the curing of the resin.
- Never catalyse more than 3% even in very cold conditions as this will not speed up curing but will impair the performance of the cured system

Table 2.2 overleaf provides recommended catalyst addition rates depending on resin quantities and temperature ranges. **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 start level before you start laying the main Top Coat. 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. 1.5%) to gain close control of the pot life.

Amount of Top Coat Resin		Recommended Catalyst Addition Rate:		
		3%	2%	1%
Temperature Range:		5 - 17°C	18 - 25°C	26-30°C
Volume	Weight	Amount of Catalyst to Add	Amount of Catalyst to Add	Amount of Catalyst to Add
1 ltr	1.3 kg	30 ml	20 ml	10 ml
2 ltrs	2.6 kg	60 ml	40 ml	20 ml
3 ltrs	4.0 kg	90 ml	60 ml	30 ml
4 ltrs	5.3 kg	120 ml	80 ml	40 ml
5 ltrs	6.6 kg	150 ml	100 ml	50 ml
6 ltrs	7.9 kg	180 ml	120 ml	60 ml
7 ltrs	9.2 kg	210 ml	140 ml	70 ml
8 ltrs	10.6 kg	240 ml	160 ml	80 ml

Table 2.2 – GRP Roof 1010 Top Coat catalyst addition rates

**It is not recommended to catalyse more than ~10kg at a time. When working large areas decant the resin into manageable quantities and always be aware of your pot life.**

## GRP Roof 1010 Top Coat Application Instructions

**NOTE – Refer to Appendix C for information regarding Anti-Slip Finishes**

1. Mix the Top Coat thoroughly in the original container.
2. Pour correct amount of Top Coat resin into calibrated bucket / suitable container on weighing scales and replace lid on resin can. NB - Top Coat is applied over the whole roof area including edge trims and wall fillets so consider this when decanting.
3. Catalyse the Top Coat resin as per Table 2.2 on page 22 and in accordance with the important notes and safe use guidance in Appendix A & B. Note that because the Top Coat is pigmented, there will be no significant colour change visible so you must take extra care to ensure the catalyst is thoroughly stirred in.
4. The trims are coated first – when applying resin to trims use suitable protection to catch any drips and splashes, such as a trim off-cut.
5. Whilst the Top Coat on the trims is still wet, the flat area of the roof can then be seamlessly completed using the roller to transfer the coloured top coat from the mixing bucket.



6. A variety of different anti-slip finishes can be achieved if required. Slate granules can be spread over curing Top Coat to create the appearance of a mineral finish. Alternatively a small amount of bauxite grit or other suitable anti-slip media can be broadcast in to the top coat whilst wet at an appropriate rate, then lightly rolled over with finishing roller to create a coloured anti-slip effect.

It is recommended that trims should not be coated with anti-slip finish as this would mar the overall appearance and masking tape should be used to create a neat finish.

### Final Inspection

Thoroughly check roof surface for colour evenness and look for any signs of 'pin holing' or irregularity. Any substandard areas should be reworked (see repairs section for procedure). Ensure that no GRP Roof 1010 resin has dripped from the fascia trims onto fascia boards.

Note: Pinholes are not always caused by a lack of Top Coat resin, rather a lack of Base Resin applied or insufficient paddle rolling during Base Coat application resulting in trapped air. More efficient use of the paddle roller will help to eliminate pinholes by highlighting bare and unsaturated areas.



### Applying the Top Coat - Do's and Don'ts

#### DO

- ✓ Top Coat should be rolled fairly vigorously to ensure good wetting of the Base Coat and to release any trapped air bubbles, then rolled over more lightly to create the ideal finish.
- ✓ Protect nearby surfaces from drips and splashes.
- ✓ Use clean gloves for top coat.
- ✓ Mix thoroughly in the original container before decanting.

## DO NOT

- ✘ Never wait more than 24 hours since Base Coat application to apply the Top Coat. If this happens, you must abrade and acetone wipe the Base Coat laminate as previously described.
- ✘ Important – do not pour resin directly onto the roof.
- ✘ Do not attempt to ‘fill in’ low spots with a thick (deep) application of base or top coat, it will crack.
- ✘ Never apply further Top Coat directly to cured Top Coat as it will not adhere and will flake off.

## 8. Cleaning Tools

Acetone is the normal solvent for cleaning paddle rollers and tools for removing spills. Health and Safety information regarding acetone should be noted.

Hands should be cleaned with a suitable hand cleaner such as Swarfega or Deb Resinega.

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

## 9. Repairs

Repairs to the completed GRP Roof 1010 system should be carried out using the following procedure.

Action: Grind down the immediate area to be repaired well into the original Base Coat layer and then thoroughly wipe with acetone. Apply masking tape to the surrounding area before re-laying the full system (Base Coat layer with matting and then Top Coat) over this area taking care to minimise spread of resin over un-ground top coat in the adjacent area.

Should you experience any problems please refer to the Troubleshooting in Section 10 or contact your GRP Roof 1010 Distributor.

## 10. Troubleshooting

### During Application

Issue	Cause	Remedial Action
Resin cures too quickly during application	Air or deck temperature is outside of ideal range or too much catalyst has been added	Remix fresh resin. Consider catalysing smaller amounts at one time
Base coat does not harden fully	Resin not catalysed, or insufficient catalyst added for the conditions	Remove and re-lay affected area taking care on catalyst levels
Laminate appears milky and/or tacky	Water contamination	Scrape away affected material, abrade and relay system complete
Resin over-spray causing splashes on adjacent surfaces	Lack of masking and care	Wet resin can be wiped off with a solvent such as acetone (take care as some materials will be affected by Acetone). Cured resin can be pinged off glass and other hard surfaces with a sharp item such as a scraper or other suitable implement. Care should be taken to ensure this process does not cause further damage to the surface. Cured Resin may be more difficult to remove from porous surfaces such as brickwork and driveways. This may involve specialist cleaning techniques.
Topcoat does not harden or remains tacky	Not catalysed, or insufficient catalyst added for the conditions. Alternatively Top Coat may have been applied too thinly	Scrape away affected top coat, abrade, Acetone wipe and re-apply topcoat, taking care on coverage rate and catalyst levels
Topcoat does not harden or remains tacky in small patches	Poor catalyst mixing or contamination of the basecoat laminate	Scrape away affected top coat, abrade, Acetone wipe and re-apply topcoat mixing carefully.

## After Installation

Issue	Cause	Remedial Action
Full system has separated from the decking	Decking was dirty, wet or of poor quality	Remove affected area and relay system complete
The top colour coat is flaking away from the base	Base Coat was dirty or wet. Alternatively Base Coat may have been left more than 24 hours prior to Top coating and not acetone wipe / abraded	Scrape away affected top coat, abrade and relay system complete
Pinholes within the cured Top Coat	The base system has not been properly paddle rolled or basecoat resin has been applied too thinly	Abrade affected area and relay system complete
Cracking within the top coat	Top coat applied too thick	Abrade affected area and relay system complete, taking care to observe correct topcoat application rate
Ponding	Deck has not been laid with sufficient falls or structure has deflection	Strip and re-deck roof with correct falls, Do not attempt to level roof by building up resin.

## 11. Safety Precautions

### Material Safety Data Sheets

Material Safety Data Sheets are available online at [www.res-tec.co.uk](http://www.res-tec.co.uk) and from your GRP Roof 1010 Distributor and these provide full health and safety precautions for each product. These sheets should be kept on site at all times. Very important information is contained within these sheets for applicators including:-

- First Aid
- Accidental Release (Spillage)
- Disposal Considerations
- Fire
- Transport
- Exposure Limits
- Personal Protective Equipment

YOU MUST ENSURE THAT THE INFORMATION CONTAINED WITHIN THE MSDS SHEETS IS FOLLOWED AT ALL TIMES

The use of appropriate PPE is recommended at all times when working with Res-Tec GRP Roof 1010 resins (goggles, gloves, overalls, vapour mask for any enclosed areas and dust mask when grinding). It is recommended to have a first aid kit available, as well as eye wash bottles in case of splashes in the eyes.

Acetone and MEKP catalyst are particularly hazardous. Acetone is highly flammable and must not be used near to any potential sources of ignition (e.g. naked flames or electrical equipment) or where concentrations of vapours could potentially build up. MEKP is very corrosive to skin and eyes so goggles, gloves and eye wash bottle provision are particularly important. If MEKP catalyst is spilt it must be absorbed on non-combustible materials such as sand (never paper or sawdust) and must be damped with plenty of water and disposed of as hazardous waste. If MEKP catalyst is spilt on clothes or overalls they must be removed immediately and damped with plenty of water to avoid risk of fire.

Store resin and catalyst in closed containers and catalyst in well-ventilated areas. Store under dry conditions between 5°C and 25°C, away from direct sunlight.

Empty tins containing uncured GRP Roof 1010 Resin or catalyst are classed as hazardous waste and should be disposed of in accordance with relevant regulations.

## 12. Appendices

### Appendix A - Important Notes on Catalyst Levels

Temperature has a significant impact on the pot life (working time) and cure time of the resins. Be sure to accurately measure the temperature of the deck, air and resin to ensure that you are catalysing at a suitable rate.

Varying catalyst levels can increase or decrease the pot life (working time) of the product. It is very important not to exceed the maximum recommended catalyst level. Doing so has no effect on reactivity and will reduce the final cured properties of the laminate. Similarly, never under catalyse as this will result in under cure with reduced performance will result. Where conditions are extremely warm it may be necessary to catalyse smaller quantities at one time to avoid excessive waste.

### Appendix B – Safe Use of Catalyst Dispensers

Firstly, check the dispensing bottle for any signs of damage such as splits or puncture before using. Check that the inner filling tube cap is in place (white dome at the top of the cylinder) and for the 80 ml bottle the protective cylinder cover is supplied and in place. Make sure you are wearing safety goggles and rubber gloves before handling MEKP catalyst at any stage. Unscrew the cylinder from the bottle, and fill the bottle from the MEKP catalyst supply container.

Take care to only transfer the minimum amount as catalyst must never be returned to its original supply container (fire risk if contaminated) and dispose of excess in accordance with regulations. Screw the cylinder back onto the filled bottle firmly. The dispenser is now ready to use. Hold at arm's length – well away from the eyes. Carefully squeeze the dispenser and the catalyst will start to fill the dispensing cylinder. This should happen without squeezing too hard. If difficulty is encountered – there may be a blockage. Stop and investigate carefully rather than applying high pressure. Fill the cylinder to the desired level by checking against the graduated marks then carefully pour the catalyst carefully into the resin or top-coat.

Take care to avoid splashes or spillage – MEKP catalyst is very hazardous. Should spillage occur – absorb in non-combustible material such as sand, and damp with plenty of water before disposing of responsibly. Never absorb MEKP catalyst onto paper, cloth or combustible materials or spontaneous fire can occur. Used / part filled catalyst cylinders should be stored or transported inside another clean plastic container (never metal) with a loose fitting lid or otherwise vented.

## Appendix C – Anti-Slip Finishes

Anti-slip finishes can be achieved by dispersing grit or chippings into the top coat whilst it is still wet.

When using anti-slip you should mask off areas that are not to be trafficked and apply the standard GRP Roof 1010 Top Coat finish. These areas could include trims and upstands. In the instance where a maintenance pathway is being formed, you should use masking tape to create the designated walkway area.

The most commonly used anti-slip finish is achieved using Mineral Slate Chippings as follows:

- Mask of designated area
- Whilst wet broadcast clean dried mineral slate grit at a minimum coverage rate of 2.5kg/m<sup>2</sup>. Once cured remove loose grit.
- Approximate retained grit will be 1.5kg/m<sup>2</sup> and the remaining grit may be recovered for future use.



Typical Finish

Speak to your distributor if alternative anti-slip finishes are required.

## Appendix D – Low Temp Applications: Using Product Accelerators

### Introduction

***Before working with Res-Tec GRP Roof 1010 Accelerator it is vital to read and understand these safety instructions and the associated Material Safety Data Sheet. Most importantly the accelerator must be thoroughly mixed into the resin or topcoat before catalyst is added. Accelerator and Catalyst must never be allowed to come directly into contact with each other.***

The accelerator is used to speed up the curing of the GRP Roof 1010 resins to allow normal working times in cold conditions and to allow the use of GRP Roof 1010 resins at temperatures as low as 2°C.

Accelerator is used in addition to the normal catalyst – not as a replacement. Without accelerator the GRP Roof 1010 system should not be used below 5°C or where the temperature may fall below 5°C before the resin is cured.

### Method

Note that there is a different accelerator pack specific to GRP Roof 1010 Basecoat and Topcoat. Read the label carefully to make sure the right pack is used with the intended resin.

The whole accelerator pack should to be added to 1 x 10 kg pack of GRP Roof 1010 Basecoat and Topcoat. Do not use more or less accelerator than is contained in the pack. For 20 kg packs of Basecoat or Topcoat, two accelerator packs should be added.

The effect is to give a typical working time of approximately 25-35 mins at 5°C, using the maximum GRP Roof 1010 catalyst level. See the guide overleaf.

For maximum cure speed add as follows:

Product	Accelerator	Package	Total weight	Then Use Catalyst According to...
10kg - GRP Roof 1010 Base Coat	GRP Roof 1010 Accelerator	1x 500 ml tin	300g	Refer to Chart on Page 16
20kg - GRP Roof 1010 Base Coat	GRP Roof 1010 Accelerator	2 x 500 ml tin	600g	Refer to Chart on Page 16
10kg - GRP Roof 1010 Top Coat	GRP Roof 1010 Accelerator	1x 250 ml tin	150g	Refer to Chart on Page 22
20kg - GRP Roof 1010 Top Coat	GRP Roof 1010 Accelerator	2 x 250 ml tin	300g	Refer to Chart on Page 22

### Colour

If GRP Roof 1010 Accelerator is added to Topcoat, there will be a minor colour difference evident. For this reason, accelerated and un-accelerated product should not be used side by side on the same job if such colour difference is likely to be undesirable for the client.

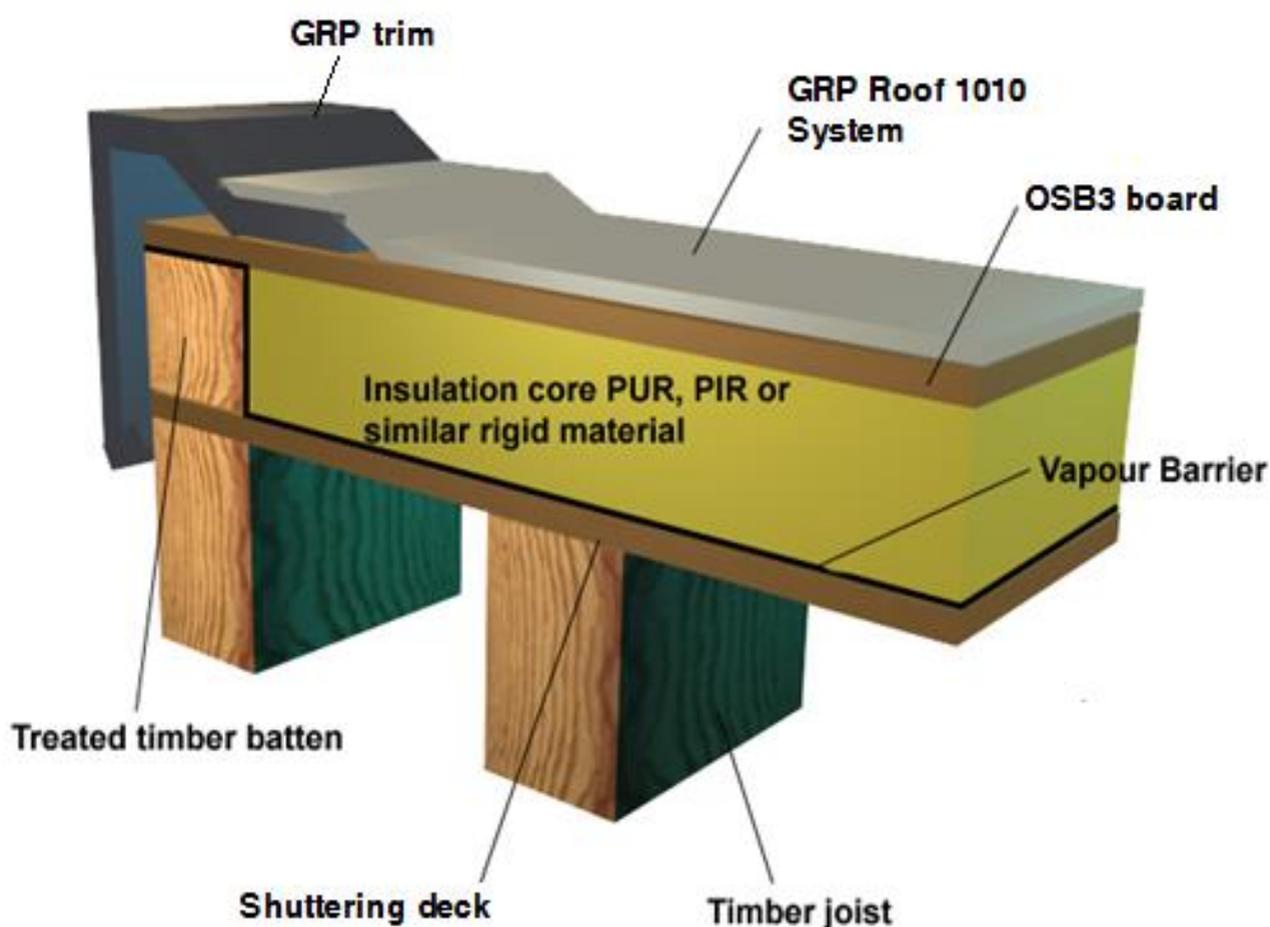
### Important safety notes:

- The accelerator should not be added to products other than GRP Roof 1010 Basecoat or Topcoat
- The accelerator must be mixed completely into the basecoat or topcoat before adding GRP Roof 1010 Catalyst
- Store the accelerator well away from GRP Roof 1010 Catalyst and other organic peroxides
- Never allow the accelerator to come into direct contact with GRP Roof 1010 Catalyst or other organic peroxides
- Read and familiarise with the MSDS for each part of the GRP Roof 1010 system

## Appendix E - Warm Roof Design Guidance

This is a construction in which the thermal insulation is provided above the roof structure (e.g. timber joists). Insulation is usually in the form of a high performance PIR (rigid) insulation board.

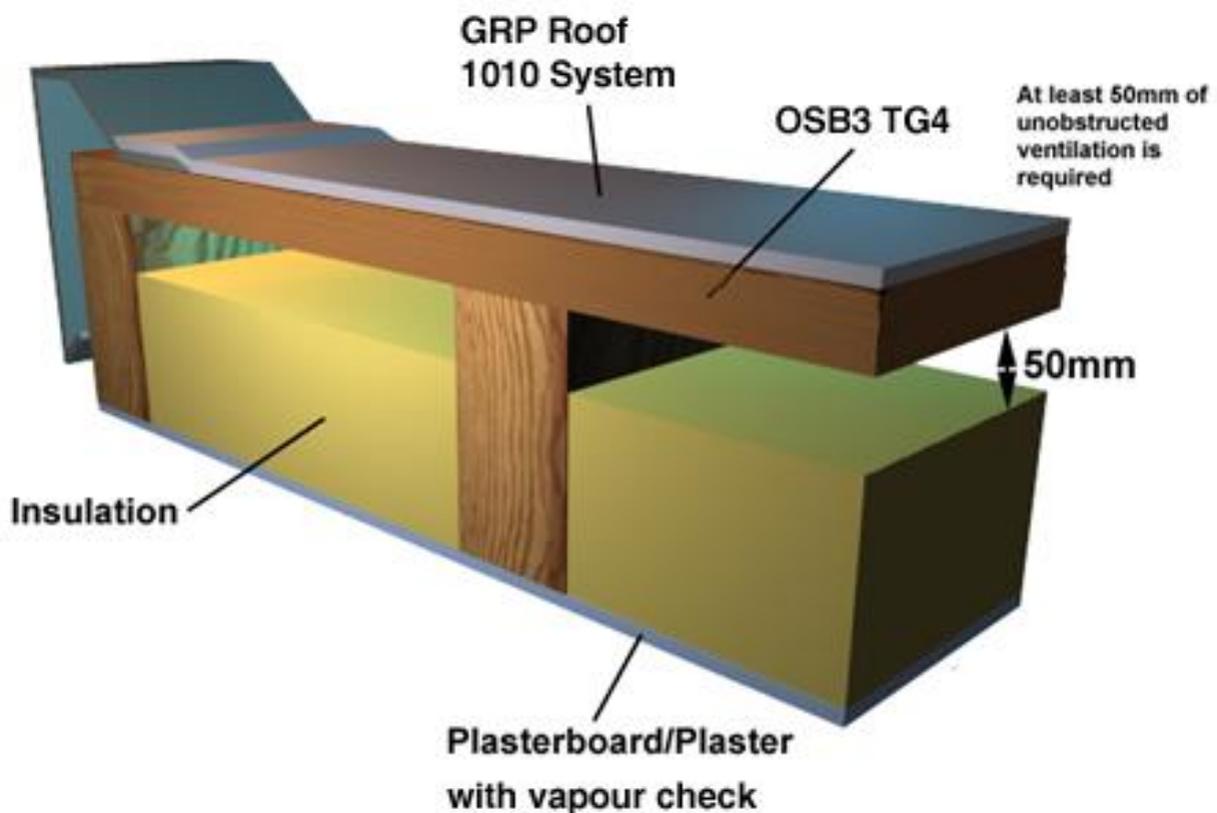
Because the structural elements are on the warm side of the insulation, they are less vulnerable to the possibility of condensation and are also protected from extremes of temperature, reducing thermal movement. It is essential that in this type of construction, a vapour control layer is installed below the insulation level. Ventilation is not required to this type of roof, allowing more freedom of design.



## Appendix F - Cold Roof Design Guidance

This is a construction in which the thermal insulation is laid between the roof structure (e.g. timber joists). Insulation is usually in the form of a loose laid mineral wool or similar.

It is essential that in this type of construction, that adequate ventilation is provided in the void between the insulation and the roof deck to reduce the possibility of condensation forming. The void needs to be a minimum 50mm and ventilated at both ends to provide an air flow through the structure.



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