RESTEC

FLEXITEC

Multi-surface GRP roofing system

Application Manual

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Contents

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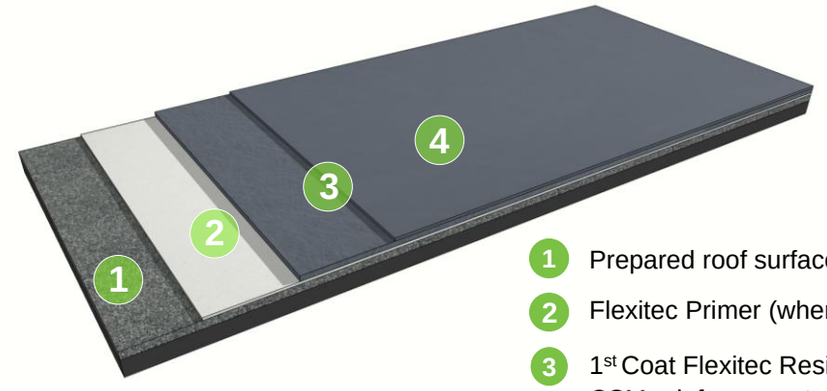
1. Introduction

The Flexitec System by Restec is a flexible, single resin GRP 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:



1. Prepared roof surface
2. Flexitec Primer (where required)
3. 1st Coat Flexitec Resin with 225g/m² Restec Fibreglass CSM reinforcement
4. 2nd Coat Flexitec Resin

Key Benefits

- Can be applied to almost any roof surface including felt, asphalt, concrete, GRP, PVC single-ply, OSB3 TG4 and metals (detailing only).
- Totally seamless and highly flexible membrane that is suitable for any size or shape roof
- Can achieve a Fire Rating: **B_{ROOF}(t4)** – the highest rating a flat roof system can achieve and allowing for unrestricted use under UK regs.
- European Technical Assessment (ETA-24/0069) certified assessing the essential performance characteristics of non-standard construction products across Europe.
- Highly resistant to rainfall – once consolidated, the resin will cure through – no more scraping off uncured resins!
- Extremely rapid installation with walk-on times of 30-60 minutes
- Uses 225g/m² fibreglass CSM for even application and an extra tough membrane that lasts decades
- Installations by trained installers are supported by Restec's trusted 20 Year Materials Guarantee
- Anti-slip finishes available for terraces, balconies and walkways
- Suitable for application in temperatures as low as 1°C (with accelerator) or as high as 30°C
- Manufactured to ISO 9001 and ISO 14001 standards for consistent quality
- Cold applied for maximum safety – no risks from open flames and other hot works
- Single resin system that can be repaired / overcoated without grinding down

2. Before You Start

Component Checklist

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

Essential System Components

- ❑ Flexitec Resin (consider Accelerator for Low Temp Applications)
- ❑ Flexitec Primer (for certain substrates only – see page 17) (consider Accelerator for Low Temp Applications)
- ❑ Powder Hardener (for Flexitec Resin and Primer)
- ❑ Fibreglass chopped strand mat (CSM) reinforcement (225g/m^2)
- ❑ Taping mat (for trim joints and other local reinforcements)
- ❑ Acetone (preparation of some surfaces, wiping trims before coating, reactivating membrane if over-coating 7 days later, and cleaning tools)

Overlay Applications - Additional Components

- ❑ Powerwasher to clean roof surfaces (where required)
- ❑ Drying equipment - Industrial wet and dry vacs, clean mops, rags, sponges etc.
- ❑ Fungicidal wash to treat areas of fungal growth or moss

New Deck Applications - Additional Components

- ❑ Restec SA Carrier Layer - Recommended
- ❑ Restec SA Primer (Roller Applied) – Recommended
- ❑ Flexitec Primer and Taping Mat for timber joints
- ❑ OSB3 TG4 deck
- ❑ Treated timber battens (for rigidity to edge trims)
- ❑ Fixings for OSB TG4 deck (suitable flat roofing fasteners)
- ❑ ResTrims (for new deck applications or where existing edge detailing requires replacement)
  - ❑ Restec Trim Adhesive & Sealant, for bonding trims.
  - ❑ Treated timber battens (for rigidity to edge trims)
  - ❑ Fixings for trims (20mm large headed galvanised clout nails)

Application Tools & Ancillaries

- ❑ Restec solvent-resistant, blue striped nylon application rollers
- ❑ Stirrer
- ❑ Application brushes (for difficult to reach areas)
- ❑ Calibrated buckets (for measuring resin quantities and mixing in hardener) or scales for weighing
- ❑ Restec Infra-Red Laser Thermometer (for measuring resin and deck temperatures)
- ❑ Personal protective equipment (latex gloves, respiratory/dust mask and safety goggles)
- ❑ Medium grit sand paper
- ❑ Cloths / rags
- ❑ Protimeter Moisture Meter to measure moisture content of the roof surface

Assessing the Existing Roof

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, page 33 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 pages 6-9. For guidance regarding the fitting of new decks refer to Section 4 starting on page 10.

Determining Suitability for Over-Coating – Substrate Compatibility

Flexitec is a highly versatile system that can coat a wide range of common roof surfaces that include felt, asphalt, concrete/screed, GRP and PVC 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 page 33.

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 Flexitec system it could be hazardous to foot traffic in icy conditions. If you're not the end user we strongly recommend discussing this with your client before you start.

Compliance with Building Regulations

You should ensure that the design of the roof to which the Flexitec 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), BS5250 (Control of Condensation in Buildings), Local Authority Building Control regarding compliance with regulations or seek professional advice.

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. welted drips and trims.

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.

Uses Advised Against

The Flexitec System is not for consumer use and should only be installed by professionals.

3. 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 upstand height above the finished surface of the roof and should be terminated into a chase or have a suitable cover flashing or weathering flange. Any details where this cannot be achieved should be periodically inspected and may require occasional maintenance.
- All detailing surfaces to be coated on and are fully prepared and primed as required.
- The Flexitec System should be dressed as far as possible into all outlets.
- Care should be taken to ensure all roof details comply with BS 6229 Guidance (Flat Roofs with Continuously Supported Membranes), NHBC and any other relevant regulations.

4. Preparation of Existing Roof Surfaces

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% w.m.e. is allowable for application of the Flexitec system.

If the moisture content is greater than this the substrate should either be left to dry naturally or alternatively dying 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.

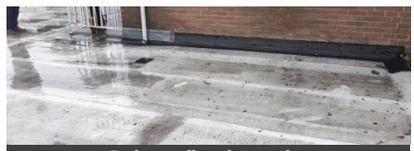
Gas torches and normal electric driers should not be used as they can damage the substrate and the applied system. These types of heaters can also create a significant fire hazard. Providing the substrate is surface dry the system applied will adhere well to the substrate however the following should be noted.

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.

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, page 33)
- 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 a fungicidal wash to ensure all spores are destroyed. Powerwash to remove any residues.
- Ensure all surfaces to be coated are suitably


Roof chippings


Solar reflective paint


Loose / poorly adhered material


Moss / vegetative growth

Felt

- 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.
- Brush off any loose sand before coating.
- **Primer Required:** Flexitec Primer (Recommended)

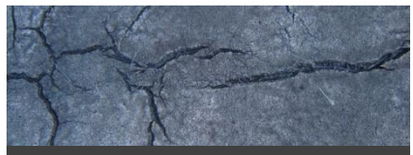

Smooth felt with mineral felt to edges


Blister

Asphalt

- 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 (check manufacturer's recommendations).
- **Primer Required:** Flexitec Primer (Recommended)


Blowholes


Cracks

GRP

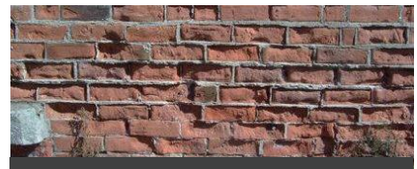
- Mechanically abrade (grind) any loose and flaking GRP topcoat materials back to the base layer to provide a sound firm edge.
- Aged / weathered GRP with a sound topcoat layer will not require abrading, however for GRP with a top coat less than 12 months old, mechanical abrasion will be required to the roof edges.
- Ensure all GRP surfaces are thoroughly scrubbed with clean Acetone prior to coating
- Note - Existing GRP Trims should always be included in any refurbishment and must be waterproofed with reinforced Flexitec resin (not just painted)
- **Primer Required**: No


Flaking top coat

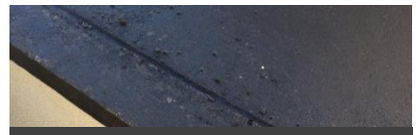

Existing GRP trims

Concrete / Screed & Brickwork

- Any spalled, loose, unsound concrete or brickwork should be broken out and repaired using a suitable repair mortar.
- 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.
- 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.
- **Primer Required:** Flexitec Primer (**Essential**)

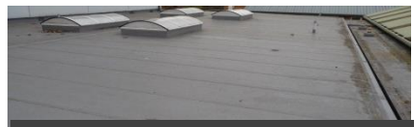

Spalled brickwork


Smooth concrete


Wet concrete roof

PVC Single Ply Membranes

- Note – adhesion tests will be required to determine suitability for over-coating (see page 33 for further details)
- Any localised damage should be repaired or made good as appropriate.
- Ensure all single ply surfaces are thoroughly scrubbed with clean Acetone prior to coating
- **Primer Required:** Restec SP Primer (dependent on adhesion tests results). Note some PVC Single-Ply membranes may alternatively be primed using standard Flexitec Primer dependent on adhesion test results.


PVC Single-ply roof


Defects require remedying

Metals

- Flexitec should 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. Flexitec should not normally be used for 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 solution 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**: Restec Metal Detailing Primer or Restec Twin-Pack Epoxy Metal Primer. IMPORTANT- Refer to primer technical data sheets before use.


Typical rust converter


Un-weathered galvanised steel


Aluminium roof trims


Lead outlet

5. Fitting New OSB3 Decks (Where Required)

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 Flexitec System. Important Note – A two coat (20 year) application must be installed when coating OSB3 or any other new deck or porous surface.

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 should consider incorporating falls (ideally a finished fall of a min. 1 in 80 in accordance with BS6229). This is normally achieved through the installation 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 to foot traffic.

Recommended OSB3 Type & Grade

This guidance covers 18mm OSB3 TG4 (Tongue and Groove). These boards have 4 tongue and groove edges and are 2400mm x 600mm and are the recommended board to use. OSB3 square edge boards can be used but these require additional reinforcements to the board joints. Refer to page 11 and page 21 for further details.

Installation Instructions

1. 18mm x 2400mm x 600mm OSB3 T&G4 Boards should be fixed at max 200mm centres (4 fixings across the board width) and into every joist, penetrating the joist by a minimum 40mm. A minimum of 20 fixings per board will be required. Use suitable flat roofing fasteners in accordance manufacturer's recommendations.

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 9)

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. Ensure boards are pushed tight to be properly butted together.

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^2 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. Alternatively, the Restec SA Carrier layer can be installed, negating the requirement for expansion trims.

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 Flexitec Distributor for advice.

7. TREATING OSB3 TG4 BOARD JOINTS: Add the required amount of Powder Hardener to decanted Flexitec Primer (see page 17-19 for guidance), stir thoroughly and apply by brush to all OSB3 TG4 board joints ensuring that primer fills the board joints entirely. This stripe priming process is critical when applying to OSB3 TG4 board joints.
    - IMPORTANT: All OSB3 Square Edge Board joints must be locally reinforcing with Flexitec Primer and taping mat. Refer to page 21 for details.

8. Boards should be made waterproof as soon as possible, ideally the same day. If this cannot be achieved then they must be suitably protected from the weather at all times to avoid the possibility of becoming wet.

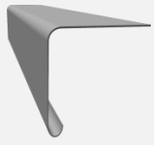
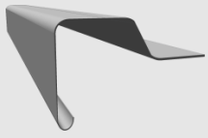
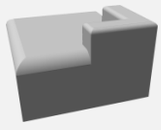
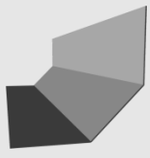
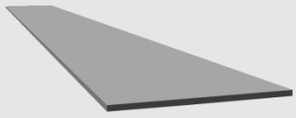
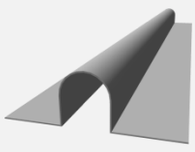
An Alternative System for Waterproofing OSB3 Decks

When applying the Flexitec System to OSB3 TG4 decks, it is necessary to prime the board joints first with Flexitec Primer before applying the reinforced Flexitec Resin. If you're installing a 20-year system, you can use GRP Roof Base Resin with 450g/m^2 fibreglass CSM as an alternative to both priming and the Flexitec first coat. Once cured, you can then overcoat the GRP Roof Base Resin with unreinforced Flexitec Resin at a coverage rate of 0.5 Litres/m^2 (0.7 kg/m^2)

6. Fixing ResTrims

Introduction

ResTrims are required for any new deck application and can be used to replace existing defective detailing. ResTrims trims should be installed at all new deck 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		Installed to any perimeter edge where water runs off into a gutter.
Upstand Fascia		Installed to edges where water **does not** run off
Corner Piece		Installed at external corners of the roof
Wall Fillet		Installed to any perimeters that abut a wall
Cover Flashing		Used to provide weathering protection for wall abutment details
Flat Sheet		Installed beneath slates/tiles at perimeters that abut a pitched roof
Expansion		Installed for any timber deck roofs over 50m^2 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).

- Restec Trim Adhesive & Sealant is to be 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 as soon as possible to achieve optimum bonding.

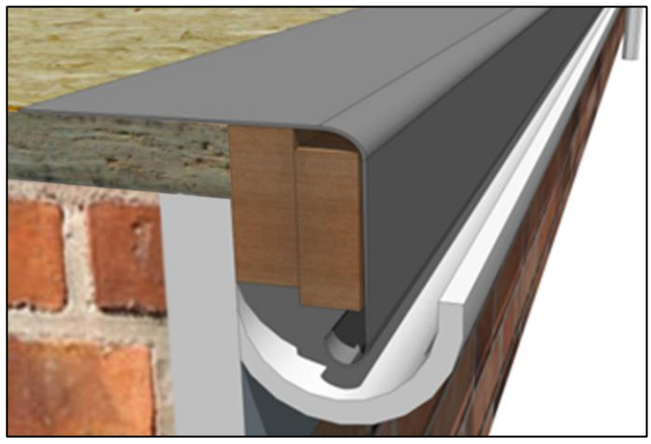
- Trims must be mechanically fixed into the OSB3 deck using 20mm large headed galvanised clout nails at 150mm centres.

- When joining two lengths of trims together, ensure there is a minimum overlap of 50mm and use Restec Trim Adhesive & Sealant to secure in place prior to mechanically fixing.

- All joints in the trims and the junction between the trims and the OSB3 deck will need to be locally reinforced with Restec Taping Mat and Flexitec 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 by 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).



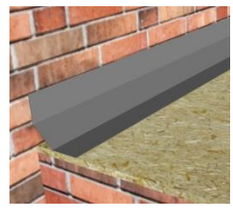
Upstand Fascia Trims aka Raised Edge

- 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.

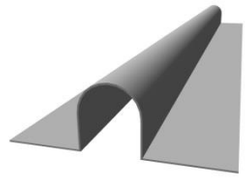
Cover Flashings

- The flashing trims should be fixed AFTER the application of the Flexitec 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 Restec Trim Adhesive & Sealant to the rear of the trim so that it becomes bonded in place.
- Once in place apply Restec Trim Adhesive & 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 and lift under-slating felt 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 during building expansion/contraction movements.
- When applying the first coat of Flexitec Resin, ensure that the nailed section is covered with reinforcement. Flexitec Resin should be extended to cover the whole trim.
- Replace the under-slating felt and slates/tiles upon completion of works after the system has fully cured.

Expansion Trims (Only for Timber Deck Roofs over 50m^2 or Roofs in Excess of 10m in Length)



- Expansion joint trims should be placed centrally over a 25mm expansion gap between the OSB3 boards and mechanically fixed either side.
- When joining two lengths of trims together, ensure there is a minimum overlap of 50mm and use Restec Trim Adhesive & Sealant to secure in place prior to mechanically fixing.
- The joint and the fixings should then be locally reinforced and then the full reinforced Base Coat laminate can be applied over the trim.

Coating and Reinforcing the Trim Joints

Trims should be thoroughly wiped with acetone before applying the Flexitec system. All trim joints and the joint between trims and the substrate will require local reinforcement with two layers of Restec taping mat (refer to Section 9 details). Trims are then to be encapsulated with Flexitec resin (NB: the reinforcement within the first coat can be stopped on the horizontal part of the trim).

7. Restec SA Carrier Layer (Where Required)

The Restec SA Carrier Layer is a 2mm high performance sanded faced bituminous carrier layer that provides a sound and firm surface for coating with the Flexitec Waterproofing system.

The Restec SA Carrier Layer is recommended when applying onto timber (OSB), tissue-faced insulation, Rockwool HARDROCK Multi-Fix (DD) insulation or larger areas of metal to create a suitable substrate for the Flexitec Waterproofing system.

Please refer to page 36 for further guidance and a warm roof construction, including the Restec SA Carrier Layer.

It can also be used over highly porous surfaces as an alternative to priming with Flexitec Primer, and it can be applied over rough surfaces (such as mineral cap sheet) to provide a smoother surface that requires less resin material. The carrier layer can also be used on large timber roofs negating the requirement for the expansion trims.

Prior to application the substrate must be primed Restec SA Primer (Roller applied) – a solvent based roller applied primer.

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.**
- Restec SA Carrier Layer requires the use of a self-adhesive primer for optimum bonding to the substrate.

Restec SA Primer (Roller)

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

Minimum Temperature: 5ºC **Maximum Temperature:** 30ºC

- Restec 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 Restec SA Primer should be applied at a rate of 4-8m²/litre on a Non-Porous Substrate (or 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 this will increase the drying time.
- Drying time will be determined by ambient and substrate temperature, humidity and air flow. For guidance purposes the Restec SA Primer should be ready for application after approximately 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 Restec SA carrier layer in accordance with the instructions below.

Applying the Restec SA Carrier Layer

- Restec SA Carrier Layer rolls should be installed from the lowest point working up the roof ensuring overlaps do not create counter-gradient overlaps.
- All Restec SA Carrier Layer 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 Restec SA Carrier Layer 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 with Flexitec Primer

Flexitec Primer

Important Notes

When to Prime

Flexitec Primer is recommended for all porous, bituminous, cementitious, timber and PVC single ply substrates. IMPORTANT - Failure to prime porous surfaces, such as concrete or brickwork may result in an under-cure of the Flexitec resin and potential system failure. Restec SA Carrier Layer and GRP surfaces, including ResTrims, do not require priming prior to application of the Flexitec System.

Application Conditions

Flexitec Primer 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 and/or if rain appears likely.

Coverage Rates & Quantities

Flexitec Primer is applied at a coverage rate of 4-6m²/Litre (3.5 – 5.3m² / kg) 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. IMPORTANT – A recommended additional 10% wastage should be factored into the figures below.

The table below shows typical quantities of Flexitec Primer for various roof area sizes.

Roof Area	Amount of Flexitec Primer Required					
	Smooth Surfaces		Medium Surfaces		Rough Surfaces	
	Approx. Weight	Volume	Approx. Weight	Volume	Approx. Weight	Volume
5 m²	0.9 kg	0.8 ltrs	1.1 kg	1.0 ltrs	1.4 kg	1.3 ltrs
10 m²	1.9 kg	1.7 ltrs	2.3 kg	2.0 ltrs	2.9 kg	2.5 ltrs
15 m²	2.8 kg	2.5 ltrs	3.4 kg	3.0 ltrs	4.3 kg	3.8 ltrs
20 m²	3.8 kg	3.3 ltrs	4.6 kg	4.0 ltrs	5.7 kg	5.0 ltrs
25 m²	4.7 kg	4.2 ltrs	5.7 kg	5.0 ltrs	7.1 kg	6.3 ltrs
30 m²	5.7 kg	5.0 ltrs	6.8 kg	6.0 ltrs	8.6 kg	7.5 ltrs
40 m²	7.6 kg	6.7 ltrs	9.1 kg	8.0 ltrs	11.4 kg	10.0 ltrs
50 m²	9.5 kg	8.3 ltrs	11.4 kg	10.0 ltrs	14.3 kg	12.5 ltrs
70 m²	13.3 kg	11.7 ltrs	16.0 kg	14.0 ltrs	20.0 kg	17.5 ltrs
100 m²	19.0 kg	16.7 ltrs	22.8 kg	20.0 ltrs	28.5 kg	25.0 ltrs

Powder Hardener Addition Rates

Flexitec Primer requires powder hardener at a **minimum of** 2**%** and a **maximum of 4%** depending on temperature. To ensure that the curing process is not impeded:

- Never use less than 2% even in hot conditions
- Never use more than 4% even in cold conditions

The table below provides recommended powder hardener addition rates depending on Flexitec Primer quantities and temperature ranges. Powder hardener is added to Flexitec Primer in the form of level scoops using the scoop provided. **IMPORTANT –** The temperature ranges shown are to be used as a guide to the amount of powder hardener to use. Always test the pot life in the prevailing conditions by performing a test mix at the suggested powder hardener level before you start application. Adjust powder hardener 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%) to gain close control of the pot life.

Recommended Powder Hardener Addition Rate:		**4%**	**3%**	**2%**
Temperature Range:		**5 - 10°C**	**11 - 17°C**	**18 - 30°C**
Amount of Flexitec Primer		**Number of Hardener Scoops**	**Number of Hardener Scoops**	**Number of Hardener Scoops**
Volume	**Weight**			
1 ltr	1.1 kg	4	3	2
2 ltrs	2.3 kg	8	6	4
3 ltrs	3.4 kg	12	9	6
4 ltrs	4.6 kg	16	12	8

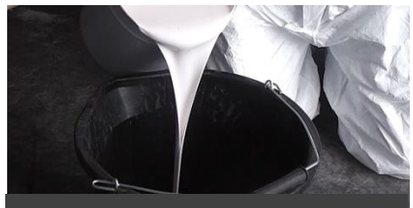
Cold Weather Applications

When using the Flexitec Primer Winter Accelerator you can apply the primer when deck temperatures are as low as 1°C (see Appendix D)

It is not recommended to catalyse more than ~5 kg at a time. When working large areas decant the primer into manageable quantities and always be aware of your pot life.

Application of the Flexitec Primer

1. Ensure surface to be coated are dry and have been fully cleaned, made good and prepared as in accordance with recommendations
2. Stir the Flexitec Primer thoroughly in the original container, mixing from top to bottom.
3. Pour the calculated amount of primer into calibrated bucket / suitable container on weighing scales and replace lid on container to prevent contamination or unnecessary losses to atmosphere. Do not attempt to mix more than 5 kg (4.5 litres) at one time, and during the hot summer months this should be considerably reduced.
4. Add the required number of level powder hardener scoops to the decanted Flexitec Primer (see the table on page 18 for guidance). Thoroughly stir the powder hardener into it is fully dissolved into the resin for a minimum of 2 minutes.

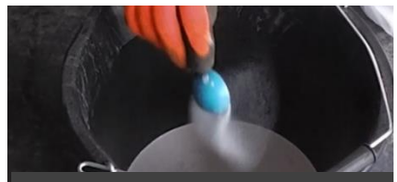


Decanting into calibrated bucket

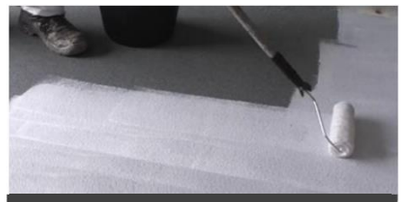
5. Once hardener has been stirred in apply the Flexitec Primer by roller (or brush if access restricted) to the prepared surface at the required coverage rate within the range of 4-6m²/Litre (3.5 – 5.3m² / kg). Ensure an even, uniform application across all surfaces. **Important – If coating OSB3 TG4 boards, the primer should be applied to the board joints by brush ensuring that the primer fully fills the gaps.**

6. 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.

7. Ensure the primer is over-coated within 7 days. After this period consult your distributor for advice.



Adding the powder hardener



Flexitec Primer being Applied

SP Primer

Important Notes

When to Prime

SP Primer is a single part, moisture curing primer for single-ply membrane. **This is only to be used subject to adhesion tests results, please refer to Appendix B (**see page 33 for further details**).**

Application Conditions

SP Primer should be applied in dry conditions between 3°C and 35°C ambient air temperature. Do not begin if conditions could fall outside of the temperature range and/or if rain appears likely.

Coverage Rates & Quantities

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

Application of the SP 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) before application.

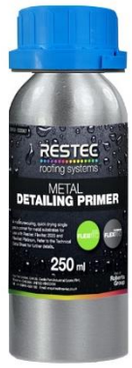
3. Brush-apply a thin coat of primer to the prepared substrate. Avoid excess build-up of material in all areas, and especially in corners. If necessary, use the brush to spread the material evenly and avoid greater layer thicknesses. Re-seal contrainer immediately after use to prevent curing.

4. The Flexitec 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 Flexitec application, then it will be necessary to re-apply the primer.

Restec Metal Detailing Primer

Important Notes

When to Prime



Restec Metal Detailing Primer is a single part, moisture curing 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.

Application Conditions

Restec Metal Detailing Primer should be applied in dry conditions between 5°C and 40°C ambient air temperature. Do not begin if conditions could fall outside of the temperature range and/or if rain appears likely.

Coverage Rates & Quantities

Apply one coat of Restec Metal Detailing Primer, by brush or roller, at an approximate coverage rate of 50ml – 150ml / m².

Application of the Restec 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) 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 Flexitec 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 Flexitec application, then it will be necessary to re-apply the primer.

9. Taping Joints, Details & Other Local Reinforcements

1. ResTrim Joints

Add Restec Powder Hardener at the required rate to decanted Flexitec Resin and thoroughly wet in two layers of Restec Taping Mat prior to application of Flexitec Resin. NB: New ResTrims should be thoroughly wiped with acetone prior to coating.

2. Local Reinforcements to Other Roof Details

To all upstands, internal outlets, protrusions, stepped joints, cracks/splits, dissimilar adjoining substrates or any other detail requiring local reinforcement add Restec Powder Hardener at the required rate to decanted Flexitec Resin and thoroughly wet and consolidate in Taping Mat prior to application of the main Flexitec System.

3. Board Joints

IMPORTANT – Any OSB3 square edge board joints should be locally reinforced with Flexitec Primer consolidated into taping mat at an approximate coverage rate of 0.25 kg/m^2 (0.25 litres/m^2). Do not use Flexitec Resin for reinforcing timber square edge board joints.

4. Finishing Tissue

Restec's glass fibre finishing tissue can be used for forming neat finishes on trim corners, trim overlaps and tidying up details on roofs, such as pipes, rooflights or outlets. Each pack contains 25lm of 150mm glassfibre tissue. Please contact your Restec Distributor for further information.

Local reinforcement to stanchion

Double reinforced trim joint

Square edge OSB3 joints reinforced with primer and taping

10. Flexitec Resin Application

Important Notes

Application Conditions

Flexitec Resin 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 and/or if rain appears likely. If Flexitec Resin Accelerator is used, then the minimum temperature is 1°C.

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 Flexitec 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 225g/m^2 fibreglass CSM reinforcement. If using 450g/m^2 fibreglass CSM reinforcement then an additional 0.5 Litres/m^2 (0.7 kg/m^2) will be required to the first coat application.

Typical Roof Surfaces	Approximate Flexitec Resin Coverage per Square Metre	
	1st Coat Coverage Rate	2nd Coat Coverage Rate
Asphalt - Smooth	0.85 Litres/m^2 (1.2 kg/m^2)	0.5 Litres/m^2 (0.7 kg/m^2)
Asphalt - Medium	1.0 Litres/m^2 (1.4 kg/m^2)	0.5 Litres/m^2 (0.7 kg/m^2)
Asphalt – Rough/De-Chipped	1.4 Litres/m^2 (2.0 kg/m^2)	0.5 Litres/m^2 (0.7 kg/m^2)
Concrete / Screed*	1.0 Litres/m^2 (1.4 kg/m^2)	0.5 Litres/m^2 (0.7 kg/m^2)
Felt - Sanded / Smooth	0.85 Litres/m^2 (1.2 kg/m^2)	0.5 Litres/m^2 (0.7 kg/m^2)
Felt - Mineral	1.15 Litres/m^2 (1.6 kg/m^2)	0.5 Litres/m^2 (0.7 kg/m^2)
GRP	0.85 Litres/m^2 (1.2 kg/m^2)	0.5 Litres/m^2 (0.7 kg/m^2)
OSB3 TG4*	0.85 Litres/m^2 (1.2 kg/m^2)	0.5 Litres/m^2 (0.7 kg/m^2)
PVC Single-Ply	0.85 Litres/m^2 (1.2 kg/m^2)	0.5 Litres/m^2 (0.7 kg/m^2)
Restec SA Carrier Layer	0.85 Litres/m^2 (1.2 kg/m^2)	0.5 Litres/m^2 (0.7 kg/m^2)

Quantities

The table overleaf shows typical quantities of Flexitec Resin for various roof area sizes when using 225g/m^2 fibreglass CSM. **IMPORTANT – A recommended 10% wastage allowance should be made in addition to the quantities shown overleaf. Remember, vertical detailing work should be covered here.**

20 Year Roofing System (Two Coats) - Flexitec Resin Quantities

Roof Area	Amount of Flexitec Resin Required					
	Smooth Surfaces		Medium Surfaces		Rough Surfaces	
	Approx. Weight	Volume	Approx. Weight	Volume	Approx. Weight	Volume
5 m^2	9.5 kg	6.8 ltrs	11.5 kg	8.0 ltrs	13.5 kg	9.5 ltrs
10 m^2	19.0 kg	13.5 ltrs	23.0 kg	16.0 ltrs	27.0 kg	19.0 ltrs
15 m^2	28.5 kg	20.3 ltrs	34.5 kg	24.0 ltrs	40.5 kg	28.5 ltrs
20 m^2	38.0 kg	27.0 ltrs	46.0 kg	32.0 ltrs	54.0 kg	38.0 ltrs
25 m^2	47.5 kg	33.8 ltrs	57.5 kg	40.0 ltrs	67.5 kg	47.5 ltrs
30 m^2	57.0 kg	40.5 ltrs	69.0 kg	48.0 ltrs	81.0 kg	57.0 ltrs
40 m^2	76.0 kg	54.0 ltrs	92.0 kg	64.0 ltrs	108.0 kg	76.0 ltrs
50 m^2	95.0 kg	67.5 ltrs	115.0 kg	80.0 ltrs	135.0 kg	95.0 ltrs
70 m^2	133.0 kg	94.5 ltrs	161.0 kg	112.0 ltrs	189.0 kg	133.0 ltrs
100 m^2	190.0 kg	135.0 ltrs	230.0 kg	160.0 ltrs	270.0 kg	190.0 ltrs

Powder Hardener Addition Rates

Flexitec Resin requires powder hardener at a **minimum of 2%** and a **maximum of 4%** depending on temperature. To ensure that the curing process is not impeded:

- Never use less than 2% even in hot conditions. Restec Summer Inhibitors are available to extend pot life and cure times in hot conditions (refer to separate datasheet for details).
- Never use more than 4% even in cold conditions. Restec Winter Accelerators are available to decrease pot life and cure times in cold conditions (refer to separate datasheet for details).

Recommended Powder Hardener Addition Rate:	4%	3%	2%
Temperature Range:	5 - 10°C	11 - 17°C	18 - 30°C

Amount of Flexitec Resin		Number of Hardener Scoops	Number of Hardener Scoops	Number of Hardener Scoops
Volume	Weight			
1 ltr	1.4 kg	4	3	2
2 ltrs	2.8 kg	8	6	4
3 ltrs	4.2 kg	12	9	6
4 ltrs	5.6 kg	16	12	8
5 ltrs	7.1 kg	20	15	10
6 ltrs	8.5 kg	24	18	12
7 ltrs	10.0 kg	28	21	14

Typical heaped scoop

Cold Weather Applications: See Appendix D for guidance on Winter Accelerators

Hot Weather Applications: See Appendix E for guidance on Summer Inhibitors

The table on the previous page provides recommended powder hardener addition rates depending on Flexitec Resin quantities and temperature ranges. Powder hardener is added to Flexitec Resin in the form of heaped scoops using the scoop provided. **IMPORTANT –** The temperature ranges shown are to be used as a guide to the amount of powder hardener to use. Always test the pot life in the prevailing conditions by performing a test mix at the suggested powder hardener level before you start application. Adjust powder hardener 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%) to gain close control of the pot life. It is not recommended to catalyse more than ~10 kg at a time. When working large areas decant the resin into manageable quantities and always be aware of your pot life.

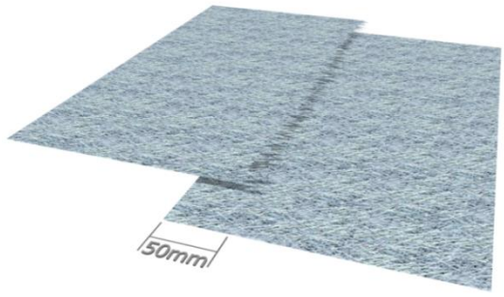
Measuring and Cutting the Fibreglass Mat Reinforcement

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 go over a straight edge. The overlap must not be less than 50mm otherwise a weak spot will be created.

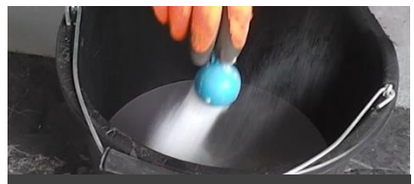


Flexitec Resin Application Instructions

1. Stir the Flexitec resin thoroughly in the original container – mixing from top to bottom. Ensure any settlements are dispersed throughout the liquid.

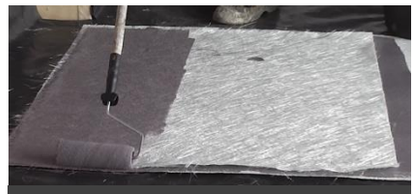
2. Pour the calculated amount of resin into calibrated bucket / suitable container on weighing scales and replace lid on resin can to prevent contamination or unnecessary losses to atmosphere. Do not attempt to mix more than 10 Kg / 7 litres at one time, and during the hot summer months this should be considerably reduced.

3. Add the required amount of powder hardener (see table on page 21 for further details) direct into the measured out resin and mix thoroughly, stirring for a minimum 1.5 minutes. Ensure the powder is thoroughly dissolved into the resin.



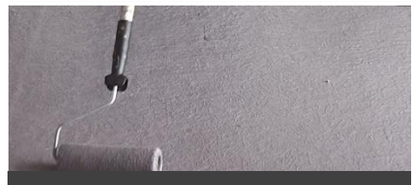
Hardener added and stirred into resin

4. Apply by roller approximately two thirds of the required amount of resin onto the roof surface. Roll out the fibreglass CSM 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 Flexitec 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. Ensure a closed, pinhole-free surface is achieved.



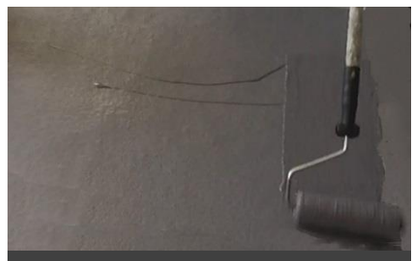
Wetting through the fibreglass CSM

5. 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. Allow to cure (30 – 60 minutes depending on conditions) before walking over the membrane.



Ensure a pinhole-free surface

6. A second coat of Flexitec resin should be applied at a minimum coverage rate of 0.5 Litres/m^2 (0.7 kg/m^2). Decant and add powder hardener as previously described, applying by roller ensuring an even and uniform thickness. Allow to cure and then 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 will be required which will allow another 7 days over coating time. If left for longer than 14 days consult your distributor for advice.



Second coat applied

First coat applied at the correct coverage, with the matting fully consolidated and “swirly” in appearance

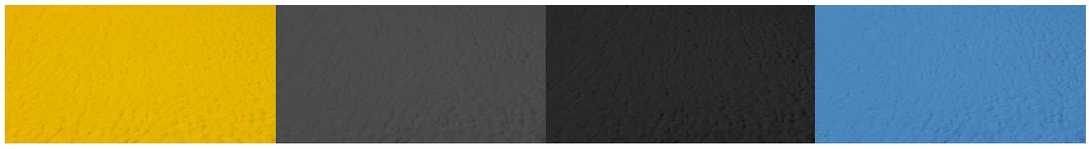
The first coat applied with too little resin or the matting not worked enough, with fibres still straight in appearance

Anti-Slip Finishes

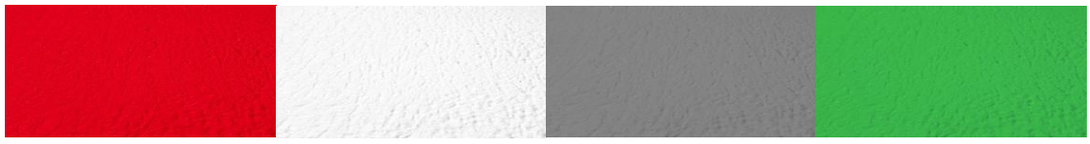
Option 1 – RESGRIP

Recommended use: Designed for applications on new or existing substrates that require a non-slip walkway for routine maintenance tasks.

RESGRIP Anti-Slip Coating comprises of a hybrid MMA liquid containing pre-dispersed anti-slip aggregate. RESGRIP Anti-Slip Coating is available in a wide range of colors, making it suitable for many different schemes. The following should be carried out upon completion of the application of the Flexitec waterproofing system.



Daffodil Yellow RAL 1007 | Anthracite Grey RAL 7016 | Traffic Black RAL 9017 | Sky Blue RAL 5015



Traffic Red RAL 3020 | Traffic White RAL 9016 | Window Grey RAL 7040 | Yellow Green RAL 6018

1. Ensure surface to be coated are dry and have been fully cleaned, made good and prepared as required. Mask off the designated area.

2. Thoroughly mix RES**GRIP** in its original container before decanting. Add in the required amount of Powder Hardener (refer to Powder Hardener Addition Chart table on the tin's label) and stir thoroughly for at least 2 minutes.

3. Apply the RES**GRIP** by roller (or brush if access restricted) to the surface at the required coverage rate of 1.0 – 1.7 kg/m^2 depending on surface roughness. Ensure an even, uniform application across all surfaces.

4. Touch in any suspect areas where necessary and then allow to dry before over-coating. The cure time is approximately 20-40 mins depending upon temperature and Powder Hardener. When cured the RES**GRIP** will become tack-free and mat in appearance.

5. For any areas that are subject to regular foot traffic, require a hardwearing surface, a glossy finish, or a tougher easy clean finish. A Restec Sealer Coat can be applied onto the RES**GRIP** as a protection/sealer coat as per below.

Did you know…….

RES**GRIP** can be used on a wide range of applications such as flat roofs, walkways, steps, access ramps, parking bays, factory flooring and more! Download the RES**GRIP** datasheet from the Restec website for more details

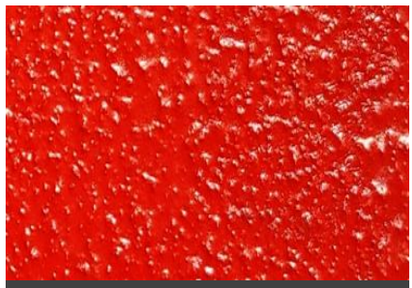
Option 2 – RESGRIP & Restec Sealer Coat
Recommended use: Designed for applications where regular footfall is required such as steps, stairs and walkways.

Restec Sealer Coat is an MMA resin that can be applied over RES**GRIP** or quartz sand aggregate to create a hardwearing, easy clean and scuff resistant finish

1. Mask off the designated area around the anti-slip. It is recommended to use a high-quality masking tape to minimise bleed-through.

2. Thoroughly mix Restec Sealer Coat liquid in its original container before decanting. Add in the required amount of Powder Hardener (refer to Powder Hardener Addition Chart table on the tin's label) and stir thoroughly for at least 2 minutes.

3. Apply Restec Sealer Coat Resin using a 225mm Medium Pile Roller at a minimum coverage rate of 0.6Litres/m^2 (1.67m^2/Litre). Remove masking tape and then allow to cure.


Typical RESGRIP with Restec Sealer Coat Finish

IMPORTANT Note – Applying Restec Sealer Coat too thin may result in an under-cure with a tacky surface finish. Uneven application will also be detrimental to the visual appearance of any finished application. Ensure even application of roller in a consistent direction.

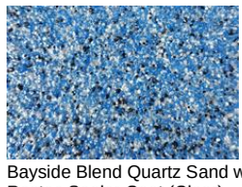
Option 3 – Quartz Sand & Sealer Coat
Recommended use: A premium anti-slip designed for regular / heavy duty trafficked areas such as balconies, terraces and amenity areas. Provides the most consistent and aesthetically pleasing finish in the Restec Range.

Restec Sealer Coat is an MMA resin used in conjunction with quartz sand and the Flexitec System to provide a tough surface. The following should be carried out upon completion of the application of the Flexitec waterproofing system. The Restec Sealer Coat resin is available in Light Grey, Dark Grey and Clear versions and is designed for use with Restec Quartz Sand anti-slip aggregate:


Std Quartz Sand with Restec Sealer Coat (Light Grey)


Std Quartz Sand with Restec Sealer Coat (Dark Grey)

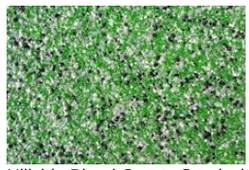

Barnowl Blend Quartz Sand with Restec Sealer Coat (Clear)


Bayside Blend Quartz Sand with Restec Sealer Coat (Clear)


Harvest Blend Quartz Sand with Restec Sealer Coat (Clear)


Mist Blend Quartz Sand with Restec Sealer Coat (Clear)


Vineyard Blend Quartz Sand with Restec Sealer Coat (Clear)


Hillside Blend Quartz Sand with Restec Sealer Coat (Clear)

1. Mask off areas that are not to be trafficked. 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.

2. To areas where grit will be required, apply an additional third coat of Flexitec resin at a coverage rate of 0.5 Litres/m^2 (0.7 kg/m^2).

3. Whilst wet broadcast dry & clean Quartz Sand aggregate grit at a minimum coverage rate of 4.0kg/m^2. IMPORTANT – remove masking tape before the third coat of Flexitec resin has cured.

4. Once cured remove loose sand. Approximate finished coverage rate of sand will be 2.5kg/m^2 and the remaining 1.5kg may be recovered for future use. Reapply the masking tape around the edges of the sand.

5. Thoroughly mix Restec Sealer Coat liquid in its original container before decanting. Add in the required amount of Powder Hardener (refer to Powder Hardener Addition Chart table on the tin's label) and stir thoroughly for at least 2 minutes.

6. Apply Restec Sealer Coat Resin using a 225mm Medium Pile Roller at a minimum coverage rate of 0.6Litres/m^2 (1.67m^2/Litre). Remove masking tape and then allow to cure.

Option 4 – Mineral Slate Grit

Recommended use: Designed for occasional foot traffic or where the desired finish is required to mimic a mineral felt appearance.

1. Mask off areas as described above.
2. To areas where grit will be required, apply an additional third coat of Flexitec resin at a coverage rate of 0.5 Litres/m^2 (0.7 kg/m^2).
3. Whilst wet broadcast dry & clean mineral slate grit at a minimum coverage rate of 2.5kg/m^2. IMPORTANT – remove masking tape before the third coat of Flexitec resin has cured.
4. Once the Flexitec resin has cured remove loose grit. Approximate retained grit will be 1.5kg/m^2 and the remaining grit may be recovered for future use

Typical Green Mineral Slate Finish

Applying Flexitec - Do's and Don'ts

DO

- ✓ Remember the 4 C's to a successful installation:
    1. **Coverage**: know how much material you should use
    2. **Catalyst**: how much powder hardener you need to use
    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 Flexitec 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.

- ✓ 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 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.

DO NOT

- ✘ Apply the one coat system (without a top coat) to new decks (e.g. OSB3 or concrete/screed) or porous surfaces. You must use the 20 Year System (two coat) application for these surfaces.

- ✘ Fail to carry out a thorough inspection of the membrane after each coat to ensure a closed, pinhole-free surface has been achieved.

- ✘ 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.

11. 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 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

12. Repairs

Repairs to the completed Flexitec system are straightforward. Simply clean the surface then acetone wipe before reapplying a one or two coat system (as per Section 8) including fibreglass CSM reinforcement

13. Day Work Joints

Primer Application

Flexitec Primer application may be continued by applying further product, ensuring an overlap of approximately 50 mm 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. The primer should ideally be over-coated by Flexitec Resin within 48 hrs in order to achieve the maximum adhesion.

First Coat Application

Ensure on completion of a day's work that any mat that has been laid is completely embedded in Flexitec 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 Flexitec Resin and wiping down with acetone to ensure maximum adhesion. Subsequent application will generally occur by simply applying the Flexitec Resin over the top of the existing cured product ensuring that the mat overlaps the existing mat by at least 50 mm. 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.

Second Coat Application

The overlap area should be prepared by cleaning and drying the previously applied Flexitec Resin and wiping down with acetone to ensure maximum adhesion. Subsequent application will generally occur by simply applying the Flexitec 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.

14. Troubleshooting

IMPORANT - The following is guideline advice only. Also consult your distributor for advice.

During Application

Issue	Cause	Remedial Action
Resin cures too quickly during application	Air or deck temperature is outside of ideal range or too much powder hardener has been added	Remix fresh resin. Consider decanting smaller amounts of resin at one time
Resin does not harden fully	Powder hardener not added, or insufficient powder hardener added for the conditions	Remove and re-lay affected area taking care on powder hardener levels
Pitting of the membrane	The resin has been rained on before it has fully cured	Minor / moderate pitting can be overcoated assuming the system has fully cured
Resin 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 windscreen 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.
Second coat does not harden or remains tacky	Powder hardener not added, or insufficient powder hardener added for the conditions. Alternatively second coat may have been applied too thinly	Scrape away affected second coat, acetone wipe and re-apply full system, taking care on coverage rate and powder hardener levels
Second coat does not harden or remains tacky in small patches	Poor powder hardener mixing or contamination of the first coat application. Resin may have been applied too thinly.	Scrape away affected second coat, acetone wipe and re-apply second coat mixing carefully.
Colour changes observed during application	Resin is at different stages of cure. Temperature differences / direct sunlight may affect colour	Any colour changes noted will diminish upon cure and further still during weathering process. Over time these become unnoticeable.

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 full system including the deck
The second coat is flaking away from the base	First coat was dirty or wet. Alternatively, first coat may have been left more than 7 days prior to over-coating and not acetone wiped	Scrape away affected second coat, abrade, acetone wipe and relay system complete
Pinholes within the cured second coat	The first coat has not been properly consolidated or has been applied too thinly	Acetone wipe affected area and relay system complete
Cracking within the second coat	Second coat applied too thick	Acetone wipe and relay system complete, taking care to observe correct second coat application rate
Ponding	Deck has not been laid with sufficient falls or structure has deflection	If this is an issue then strip and re-deck roof with correct falls, Do not attempt to level roof by building up resin.
Discolouration of membrane	Bitumen leaching / lack of primer	Performance of system not affected. If aesthetics is a problem, reapply full system. To prevent issue, ensure bituminous surfaces are fully primed.
Membrane delaminates / lifts away from surface	Adhesion tests not performed / incorrect surface preparation / unsuitable substrate / absence or improper use of primer	Remove the membrane, re-assess the surface for suitability of coating (use adhesion tests where necessary). If appropriate reapply system complete as per method identified through adhesion tests.
Surface of membrane feels tacky after curing	Applied outside of recommended temperature / incorrect catalyst levels / inadequate stirring of catalyst / cure contaminated with precipitation (rain or dew) / insufficient material applied / “over-rolling” (rolling the resin after cuing process has begun)	Usually no significant detrimental effect on the waterproofing characteristics or expected lifespan. If left untreated tackiness will typically diminish over time. However, membrane will attract dirt and if aesthetics is an issue then acetone wipe affected areas and relay the full system. Important – with severe tackiness beyond the surface, must acetone wipe and relay full system.
Colour variation	Different batches of resin used for top coat application / resin applied when bright hot sun and shaded areas apparent on roof / accelerated resin used alongside non-accelerated resin for top coat application	As you would with paint, always ensure the same batch number is used to avoid any potential differences in colour. If colour aesthetics are critical, consider not installing if the weather is hot and bright with some shaded areas on the roof - the resulting different cure speeds can have an effect on the finished colour. If intending to use Winter accelerators, all top coat resin should be accelerated to reduce risk of colour variation. Note - colour difference will diminish over time as the membrane “chalks”.

15. Safety Precautions

Safety Data Sheets

You must ensure that the information contained within the SDS sheets is followed at all times. Safety Data Sheets are available from your Flexitec Distributor and 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 and Personal Protective Equipment.

The use of appropriate PPE is required at all times when working with Restec Flexitec 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 is particularly hazardous and 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 build up. Store resin and powder hardener in closed containers in well-ventilated areas. Store under dry conditions between 5°C and 25°C, away from direct sunlight. Empty tins containing uncured Flexitec Resin or primer are classed as hazardous waste and should be disposed of in accordance with relevant regulations.

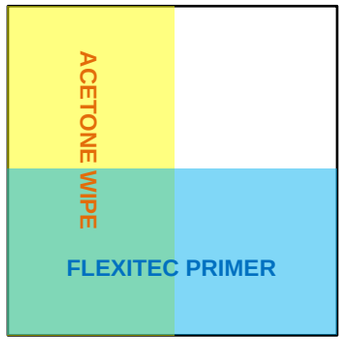
16. Appendices

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 BS 5250 Guidelines. 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 Flexitec Resin with fibreglass CSM reinforcement to a minimum area of 300mm by 300mm around the centre of the hole, ensuring a fully weatherproof seal has been achieved.

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 powder hardener at the required amount of Flexitec Primer and apply to half the sample in the opposite orientation to the acetone wipe. Once the primer has cured, add powder hardener at the required rate to decanted Flexitec 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.

Appendix C - Important Notes on Powder Hardener Levels

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

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

Appendix D – Low Temp Applications: Using Winter Accelerators

Introduction

Before working with Restec Flexitec Accelerators it is vital to read and understand the separate technical datasheet for full details. Most importantly the accelerator must be thoroughly mixed into the resin before Powder Hardener is added. Accelerator and Powder Hardener must never be allowed to come directly into contact with each other.

When to use Winter Accelerators

The winter accelerator is used to speed up the curing of the Flexitec Resin or Primer to allow faster working times in cold conditions and to allow the use of materials at deck temperatures as low as 1°C. Accelerator is used in addition to the normal powder hardener – not as a replacement. Without accelerator the Flexitec Resin or Primer should not be used below 5°C or where the temperature may fall below 5°C before the resin is cured.

Usable Temperature

Refer to the full datasheet for further information on temperature ranges and equipment required.:

- **Surface Temperature** - Surfaces should be between 1ºC and 10ºC.
- **Resin Temperature** - Ideally if possible the resin should be kept between 5ºC and 10ºC prior to use. This may not always be possible but you should try and avoid storing at room temperature prior to adding accelerator to avoid a too short working time.

Method

Add the whole Accelerator pack to the opened and stirred product in its original container at:

- 10kg Flexitec Resin = 1x Flexitec Resin Accelerator
- 20kg Flexitec Resin = 2x Flexitec Resin Accelerator
- 5kg Flexitec Primer = 1x Flexitec Primer Accelerator

IMPORTANT: Winter accelerators are not a replacement for the powder hardener. After the Accelerator has been thoroughly stirred into the main products, add the powder hardener as described in page 18 (primer) or 21 (resin).

Important Notes:

- There may be a minor colour difference evident when accelerator is added. 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.
- The accelerator should not be added to products other than Flexitec Resin or Primer
- The accelerator must be mixed completely into the resin or primer before adding Powder Hardener
- Store the accelerator well away from Flexitec Powder Hardener and other organic peroxides
- Never allow the accelerator to come into direct contact with Flexitec Powder Hardener or other organic peroxides
- Read and familiarise yourselves with the TDS and SDS for each part of the Flexitec System

Appendix E – High Temp Applications: Using Summer Inhibitors

Introduction

Before working with Restec Flexitec Inhibitors it is vital to read and understand the separate technical datasheet for full details. Most importantly the inhibitor must be thoroughly mixed into the resin before Powder Hardener is added.

When to use Inhibitors

Flexitec Summer Inhibitor extends the pot-life of the Flexitec Resin which is invaluable when temperatures are high during the summer months. The Flexitec Summer Inhibitor can be added to Flexitec Resin on site prior to use. It should only be added as temperature ranges permit. IMPORTANT: Flexitec Summer Inhibitor is not designed as a replacement for the powder hardener. After the Flexitec Summer Inhibitor has been added, you will still need to add the powder hardener (at the minimum rate of 2%) before you use the product.

Usable Temperature

Refer to the full datasheet for further information on temperature ranges and equipment required.:

- **Surface Temperature** - Surfaces should be between 15ºC and 40ºC.
- **Resin Temperature** - The resin in which you will be adding Flexitec Summer Inhibitor should not be overly warm. To measure this you will require a good quality probe thermometer. Ideally, if possible, the resin should be kept between 15ºC and 25ºC prior to use.

Method

Add a full tin of Flexitec Summer Inhibitor top Flexitec Resin as follows:

- Add 1 pot of Summer Inhibitor to 10kg Flexitec Resin
- Add 2 pots of Summer Inhibitor to 20kg Flexitec Resin

IMPORTANT: Summer Inhibitors are not a replacement for the powder hardener. After the Inhibitor has been thoroughly stirred into the main products, add the powder hardener as described in page 21

Important Notes:

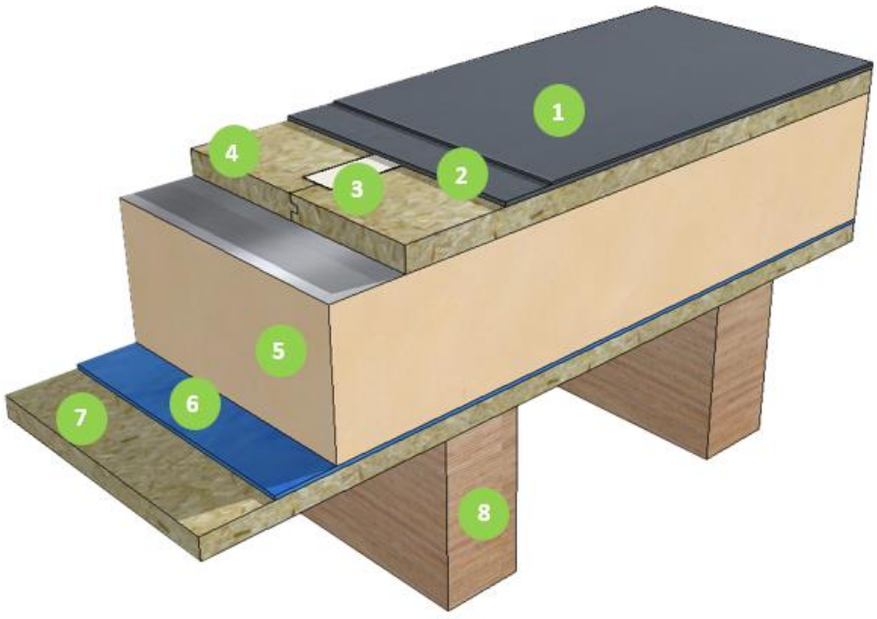
- It is advisable to work with smaller mixes in hot weather. The less material you use to make a mix, the less chance there will be product that cures to quickly and goes to waste.
- There may be a minor colour difference evident when inhibitor is added. For this reason, inhibited and un-inhibited product should not be used side by side on the same job if such colour difference is likely to be undesirable for the client.
- The inhibitor should not be added to products other than Flexitec Resin
- The inhibitor must be mixed completely into the resin before adding Flexitec Powder Hardener
- Store the accelerator well away from Flexitec Powder Hardener and other organic peroxides
- Read and familiarise yourselves with the TDS and SDS for each part of the Flexitec System

Appendix F - 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.

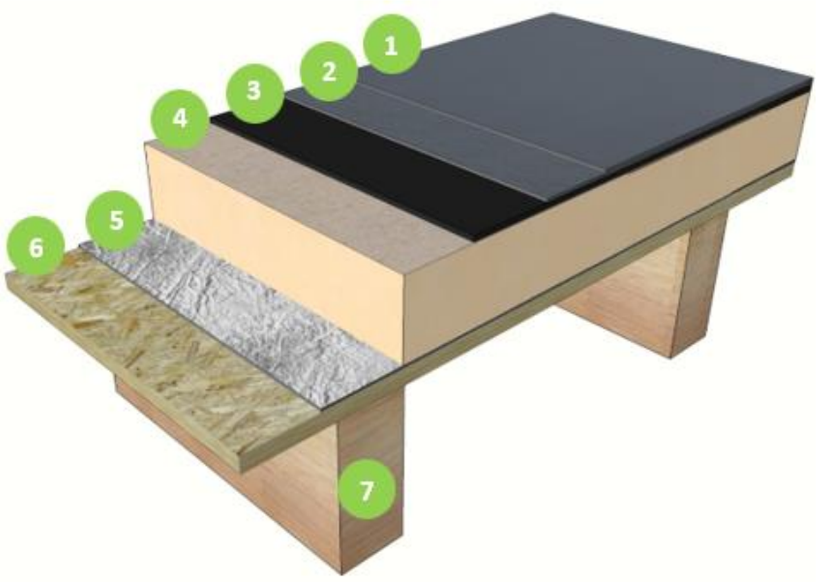
Because the structural elements are on the warm side of the insulation, they are less vulnerable to the possibility of condensation and are also protected from extremes of temperature, reducing thermal movement. It is essential that in this type of construction, a vapour control layer is installed below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

Overboarding option



1. 2nd Coat Flexitec Resin
2. 1st Coat Flexitec Resin including 225g/m^2 CSM reinforcement
3. Flexitec Primer applied to joints
4. New OSB3 TG4 fixed in accordance with manufacturer's recommendations
5. Rigid insulation e.g. Kingspan Thermaroof TR26 Insulation
6. Vapour control layer e.g. 1000 gauge Visqueen
7. 18mm OSB3 spreadsheet
8. Timber joists with firrings to create a minimum recommended 1 in 80 finished fall

Restec SA Carrier Layer option

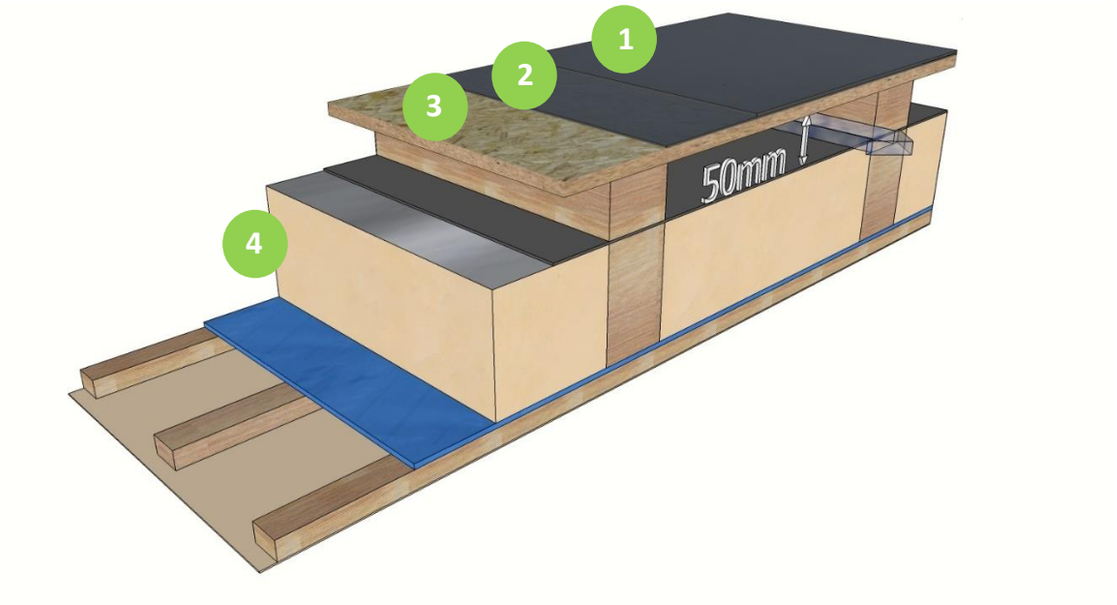


1. 2nd Coat Flexitec Resin
2. 1st Coat Flexitec Resin including 225g/m^2 CSM reinforcement
3. Restec SA Carrier Layer
4. Tissue-Faced insulation e.g. Kingspan Thermaroof TR27 Insulation
    a. Adhesively Bonded
    b. Primed with Restec SA Primer
5. Restec SA Vapour Barrier
6. 18mm OSB3 spreadsheet
    a. Primed with Restec SA Primer
7. Timber joists with firrings to create a minimum recommended 1 in 80 finished fall

Appendix G - 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 the construction is in accordance with BS6229:2018 and 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.



1. 2nd Coat Flexitec Resin Top Coat
2. 1st Coat Flexitec Resin with 225g CSM reinforcement
3. 18mm OSB3 TG4 Deck
4. Cold Roof Build-up (See below)*

*The recommended cold roof build-up in accordance in accordance with BS6229:2018:

- **4A** – Firrings / Battens to provide vented void (min. 50mm deep)
- **4B** - Breather Membrane
- **4C** - Timber Joists (Structural Frame)
- **4D** - Thermal Insulation (Between Timber Joists)
- **4E** - Air and Vapour Control Layer (AVCL) Immediately below the insulation
- **4F** - Firrings (to provide a service void if required)
- **4G** – Plasterboard or similar (Internal Finish)

Please note the following:

- BS5250:2021 states “that cold insulated flat roofs where cold roof voids present are greater than 5m in span should not be used”.
- This construction relies on a minimum 50mm unobstructed void and an adequate cross-flow of ventilation. Please go to the following website link for further information in relation to Glidevale FV250 Fascia Ventilators that could be used to ventilate the void: http://www.glidevale.com/fascia-ventilators/p/3

In accordance with BS6229 Cold Roof designs are not recommended and should be replaced whenever possible with a warm roof design.

RESTEC
roofing systems

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Further information is available at **www.restecroofing.co.uk**

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