

RES-TEC



2020

FLEXITEC

Multi-surface GRP roofing system

11-2017

Application Manual



One resin. Countless possibilities.

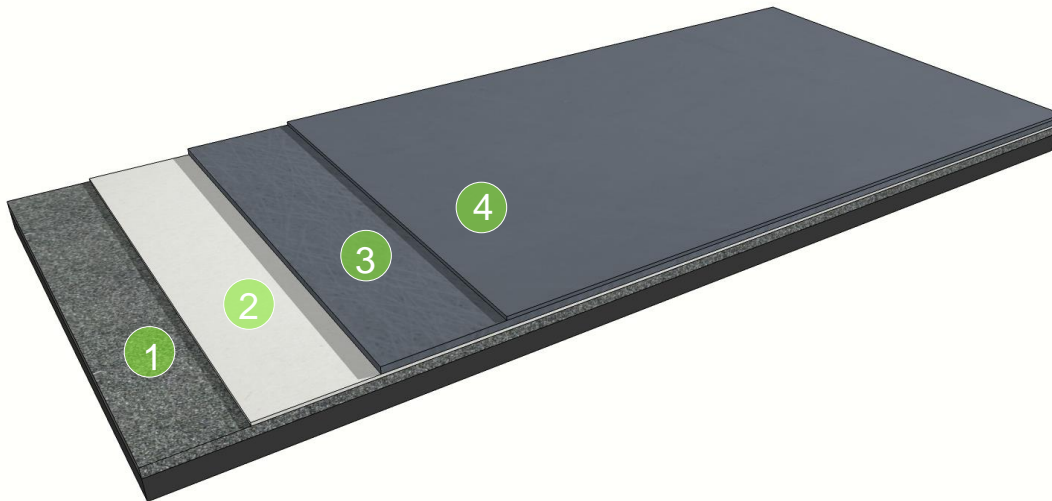
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Not sure if you've got the current version of the Flexitec 2020 Manual? If in doubt you can download the latest version from our website at www.restecroofing.co.uk

1. Introduction

The Flexitec 2020 System by Res-Tec is a flexible, single resin GRP system with full overlay 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 2020 Primer (where required)
- 3 1st Coat Flexitec 2020 Resin with 225g/m² Fibreglass CSM reinforcement
- 4 2nd Coat Flexitec 2020 Resin

Key Benefits

- Can be applied to almost any roof surface including felt, asphalt, concrete, GRP, PVC single-ply, OSB3 TG4 and metals
- Single resin system that can be repaired / overcoated without grinding down
- Highly resistant to rainfall – once consolidated, the resin will cure through – no more scraping off uncured resins!
- Can be applied in one coat (10 year repair system)* or two coats (20 year roofing system)
- Totally seamless and highly flexible membrane that is suitable for any size or shape roof
- 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 Res-Tec's trusted 20 year materials guarantee (20 year applications only)
- Anti-slip finish available for balconies and walkways
- Cold applied for maximum safety – no risks from open flames and other hot works
- 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

** The one coat (10 year) system is only suitable when overlaying existing waterproof coverings. A materials guarantee is not available for the 10 year system.*

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 2020 Resin (consider Accelerator for Low Temp Applications)
- Flexitec 2020 Primer (for certain substrates only – see page 16) (consider Accelerator for Low Temp Applications)
- Powder Hardener (for Flexitec 2020 Resin and Primer)
- Fibreglass chopped strand mat (CSM) reinforcement (225g/m²)
- 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

- Res-Tec GRP Roof 1010 Base Resin & Catalyst (for taping any OSB3 / plywood square edge 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)
 - MS Polymer adhesive, such as Soudal Fix All (High Tack), for bonding trims.
 - Treated timber battens (for rigidity to edge trims)
 - Fixings for trims (20mm large headed galvanised clout nails)

Application Tools & Ancillaries

- Application rollers
- Stirrer
- Application brushes (for difficult to reach areas)
- Calibrated buckets (for measuring resin quantities and mixing in hardener) or scales for weighing
- 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
- Thermometer kit (Surface Temperature Thermometer) to measure air and surface temperature

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 27 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 7-9. For guidance regarding the fitting of new decks refer to Section 4 starting on page 10.

Determining Suitability for Over-Coating – Substrate Compatibility

Flexitec 2020 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 28.

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 2020 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 2020 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.

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 2020 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 2020 system.



If the moisture content is greater than this the substrate should either be left to dry naturally or alternatively drying may be aided by using any of the following means.

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

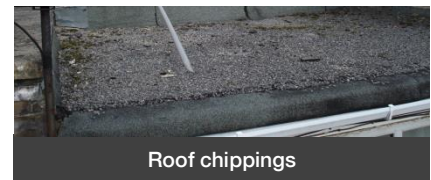
When water has been removed by any of the above means it is still possible that the moisture content may be too high to allow application. Rechecks with the “Protimeter” should be carried out. The above methods are equally suitable for drying the substrate and removing moisture between coats.

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.

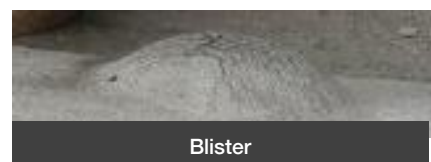
All Surfaces to be Coated

- 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 28)
- 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



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 2020 Primer (Recommended)



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 2020 Primer (Recommended)



Blowholes



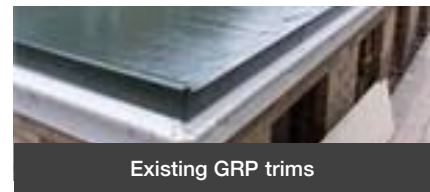
Cracks

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 2020 resin (not just painted)
- **Primer Required:** No



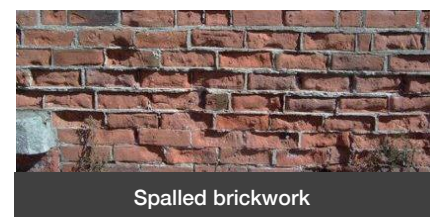
Flaking top coat



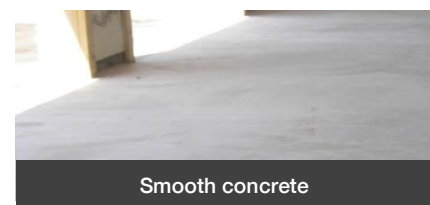
Existing GRP trims

Concrete / Screed & Brickwork

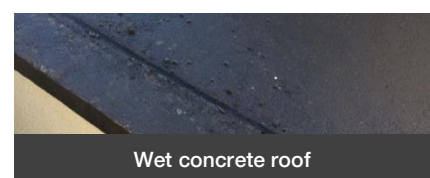
- Any spalled, loose, unsound concrete or brickwork should be broken out and repaired using a suitable repair mortar.
- All smooth concrete surfaces to be treated should be lightly abraded with suitable equipment (e.g. vacu-blast, diamond disc grind etc) where necessary to remove laitance and/or remove 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 2020 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 28 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:** Flexitec 2020 Primer (Dependent on adhesion tests results)



PVC Single-ply roof



Defects require remedying

Metals

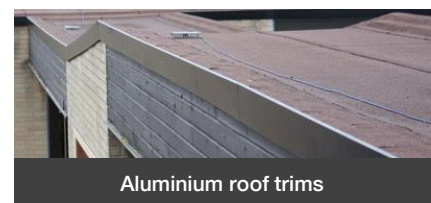
- Flexitec 2020 should be used to coat small areas of metal (such as detailing work) or where the metal is a small part of an overall roof area. Flexitec 2020 should not normally be used for coating major areas of metal, and in particular areas where significant movement of joints may take place.
- All 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:** Res-Tec Metallic Primer or a suitable polyurethane based, moisture curing Metallic Primer (such as Torcure MC Metallic 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 2020 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 min. 1 in 80). 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. These are the preferred OSB3 boards to use. Note OSB3 Square Edge versions are available which would require additional local reinforcements with GRP Roof 1010 Base Coat resin to the board joints (see Section 7 for details).



Installation Instructions

- 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.
- 
- 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 7)
 - 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.
- 
- 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.
 - For large roofs (roofs over 50m² 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.
 - 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 2020 Distributor for advice.
 - PRIMING OSB3 TG4 BOARD JOINTS:** Add the required amount of Powder Hardener to decanted Flexitec 2020 Primer (see page 16-18 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.**
 - 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 2020 System to OSB3 TG4 decks, it is necessary to prime the board joints first with Flexitec 2020 Primer before applying the reinforced Flexitec 2020 Resin. If you're installing a 20 year system, you can use GRP Roof 1010 Base Resin with 450g/m² fibreglass CSM as an alternative to both priming and the Flexitec 2020 first coat. Once cured, you can then overcoat the GRP Roof 1010 Base Coat with unreinforced Flexitec 2020 Resin at a coverage rate of 0.5 Litres/m² (0.7 kg/m²)

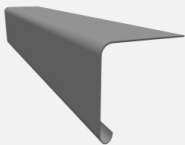
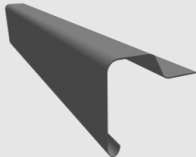
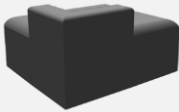
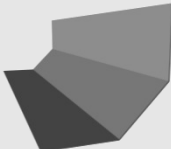

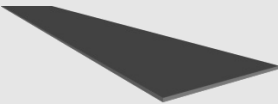

Download
the GRP
Roof 1010
Manual from
the Res-Tec
website



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 about a wall
Cover Flashing		Used to provide weathering protection for wall abutment details
Flat Sheet		Installed beneath slates/tiles at perimeters that about 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).



- 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 20mm large headed galvanised clout nails at 150mm centres.



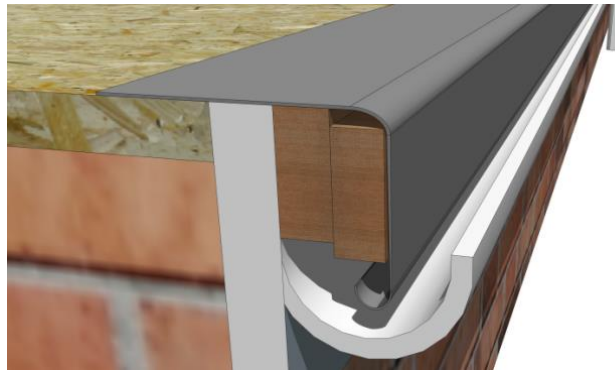
- When joining two lengths of trims together, ensure there is a minimum overlap of 50mm and use MS Polymer adhesive to secure in place prior to mechanically fixing.



- All joints in the trims and the junction between the trims and the OSB3 deck will need to be locally reinforced with 75mm taping mat and Flexitec 2020 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.



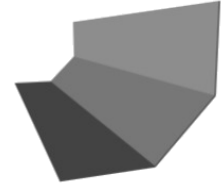
Corner Pieces

- 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 Flexitec 2020 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 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 2020 Resin, ensure that the nailed section is covered with reinforcement. Flexitec 2020 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 50m² 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 MS Polymer adhesive 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 2020 system. All trim joints and the joint between trims and the substrate will require local reinforcement with two layers of taping mat (refer to Section 8 details). Trims are then to be encapsulated with Flexitec 2020 resin (NB: the reinforcement within the first coat can be stopped on the horizontal part of the trim).

7. Priming with Flexitec 2020 Primer

Important Notes

When to Prime

Flexitec 2020 Primer is recommended for all porous, bituminous, cementitious, timber and PVC single ply substrates. **IMPORTANT** - Failure to prime porous surfaces, such as concrete, brickwork, tissue-faced insulation or plywood may result in an under-cure of the Flexitec 2020 resin and potential system failure. GRP surfaces, including ResTrims, do not require priming.

Application Conditions

Flexitec 2020 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 2020 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 2020 Primer for various roof area sizes.

Roof Area	Amount of Flexitec 2020 Primer Required					
	Smooth Surfaces		Medium Surfaces		Rough Surfaces	
	Approx. Weight	Volume	Approx. Weight	Volume	Approx. Weight	Volume
5 m ²	0.9 kg	0.8 ltrs	1.1 kg	1.0 ltrs	1.4 kg	1.3 ltrs
10 m ²	1.9 kg	1.7 ltrs	2.3 kg	2.0 ltrs	2.9 kg	2.5 ltrs
15 m ²	2.8 kg	2.5 ltrs	3.4 kg	3.0 ltrs	4.3 kg	3.8 ltrs
20 m ²	3.8 kg	3.3 ltrs	4.6 kg	4.0 ltrs	5.7 kg	5.0 ltrs
25 m ²	4.7 kg	4.2 ltrs	5.7 kg	5.0 ltrs	7.1 kg	6.3 ltrs
30 m ²	5.7 kg	5.0 ltrs	6.8 kg	6.0 ltrs	8.6 kg	7.5 ltrs
40 m ²	7.6 kg	6.7 ltrs	9.1 kg	8.0 ltrs	11.4 kg	10.0 ltrs
50 m ²	9.5 kg	8.3 ltrs	11.4 kg	10.0 ltrs	14.3 kg	12.5 ltrs
70 m ²	13.3 kg	11.7 ltrs	16.0 kg	14.0 ltrs	20.0 kg	17.5 ltrs
100 m ²	19.0 kg	16.7 ltrs	22.8 kg	20.0 ltrs	28.5 kg	25.0 ltrs

Powder Hardener Addition Rates

Flexitec 2020 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 2020 Primer quantities and temperature ranges. Powder hardener is added to Flexitec 2020 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.

Amount of Flexitec 2020 Primer		Recommended Powder Hardener Addition Rate:		
		4%	3%	2%
Temperature Range:		5 - 10°C	11 - 17°C	18 - 30°C
Volume	Weight	Number of Hardener Scoops	Number of Hardener Scoops	Number of Hardener Scoops
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

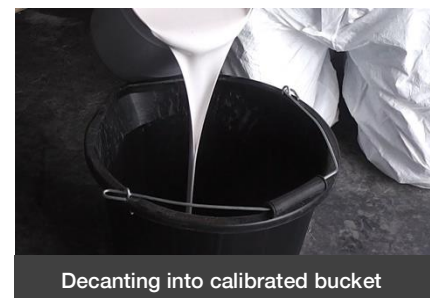
Cold Weather Applications

When using the Flexitec 2020 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 2020 Primer

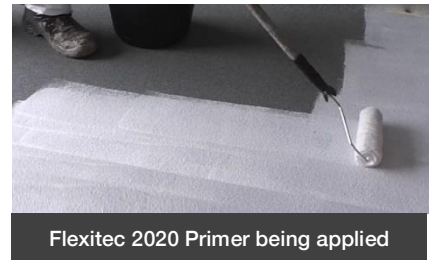
1. Ensure surface to be coated are dry and have been fully cleaned, made good and prepared as in accordance with recommendations
2. Stir the Flexitec 2020 Primer thoroughly in the original container, mixing from top to bottom.
3. Pour the calculated amount of primer into calibrated bucket / suitable 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 2020 Primer (see the table on page 17 for guidance). Thoroughly stir the powder hardener into it is fully dissolved into the resin for a minimum of 2 minutes.
5. Once hardener has been stirred in apply the Flexitec 2020 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 2020 Primer being applied

8. Taping Joints, Details & Other Local Reinforcements

ResTrim Joints

Add powder hardener at the required rate to decanted Flexitec 2020 resin and thoroughly wet in **two layers** of Taping Mat prior to application of Flexitec 2020 resin. NB: New ResTrims should be thoroughly wiped with acetone prior to coating.

Local Reinforcements to Roof Details

To all upstands, internal outlets, protrusions, stepped joints, cracks/splits, dissimilar adjoining substrates or any other detail requiring local reinforcement add powder hardener at the required rate to decanted Flexitec 2020 resin and thoroughly wet and consolidate in Taping Mat prior to application of the main Flexitec 2020 system.

Important – to any joints/roof details subject to expansion movements apply 25mm dis-bondment tape (masking tape or similar) to any joints subject to movement. Any joints subject to extreme movement e.g. metal sheet laps, metal gutters, vibrating protrusions and the like must be treated with caution. If in doubt consult your distributor for further advice.

IMPORTANT: Any plywood or OSB3 square edge board joints should be locally reinforced with GRP Roof 1010 resin and liquid catalyst. Do **not** use Flexitec 2020 resin. Refer to the separate GRP Roof 1010 Application Manual for detailed instructions which can be downloaded from www.restecroofing.co.uk



9. Flexitec 2020 Resin Application

Important Notes

Application Conditions

Flexitec 2020 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.



Flexitec 10 Year & 20 Year Systems

Flexitec 2020 can be laid as a **10 year system** by applying one coat of fully reinforced Flexitec 2020 Resin at the required coverage rate. **IMPORTANT** – the 10 year (one coat) application is only suitable for overlaying existing waterproof coverings and is not suitable for new decks (e.g. OSB3 or concrete) or porous surfaces. Flexitec 2020 can be laid as a **20 year system** by applying a second coat of Flexitec 2020 Resin (without reinforcement) at a coverage rate of 0.5 Litres/m² (0.7 kg/m²) over the first coat.

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 2020 Resin required varies on the roughness of the substrate and whether a 10 year (one coat) or 20 year (two coat) system is required. Rough or highly porous surfaces will significantly reduce the coverage rate.
- All coverage rates shown below are based on reinforcing the system with 225g/m² fibreglass CSM reinforcement. If using 450g/m² fibreglass CSM reinforcement then an additional 0.5 Litres/m² (0.7 kg/m²) will be required to the first coat application.

Typical Roof Surfaces	Approximate Flexitec 2020 Resin Coverage per Square Metre	
	1 st Coat Coverage Rate	2 nd 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)

* The 10 year (one coat) system is not suitable for OSB3, concrete/screed or any other surface that has not been previously covered with a waterproofing system. The 20 year (two coat) system must be installed for these type of applications.

Quantities

The table below shows typical quantities of Flexitec 2020 Resin for various roof area sizes when using 225g/m² fibreglass CSM. **IMPORTANT – A recommended 10% wastage allowance should be made in addition to the quantities shown below. Remember, vertical detailing work should be covered here.**

10 Year Repair System (One Coat) - Flexitec 2020 Resin Quantities

Note – This application is only suitable for the overlay of an existing waterproof covering.

Roof Area	Amount of Flexitec 2020 Resin Required					
	Smooth Surfaces		Medium Surfaces		Rough Surfaces	
	Approx. Weight	Volume	Approx. Weight	Volume	Approx. Weight	Volume
5 m ²	6.0 kg	4.3 ltrs	8.0 kg	5.5 ltrs	10.0 kg	7.0 ltrs
10 m ²	12.0 kg	8.5 ltrs	16.0 kg	11.0 ltrs	20.0 kg	14.0 ltrs
15 m ²	18.0 kg	12.8 ltrs	24.0 kg	16.5 ltrs	30.0 kg	21.0 ltrs
20 m ²	24.0 kg	17.0 ltrs	32.0 kg	22.0 ltrs	40.0 kg	28.0 ltrs
25 m ²	30.0 kg	21.3 ltrs	40.0 kg	27.5 ltrs	50.0 kg	35.0 ltrs
30 m ²	36.0 kg	25.5 ltrs	48.0 kg	33.0 ltrs	60.0 kg	42.0 ltrs
40 m ²	48.0 kg	34.0 ltrs	64.0 kg	44.0 ltrs	80.0 kg	56.0 ltrs
50 m ²	60.0 kg	42.5 ltrs	80.0 kg	55.0 ltrs	100.0 kg	70.0 ltrs
70 m ²	84.0 kg	59.5 ltrs	112.0 kg	77.0 ltrs	140.0 kg	98.0 ltrs
100 m ²	120.0 kg	85.0 ltrs	160.0 kg	110.0 ltrs	200.0 kg	140.0 ltrs

20 Year Roofing System (Two Coats) - Flexitec 2020 Resin Quantities

Roof Area	Amount of Flexitec 2020 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 2020 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
- Never use more than 4% even in cold conditions

The table below provides recommended powder hardener addition rates depending on Flexitec 2020 Resin quantities and temperature ranges. Powder hardener is added to Flexitec 2020 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.

Recommended Powder Hardener Addition Rate:		4%	3%	2%
Temperature Range:		5 - 10°C	11 - 17°C	18 - 30°C
Amount of Flexitec 2020 Primer		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

When using the Flexitec 2020 Accelerator you can apply the resin when deck temperatures are as low as 1°C (see Appendix D)

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

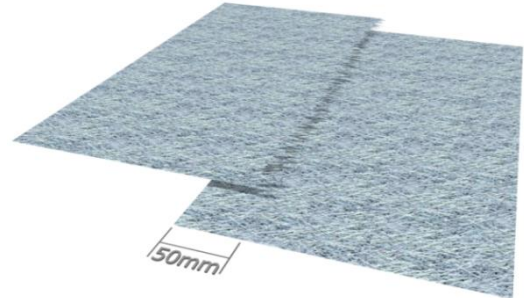
It is important that fibreglass CSM reinforcement is stored in dry conditions. Before use, inspect the mat to ensure there are no damaged, defective or wet areas present.

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 2020 Resin Application Instructions

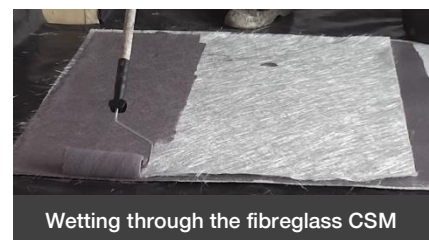
1. Stir the Flexitec 2020 resin thoroughly in the original container – mixing from top to bottom. Ensure any settlements are dispersed throughout the liquid.
2. Pour the calculated amount of resin into calibrated bucket / suitable container on weighing scales and replace lid on resin can to prevent contamination 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.
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 2020 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.
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 – **this is critical if only applying the 10 year overlay system (one coat)**. Allow to cure (30 – 60 minutes depending on conditions) before walking over the membrane.



Thorough stir before decanting



Hardener added and stirred into resin

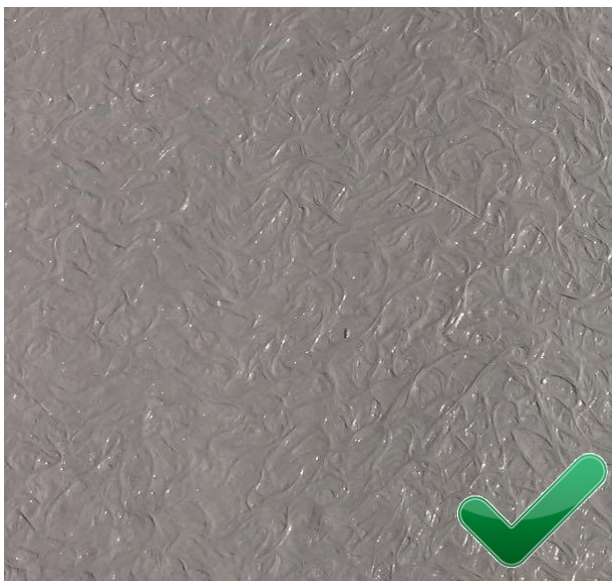


Wetting through the fibreglass CSM



Ensure a pinhole-free surface

6. If applying a 20 year system, a second coat of Flexitec 2020 resin should be applied at a minimum coverage rate of 0.5 Litres/m² (0.7 kg/m²). 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.



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

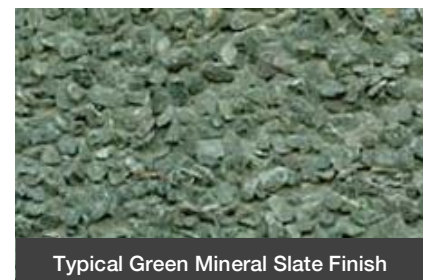
Anti-Slip Finishes

Anti-slip finishes can be achieved by dispersing grit or chippings into an extra layer of wet Flexitec 2020 Resin applied at a coverage rate of 0.5 Litres/m² (0.7 kg/m²)

When using anti-slip you should 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. **IMPORTANT** – remove masking tape before the third coat of Flexitec 2020 resin has cured. The most commonly used anti-slip finish is achieved using Mineral Slate Chippings as follows:

- Mask of designated area
- Whilst wet broadcast dry & clean mineral slate grit at a minimum coverage rate of 2.5kg/m². **Remove masking tape before resin cures.**
- Once the Flexitec 2020 resin has cured remove loose grit.
- Approximate retained grit will be 1.5kg/m² and the remaining grit may be recovered for future use.

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



Applying Flexitec 2020 - 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 2020 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 10 Year System (one 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.

10. 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

11. Repairs

Repairs to the completed Flexitec 2020 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

12. Day Work Joints

Primer Application

Flexitec 2020 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 2020 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 2020 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 2020 Resin and wiping down with acetone to ensure maximum adhesion. Subsequent application will generally occur by simply applying the Flexitec 2020 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 (20 Year System Only)

The overlap area should be prepared by cleaning and drying the previously applied Flexitec 2020 Resin and wiping down with acetone to ensure maximum adhesion. Subsequent application will generally occur by simply applying the Flexitec 2020 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.

13. 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 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, 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 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 are 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.

14. Safety Precautions

Material Safety Data Sheets

You must ensure that the information contained within the MSDS sheets is followed at all times. Material Safety Data Sheets are available from your Flexitec 2020 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
- Personal Protective Equipment

The use of appropriate PPE is required at all times when working with Res-Tec Flexitec 2020 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 2020 Resin or primer are classed as hazardous waste and should be disposed of in accordance with relevant regulations.

15. 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.

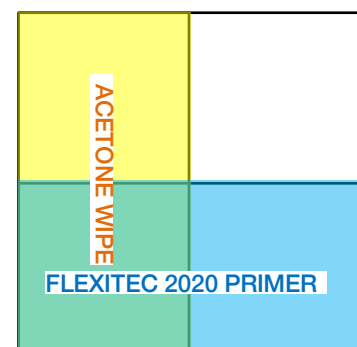


Once complete, the sample should be removed for inspection to determine whether all layers are totally dry and free from any signs of deterioration or rot. Any wet or defective roof areas are not suitable for over-coating and should be removed and replaced on a like for like basis. Once the sample has been assessed, return it into the hole and apply a one-coat application of Flexitec 2020 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 2020 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 2020 Resin and apply by roller over the sample and embed cut-to-size fibreglass CSM, which should be fully consolidated with resin. 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.



IMPORTANT – Make sure to take a sketch, photo or clearly mark around the samples in order to record what preparation has been carried out

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 Product Accelerators

Introduction

Before working with Res-Tec Flexitec 2020 Accelerators 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 before Powder Hardener is added. Accelerator and Powder Hardener must never be allowed to come directly into contact with each other.


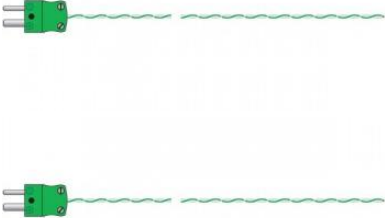

The accelerator is used to speed up the curing of the Flexitec 2020 Resin or Primer to allow normal working times in cold conditions and to allow the use of Flexitec 2020 Resin at deck temperatures as low as 1°C. Accelerator is used in addition to the normal powder hardener – not as a replacement. Without accelerator the Flexitec 2020 Resin or Primer should not be used below 5°C or where the temperature may fall below 5°C before the resin is cured.

Temperature

A measure of air temperature is not sufficient. It is important that anyone using accelerators ensures that accurate temperature readings of both the surface onto which the product will be applied and also of the resin itself are taken. To use this product you must have accurate measuring equipment including a Thermal Differential Thermometer, 2x Wire Probes (for measuring surface / air temperature) and 1x penetration probe (for measuring resin temperature)

Surface Temperature - Surfaces should be between 1°C and 10°C. It may be possible to use accelerators above 10°C but this may severely reduce working time. To measure this you will require a good quality thermometer capable of reading surface temperature of the deck (this is critical as this could be several degrees different to air temperature).

Resin Temperature - The resin or primer in which you will be adding accelerator 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 5°C and 10°C prior to use. This may not always be possible but you should try and avoid storing at room temperature prior to adding accelerator. If the resin/primer is warm and you add accelerator you will have too short working time and may lose product. If the resin is too cold it will be too viscous (too thick) and be difficult to use. It will also take a very long time for powder hardener to dissolve.

1 x Thermal Differential Thermometer	2 x Wire Probes (for measuring Surface / Air Temperature)	1 x Penetration Probe (for measuring Resin Temperature)
		

Method

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

- 10kg Flexitec 2020 Resin = 1x Flexitec 2020 Resin Accelerator
- 20kg Flexitec 2020 Resin = 2x Flexitec 2020 Resin Accelerator
- 5kg Flexitec 2020 Primer = 1x Flexitec 2020 Primer Accelerator

The effect is to give a typical working time of approximately 25-35 mins at 5°C, using the maximum powder hardener levels (4%). For maximum cure speed add as follows:

Product	Accelerator	Package	Weight	Addition Rate
Flexitec 2020 Resin	Flexitec 2020 Resin Accelerator	500ml Tin	300g	1 pack per 10kg of Flexitec 2020 Resin
Flexitec 2020 Primer	Flexitec 2020 Primer Accelerator	500ml Tin	400g	1 pack per 5kg of Flexitec 2020 Primer

IMPORTANT: Accelerators are not designed as 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 17 (primer) or 21 (resin)

Colour

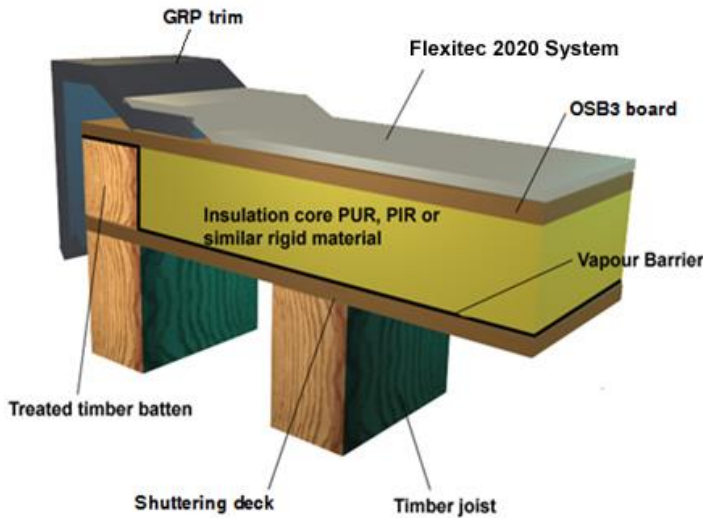
There may be a minor colour difference evident when accelerator is added. For this reason, accelerated and un-accelerated product should not be used side by side on the same job if such colour difference is likely to be undesirable for the client.

Important Safety Notes:

- The accelerator should not be added to products other than Flexitec 2020 Resin or Primer
- The accelerator must be mixed completely into the resin or primer before adding Flexitec 2020 Powder Hardener
- Store the accelerator well away from Flexitec 2020 Powder Hardener and other organic peroxides
- Never allow the accelerator to come into direct contact with Flexitec 2020 Powder Hardener or other organic peroxides
- Read and familiarise with the MSDS for each part of the Flexitec 2020 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.

