TUFF STUFF FLEXIPLUS

INSTALLATION MANUAL

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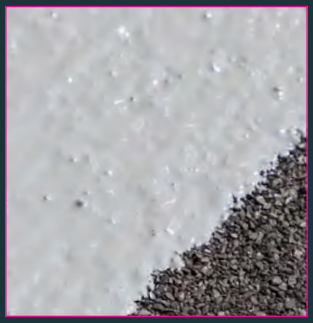
CONTENTS

Introduction 4
Key Benefits 6
Application Overview 8
Surveying and Roof Suitability 9
Measuring the Roof 12
Mixing TuffStuff FlexiPLUS 14
Overlaying Exisiting Substrates 16
Bond Test 19
Installing New or Upgraded Substrates 20
Cold Roof Versus Warm Roof 22
New Cold Roof Installation 23
New Warm Roof Installation 24
Installing Edge Trims and Preparation Work 28
Detail Work and Coating Trims 34
Substrate Sealing and Trim Coating Process 36
Ready Reckoner Coverage Chart 38
Laminate Application 39
Mixing Process 42
Laminate Troubleshooting 44
Anti-slip Finish 45
Cleaning Up 46
Final Inspection 47
Safe Working Practices 48
Technical Support 54
Follow Us on Social Media 54
Trim Range Products 59

INTRODUCTION

TuffStuff FlexiPLUS is an advanced single-coat GRP roofing system designed for both new builds and refurbishment projects. It offers the speed and simplicity of a rapid-application system while retaining all the trusted performance benefits of a traditional GRP system.

SINGLE LAYER • MULTI SURFACE



KEY BENEFITS

TuffStuff FlexiPLUS is a versatile single coat flat roofing system designed for direct application onto various surfaces. Suitable for new roof projects, warm roof specifications, or as an overlay system, and with no need for an additional layer of topcoat.

FAST APPLICATION

Single-coat system significantly reduces installation time.

COST EFFECTIVE

Lower labour and material use compared to traditional multi-layer GRP.

VERSATILE USE

Suitable for new roofs and overlays on existing coverings.

DURABLE AND LONG-LASTING

Offers excellent resistance to water, UV, and weather exposure.

SEAMLESS AND FULLY BONDED

No joins, overlaps, or weak points - ideal for waterproofing flat and low-pitch roofs.

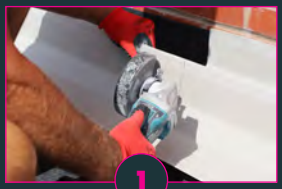
LOW MAINTENANCE

Once cured, it forms a tough, long-life surface needing minimal upkeep.

APPLICATION OVERVIEW

TuffStuff FlexiPLUS is a new single-coat GRP roofing system that simplifies the traditional GRP process. It requires fewer stages, reducing time, labour, and material use, making it a cost-effective and efficient solution for flat roofing applications.

THREE KEY STAGES



PREPARATION AND TRIM APPLICATION

Inspect and ensure the roof deck is dry, sound, and clean. Then install GRP edge trims (e.g. drip trims, upstands).

DETAIL WORK AND COAT TRIMS

Reinforce joints and corners and then coat GRP edge trims.

LAMINATING

Cut reinforcement mat to size and then install reinforcement mat and resin.

SURVEYING AND ROOF SUITABILITY

Before applying a GRP system like TuffStuff FlexiPLUS, it is essential to carry out a thorough roof survey to ensure the existing structure is suitable. This helps to avoid system failure, ensures long-term performance, and meets safety and building regulations.

KEY CHECKS DURING ROOF SURVEY

Decking Condition

- Inspect the existing roof deck for:
  - Dampness, rot, or softness in the timber.
  - Delamination or blistering (common in old felt systems).
  - Signs of movement, sagging, or structural weakness.
- Decking must be dry, solid, and securely fixed.
- If the deck is damaged or degraded, it must be replaced before GRP can be applied.

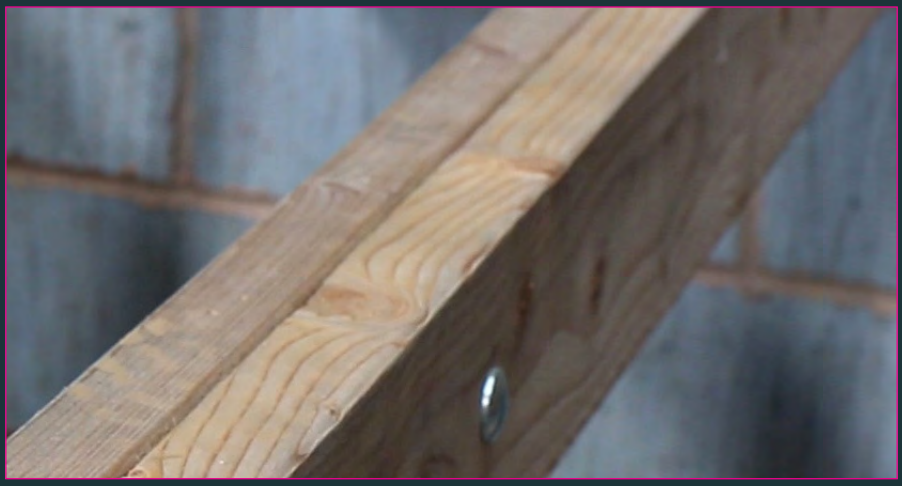
SURVEYING AND ROOF SUITABILITY

Existing Roof Covering

- Check the existing roof is:
  - Compatible for overlay (e.g. approved substrates, Felt, Asphalt, Concrete, GRP, Foil-faced insulation, OSB).
  - Clean, dry, and firmly bonded to the substrate.
- Remove any loose coverings or contaminants.
- If unsure, conduct a bond test to determine.
- If overlay is not possible, a full strip and new deck installation will be required.

Drainage and Falls

- Ensure the roof has a sufficient fall (typically at least 1:80) to allow water to drain towards outlets or gutters.
- Check for signs of ponding (standing water), which indicates poor drainage.
- GRP systems can be applied to flat areas, but it's advised to incorporate falls when possible. Speak with the client to determine the best approach; overlaying will still allow ponding, full strip, and new deck installation may be necessary.

SURVEYING AND ROOF SUITABILITY

Structural Integrity

- Confirm the roof structure can support:

  - The additional weight of materials.

  - Foot traffic during installation and maintenance.

- Inspect for any signs of structural damage, including bowed joists, water staining, or movement.

Perimeter Details & Upstands

- Inspect upstands, wall junctions, parapets, and edge trims.
- Ensure there is enough height and access to allow for proper detailing and termination of the GRP system.

MEASURING THE ROOF

Accurately measuring a roof is an essential part of preparing for works to be carried out. It ensures you order the correct amount of materials, plan the installation efficiently, and cost the job correctly.

Step-by-step:

1. Measure Length and Width

- From edge to edge, measure in metres.

2. Calculate the Area

- Multiply length × width to obtain a total area.

Determine what type of substrate you will be applying TuffStuff FlexiPLUS direct to (following the chart below) and multiply the total area by Kg needed per m2 then divide by the can size supplied 16kg.

For example: 6m x 5m = 30m2 – (OSB coverage 2kg m2) 30m x 2kg = 60kg – (Can size 16kg) 60/15 = 4.

Total amount of resin for the main area = 4 x 16kg.

COVERAGE USAGE CHART

Rough Felt	**1M² = 3kg**
Smooth Felt	**1M² = 2.5kg**
Concrete/Asphalt	**1M² = 2.5kg**
GRP/OSB/PIR	**1M² = 2kg**

MEASURING THE ROOF

3. Measure Upstands and Trims

- Measure the perimeter edges, wall upstands, and drip trims.
- Record total linear metres for trims and detailing materials.

For example: 6m + 6m +5m +5m = 22 linear metres – (Trim lengths 3m) 22/3 = 7.3 trims.

Total amount of trims = 8
(check what trims are required dependant on design of roof see page 50 for trims).

Note: Additional resin will be needed to apply the bandage and coat the trims

MIXING TUFFSTUFF FLEXIPLUS

TuffStuff FlexiPLUS requires Liquid Catalyst to initiate the curing process. The Liquid Catalyst is mixed with the resin in precise ratios depending on deck temperature to ensure full and even curing.

To simplify the process, TuffStuff FlexiPLUS provides pre-measured bottles called Liquid Catalyst Shots - available in both Summer and Winter grades - which are specifically matched to the 16kg resin cans and the relevant seasonal temperature ranges. Note: It is essential to use the correct grade of Liquid Catalyst for the time of year and to ensure it is mixed thoroughly into the resin before application. (see chart below).

Extreme Weather Adjustments

- Cold Conditions (Winter): 0 - 8 degrees

In very low temperatures, an Accelerator may be used alongside the winter Liquid Catalyst Shots to improve curing speed and performance.

- Hot Conditions (Summer): 26 – 35 degrees

In high temperatures, an Inhibitor can be added with the summer Liquid Catalyst Shots to slow the cure time, preventing premature gelling during application.

Note: When using either Accelerators or Inhibitors, pour in the full pre-measured bottles and mix thoroughly into the resin **before** adding the Liquid Catalyst Shot(s).

26°C to 35°C Very Hot Conditions	1 Inhibitor Pack & 1 Summer Liquid Catalyst Shot	31°C to 35°C
	1 Inhibitor Pack & 2 Summer Liquid Catalyst Shots	26°C to 30°C
16°C to 25°C Hot Conditions	1 Summer Liquid Catalyst Shot	21°C to 25°C
	2 Summer Liquid Catalyst Shots	16°C to 20°C
9°C to 15°C Cool Conditions	1 Winter Liquid Catalyst Shot	12°C to 15°C
	2 Winter Liquid Catalyst Shots	9°C to 11°C
5°C to 8°C Cold Conditions	1 Accelerator Pack & 1 Winter Liquid Catalyst Shot	5°C to 8°C
0°C to 4°C Very Cold Conditions	1 Accelerator Pack & 2 Winter Liquid Catalyst Shots	0°C to 4°C

MIXING TUFFSTUFF FLEXIPLUS

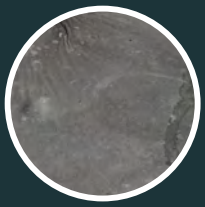
Schedule and Plan Works

It is essential to clearly specify the exact scope of works before starting any GRP roofing project. Proper planning ensures that:

- The correct materials are selected and available.
- The appropriate surface preparation methods are used.
- All Installers are familiar with the system's application procedures.
- The correct weather conditions are followed.

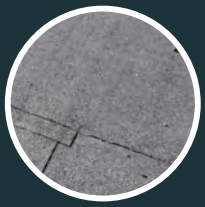
By establishing and understanding the full scope of works in advance, you help to ensure that every stage of the installation is carried out safely, efficiently, and in line with TuffStuff FlexiPLUS guidance, minimising the risk of errors, wasting materials, or system failure.

OVERLAYING EXISTING SUBSTRATES



Asphalt

Concrete



Felt

GRP

Check that the existing roof is compatible for overlaying and one of the approved substrates listed.

If you are unsure of the substrate or it has had solar reflective paint or any compound repair applied to the covering, an adhesion test should be carried out to determine the bond and correct preparation, if any (see page 19).

Felt Roof Preparation

- Clean the substrate to expose the roof covering.
- Badly damaged areas should be removed and replaced with new felt or overlayed with reinforcement matting and TuffStuff FlexiPLUS resin.
- Delaminated or loose areas must be fixed back down to the substrate with clout nails.
- Blisters should be cut with a utility knife and fixed back to the substrate with clout nails.
- Remove stone chippings if possible.
- Power wash if any residue, moss, or fungal growth, and treat with a fungicidal wash.
- The substrate should be clean and dry before starting installation.

OVERLAYING EXISTING SUBSTRATES

Asphalt Roof Preparation

- Clean the substrate to expose the roof covering.
- Bow holes or larger indentations are to be levelled off with TuffStuff FlexiPLUS resin and reinforcement matting.
- Blisters should be ground down smooth and level with the finished roof covering.
- Large non-structural cracks should be cleaned out and filled with trim adhesive.
- Power wash if any residue, moss, or algae are visible on the roof.
- The substrate should be clean and dry before starting the installation.

GRP

- Clean the substrate to expose the roof covering.
- Flaking or loose topcoat should be scraped off or abraded with a 40-grit sandpaper.
- Fully adhered topcoat will need a light abrasion using a 40-grit sandpaper and clean with acetone.
- Cracks or splits should be repaired with reinforcement bandage and resin.
- Power wash if any residue, moss, or algae are visible on the roof.
- The substrate should be clean and dry before starting the installation.

OVERLAYING EXISTING SUBSTRATES

Concrete/Screed

- Clean the substrate to expose the roof covering.
- Flaking or loose concrete should be broken out and repaired with a suitable repair compound and allowed to cure and dry fully.
- Large non-structural cracks should be cleaned out and filled with trim adhesive.
- Cracks or splits should be repaired with reinforcement bandage and resin.
- Newly laid concrete/screed should be allowed to fully cure following guidance of 28 days or one week per 25mm if using quick curing polymer modified materials, follow the manufacturer's guidance.
- The substrate should be clean and dry before starting the installation.
- Apply one coat of concrete primer and continue the main installation process as per recommendations.

Note: Surface preparation is a critical part of the GRP installation process, as it directly affects the performance, durability, and lifespan of the system. Proper surface preparation ensures strong adhesion, helps to prevent future delamination or water ingress, and supports the system's long-term weatherproofing performance.

The surface must be:

- Dry, clean, and free from dust, grease, or contaminants.
- Structurally sound and securely fixed.
- Free from loose coverings, flaking material, or dampness.

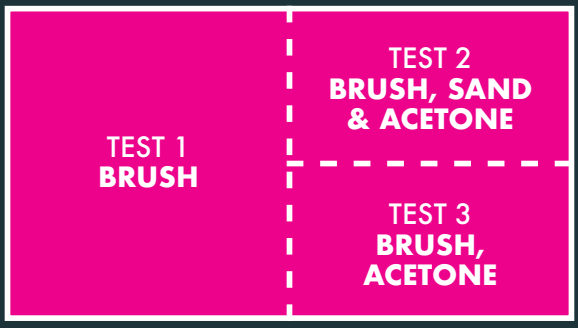
BOND TEST

The following process provides guidance if you are unsure of the additional coating applied to a felt roof, such as compound repairs or solar reflective paints.

By following the test layout process below, you can assess the existing covering and determine which preparation method (if any) is required to achieve the best adhesion.

PROCESS:

1. Identify a suitable test area, approximately 600mm x 600mm.
2. Ensure the surface is completely dry and carry out the work in appropriate weather conditions.
3. Use the guidance below for surface preparation to identify the most effective process and achieve the best results.



Test sample should be left for 7 days before returning to examine if the surface can be overlayed, and determine what surface preparation is required.

ASSESSMENT:

- Using a Stanley knife, flat screwdriver, or pliers on all four corners of the sample, try to dislodge the test sample from the existing surface, assessing each of the three areas for level of adhesion.
- If the surface is suitable for overlaying you will not be able to lift the sample from at least one of the three areas. If more than one area shows excellent choose your preffered surafce preparation.

INSTALLING NEW OR UPGRADED SUBSTRATES

PIR Insulation

OSB

Check that the new roof substrate is compatible for laying directly to one of the approved substrates listed:

For new builds or upgraded substrates, a warm roof build-up is generally preferred. This method is more energy efficient, reduces the risk of condensation issues, and is often less problematic over time.

However, in situations where the additional height of a warm roof is not achievable, such as due to planning restrictions or door/window thresholds, a cold roof system can still be installed, but certain key requirements must be followed to ensure its performance.

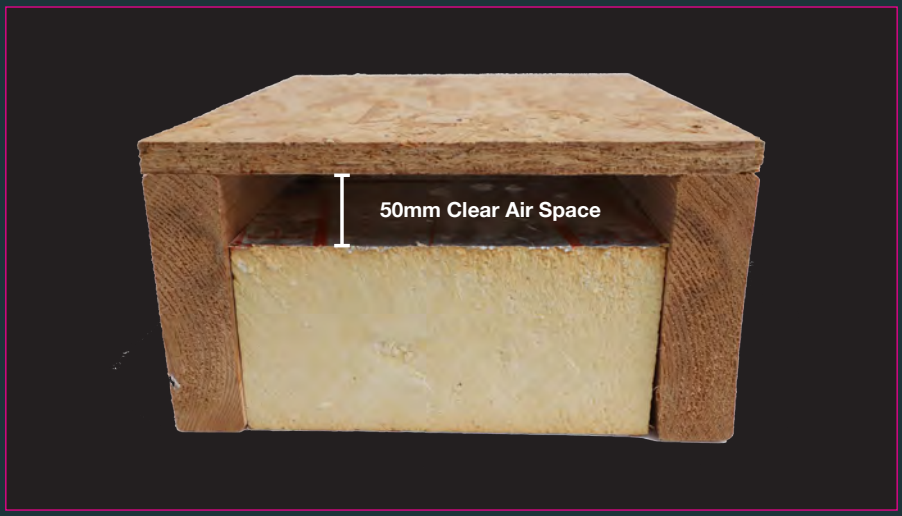
- A minimum 50mm ventilation gap must be maintained between the underside of the OSB deck and the top of the insulation.
- There must be adequate ventilation in and out of the roof space to prevent condensation build-up.

INSTALLING NEW OR UPGRADED SUBSTRATES

Acceptable Ventilation Methods:

- Soffit vents.
- Over-fascia vents.
- Mushroom vents.
- Cross battening (may be required to allow uninterrupted airflow).

Note: Failure to provide proper airflow in a cold roof build-up can lead to moisture build-up, timber rot, and long-term roof failure.



COLD ROOF VERSUS WARM ROOF

Whether you require a warm roof or cold roof, the table below explains some of the key differences between to two types of installation.

FEATURE	WARM ROOF	COLD ROOF
Insulation Position	Above the structural deck	Between joists below deck
Vapour Control Layer (VCL)	Required beneath the insulation	Not required
Ventilation	Not required	Required (minimum 50mm gap and roof ventilation)
Thermal Efficiency	High (reduces thermal bridging)	Lower (cold deck can lead to condensation issues)
Build-Up Height	Increased (may affect thresholds or planning)	Lower (better for limited height scenarios)
Condensation Risk	Low (deck stays warm and dry)	Higher (needs correct airflow to prevent moisture)
Construction Complexity	Straightforward in terms of moisture control	More complex due to ventilation requirements
Ideal for	New builds or full refurbishments	Retrofits where height is restricted

NEW COLD ROOF INSTALLATION

A cold roof places the insulation below the deck, requiring a ventilated cavity between the insulation and the deck to avoid condensation. Follow these steps for a compliant and long-lasting installation:

Prepare the Roof Structure

- Install structural roof joists (C16/C24 graded).
- Ensure joists are level, secure, and spaced according to design/specification (400/600mm centres).
- Glue and secure firrings to joists with correct falls (preferably 1:40 or 1:80 minimum).

Fix OSB3 Decking

- Preferably use 18mm OSB3 tongue-and-groove boards for structural decking if opting for square edge boards, these can be used by gapping the boards 2-3mm, and additional reinforcement is required for the board joints.
- Fix boards perpendicular to joists, gap side upmost, and stagger joints.
- Leave a 25mm expansion gap between abutting walls or upstands, or if boards exceed 12 linear metres.
- Use ring-shank nails or countersunk screws at 200mm centres along joists making sure these are long enough to penetrate joists a minimum of 40mm.

Note: OSB boards must be kept dry at all times during storage and throughout the installation process. Exposure to moisture can cause swelling, warping, and delamination, which will affect the performance and durability of the roof structure and covering.

NEW WARM ROOF INSTALLATION

A warm roof system places the insulation above the structural deck, keeping the deck and internal structure warm. This design improves thermal performance, reduces condensation risk, and is now the preferred method in most new flat roof constructions.

Prepare the Roof Build up as follows:

1. Main Roof Structure

- Install structural roof joists (C16/C24 graded).
- Ensure joists are level, secure, and spaced according to design/specification (400/600mm centres).
- Glue and secure firrings to joists with correct falls (preferably 1:40 or 1:80 minimum).

NEW WARM ROOF INSTALLATION

2. Fix 18mm Structural Subdeck

- Preferably use 18mm OSB3 tongue-and-groove boards for a structural sub deck if opting for square edge boards OSB/Plywood, board joints will need to be gapped 2-3mm.
- Leave a 25mm expansion gap between abutting walls or upstands, or if boards exceed 12 linear metres.
- Use ring-shank nails or countersunk screws at 200mm centres along joists making sure these are long enough to penetrate joists a minimum of 40mm.

3. Install Vapour Control Layer (VCL)

- Loosely lay (minimum 1000-gauge/250 microns) VCL over subdeck and turn up at edges above insulation height.
- Overlap joins in VCL a minimum of 150mm and seal with double-sided tape.

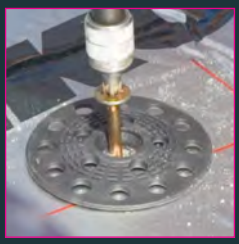
NEW WARM ROOF INSTALLATION

4. Fix Insulation Boards

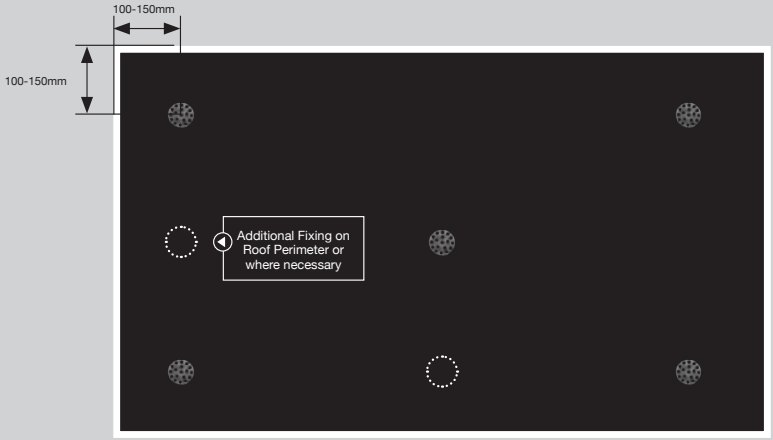
- Lay rigid PIR foil-faced insulation boards only (typically 120mm–150mm thick) directly over the VCL.
- Boards must be tightly butted together and to abutting walls or upsatnds, staggered, and mechanically fixed using TuffStuff FlexiPLUS washers only.
- Position washers a minimum of 100-150mm in from the board edges and secure insulation to 18mm subdeck using standard countersunk screws.
- Secure washers without piercing foil face or overtightening, and pattern according to design, specification or board sizes (see page 27).

Note: Insulation boards must be stored in dry, protected conditions at all times. Before purchase, always check the manufacturer's guidelines regarding storage and handling requirements. Water contamination or exposure to moisture can lead to:

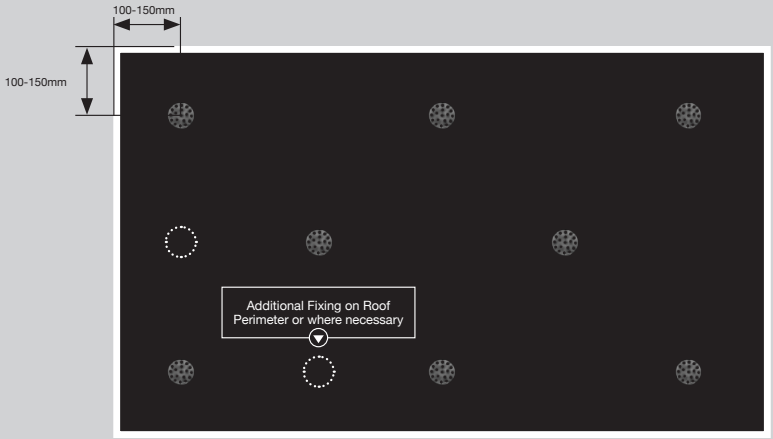
- Delamination of the foil facing from the board and finished GRP roof covering.
- Blistering or failure of the finished GRP roof covering.



Fix Insulation Boards



Minimum 5 fixings per board (1.2m x 0.6m Board) (1.2 x 1.2m Board)



Minimum 8 fixings per board (2.4m x 1.2m Board)

INSTALLING EDGE TRIMS AND PREPARATION WORK

TuffStuff FlexiPLUS GRP trims must be installed to all roof perimeter edges and detailing areas to ensure proper drainage, weatherproofing, and finish.

Trims should be fitted to:

- Roof perimeters (e.g. drip edge, raised edge).
- Abutting walls and upstands.
- Parapet walls and step details.
- Adjoining pitched roofs.
- Other junctions and detailed areas.

To correctly install GRP trims around roof perimeters, support battens must be fixed to the face (vertical edge) of the flat roof structure. These battens provide the correct support and positioning for the trims, especially at drip edges where water runoff and guttering must be considered.

INSTALLING EDGE TRIMS AND PREPARATION WORK

Raised Edge Trims (e.g. for upstands where guttering isn't present):

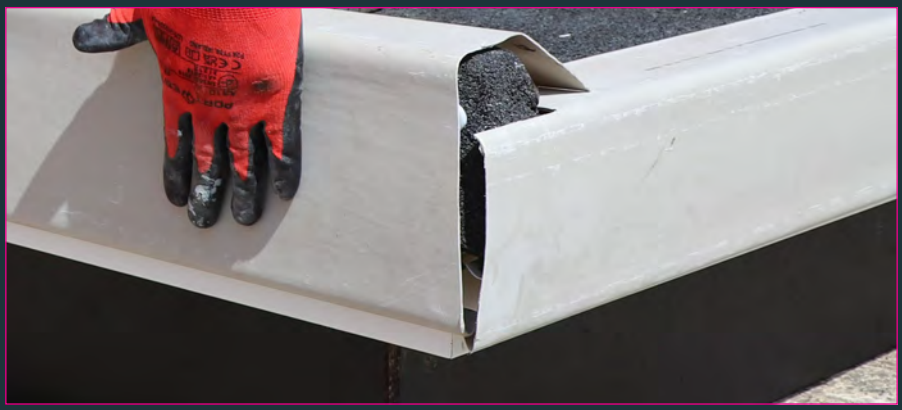
- Require only one batten.
- Batten should be fixed level with or just below the OSB deck height.
- This supports the trim without affecting drainage.

Drip Edge Trims (where guttering is required):

- Require two battens:
- Upper batten: Installed level with (or just below) the top of the deck.
- Lower batten: Set below the first batten approximately 10mm – supports the face of the trim and allows room for the guttering system to be fixed underneath.

Note: As an alternative to the standard drip edge trim with two battens, the AF200 runoff trim can be used. The AF200 trim only requires one support batten to be installed whilst maintaining proper water drainage into a guttering system.

Larger trims are better suited for overlaying existing edge details. Products such as the A250 drip edge and the OLB300 raised edge trim will fully encapsulate the roof details without the need to remove existing upstands or drip edges. **See Trims page 50.**



INSTALLING EDGE TRIMS AND PREPARATION WORK

Fixing GRP Trims

GRP edge trims must be securely fixed to the roof structure to ensure correct alignment, durability, and seamless integration with the GRP laminate system. The method of fixing will vary depending on the substrate type.

1. Fixing to Solid Substrates (e.g., OSB3 Decking)

- GRP trims should be mechanically fixed using galvanised clout nails.
- Nails should be spaced at 100–150mm intervals along the horizontal flange of the trim.
- Position all fixings close to the trim edges to allow for the application of a reinforcement bandage over the fixing points.
- Do not fix through the front face of the trim, as this will be left exposed.

INSTALLING EDGE TRIMS AND PREPARATION WORK

2. Fixing to PIR Insulation Boards (Warm Roof Construction)

- Do not use mechanical fixings on PIR insulation boards, as they do not offer adequate holding strength.
- Instead, fix trims using high-bond double-sided tape:
  - The tape can be applied either to the back of the trim or directly onto the insulation surface.
  - Press the trim firmly into position to ensure a strong bond.
  - Ensure all surfaces are clean, dry, and dust-free before applying the tape.

Note: Where trims meet vertical support battens (e.g., for raised or drip edges), fix using a continuous bead of TuffStuff FlexiPLUS trim adhesive. This maintains a neat finish on visible trim edges.

INSTALLING EDGE TRIMS AND PREPARATION WORK

Cutting Trims

TuffStuff FlexiPLUS trims are supplied in 3-metre lengths and should be accurately cut to size using either tin snips or a grinder fitted with a stone or diamond-tipped blade.

Trims are typically:

- Butt jointed, scribed, or mitred for internal corners.
- Mitred for external corners.

All trims are fully compatible with one another, and a range of depth options are available to suit different roofing details. Selecting the appropriate trim and ensuring precise cutting are essential to achieving a neat, professional finish.

Note: For added convenience and time-saving on site, preformed corners are available. These eliminate the need for scribing or mitring and only require simple overlapping during installation.

INSTALLING EDGE TRIMS AND PREPARATION WORK

Overlapping Trims

Whether you're using preformed corners or joining trims together, it's essential to overlap each joint by a minimum of 50mm.

- All joints must be bonded using TuffStuff FlexiPLUS Trim Adhesive to ensure a secure connection.
- Once bonded, apply a layer of reinforcement bandage and resin complete with Liquid Catalyst over the joint to create a seamless, watertight, reinforced finish.

This process ensures durability, prevents wind uplift, water ingress, and maintains a clean, professional look across the entire perimeter of the GRP roof.

DETAIL WORK & COATING TRIMS

Sealing Trims

Once all trims are accurately cut to size and secured in place, the next stage is to seal all joints and corners to ensure a seamless, watertight finish.

This is achieved using TuffStuff FlexiPLUS reinforcement bandage and TuffStuff FlexiPLUS resin with the appropriate TuffStuff FlexiPLUS Liquid Catalyst (see page 42 for mixing guidance).

Step-by-Step Guide:

1. Cut or tear the bandage to the correct size, ensuring it will fully cover:

- Internal and external corners.
- Butt joints between trims.
- Overlaps or junctions.

DETAIL WORK & COATING TRIMS

2. Lay the bandage flat on an offcut or spare board for easy handling.

3. Mix the resin following TuffStuff's guidelines, adjusting for quantity and substrate temperature.

4. Apply mixed resin to the board using a TuffStuff 3" soft roller.

5. Place the bandage onto the wet resin to begin saturation.

6. Apply more resin on top of the bandage until it is fully soaked through.

7. Lift and position the saturated bandage over the trim joint or corner detail.

8. Shape and press down with a brush, following the contours and ensuring a smooth, fully bonded finish.

This process ensures all trim connections are properly sealed, forming a durable and watertight edge before moving on to applying bandage work where trim and substrate meet, sealing over trim fixings.

SUBSTRATE SEALING & TRIM COATING PROCESS

Following the previous steps for sealing trims, cut or tear the bandage to the required size to cover where trims meet substrate, covering fixings then:

1. Apply resin directly to the substrate where the bandage will be positioned using 3" TuffStuff soft roller.

2. Apply pre-cut bandage on top of resin previously applied.

3. Fully saturate on top of the bandage with resin using a 3" TuffStuff soft roller.

4. Roll over the bandage several times until the fibres show a swirled appearance; this indicates the bandage is properly saturated and the fibres are released.

5. Continue to maintain adequate resin coverage as needed.

6. Apply a final resin coat over the entire trim and bandaged joints using the same roller, ensuring a consistent, smooth finish.

This step completes the trim sealing stage and prepares the surface for the final GRP laminate application.

Note: If the bandage lifts when the roller is applying resin on top of the bandage, this will indicate dry areas below and insufficient resin applied to the substrate.

LAYING REINFORCEMENT MATTING

(TuffStuff FlexiPLUS 450g)

Cut and prepare reinforcement matting directly after trim installation and before mixing resin to complete bandage and detail work.

Using TuffStuff FlexiPLUS 450g reinforcement matting, fully cover the entire roof area in continuous rows. Follow these key steps for a neat, professional finish:

1. Lay the matting in rows, ensuring each feathered edge overlaps the straight edge of the next row for a seamless join.

2. Ensure the matting overlaps and covers all substrate bandaged where trims meet substrate, also lap onto the deck-side flange of all perimeter trims for full edge integration.

3. Roll up each section in order, once cut and in position, and store neatly, ready for resin application.

Note: This preparation stage streamlines the laminating process by completing key setup tasks before resin mixing. It can also be carried out immediately after trim installation; there's no need to wait for the bandage or trim coating to fully cure.

READY RECKONER COVERAGE CHART

Always follow product guidance for coverage rates, application, and Liquid Catalyst addition.
Coverage vary depending on substrate.

			READY RECKONER		
1M²	COVERAGE 180mm Roller Full		10M²	25M²	50M²
Rough Felt	2.75 - 3kg 4x - on Base 3x - on Mat 1x - Washcoat	Tuff Stuff FlexiPLUS Reinforcement FlexiPLUS Rollers	2x 16kg 1x 6.6kg 1	5x 16kg 1x 16.5kg 1	10x 16kg 2x 6.6kg + 1x 16.5kg 2
Smooth Felt	2.25 - 2.5kg 3x - on Base 3x - on Mat 1x - Washcoat	Tuff Stuff FlexiPLUS Reinforcement FlexiPLUS Rollers	2x 16kg 1x 6.6kg 1	4x 16kg 1x 16.5kg 1	8x 16kg 2x 6.6kg + 1x 16.5kg 2
Asphalt / Concrete *Primer is required for applications onto concrete	2.25 - 2.5kg 3x - on Base 3x - on Mat 1x - Washcoat	Tuff Stuff FlexiPLUS Reinforcement FlexiPLUS Rollers	2x 16kg 1x 6.6kg 1	4x 16kg 1x 16.5kg 1	8x 16kg 2x 6.6kg x 1x 16.5kg 2
Warm Roof	2kg 2x - on Base 3x - on Mat 1x - Washcoat	Tuff Stuff FlexiPLUS Reinforcement FlexiPLUS Rollers Warm Roof Washer	2x 16kg 1x 6.6kg 1 1 pack	4x 16kg 1x 6.5kg 1 3 packs	7x 16kg 2x 6.6kg + 1x 16.5kg 2 5 packs
OSB/GRP	2kg 2x - on Base 3x - on Mat 1x - Washcoat	Tuff Stuff FlexiPLUS Reinforcement FlexiPLUS Rollers	2x 16kg 1x 6.6kg 1	4x 16kg 1x 16.5kg 1	7x 16kg 2x 6.6kg + 1x 16.5kg 2

Table is for guidance only and some roof substrates may require different volume of Tuff Stuff FlexiPLUS.
Remember - Surface preparation is key, the smoother the surface, the better the finish.

LAMINATE APPLICATION

Before laminating, refer to page 42 for detailed mixing guidance, including the correct Liquid Catalyst type and dosage, based on seasonal conditions and current temperature ranges.

- **If working in extreme weather conditions,** fully mix in any required accelerator or inhibitor before adding Liquid Catalyst.
- **Use pre-measured Liquid Catalyst Shots** suitable for full 16kg TuffStuff FlexiPLUS cans.
- **Pour the Liquid Catalyst into the resin** and mix thoroughly using a paddle whisk until fully mixed.

Note: Following this simple but crucial process ensures the resin performs consistently across all conditions, providing you with enough working time to apply resins straight out of the can.

Dependent on substrate preparation, smoothness, and type, the coverage rate per metre section will vary, refer to the coverage rate chart below for guidance. To ensure the best finish and long-term performance, it is essential to follow the correct coverage rate and application method when laminating.

LAMINATE APPLICATION

Step-by-Step Lamination Process (Per 1m Section):

1. **Apply resin directly to the substrate** using a TuffStuff FlexiPLUS laminating roller.

- Ensure full coverage with no dry patches, this promotes a strong bond to the substrate and starts breaking down the reinforcement matting.

2. **Roll out the pre-cut reinforcement matting** onto the wet resin.

3. **Apply resin over the top** of the matting to saturate the fibres.

4. **Using the TuffStuff FlexiPLUS laminating roller, gradually work over the entire 1m section:**

- With slight pressure, roll over several times to work the resin into the fibres and release the fibres.

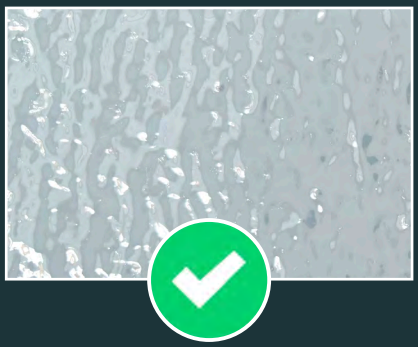
- Remove pressure and allow the resin to settle on the surface to produce a stippled, resin-rich finish.

LAMINATE APPLICATION

Following this method ensures a consistent lamination layer with excellent mechanical performance and a professional final appearance.

Note: Apply resin directly to matting and leave to wet out for approximately 2 minutes before going back over to work in. Instead of waiting, carry on wetting out the next 1m section, and once done, return to the previous meter to achieve the desired finish (see pictures below).

GOOD & BAD FINISHES



CORRECT

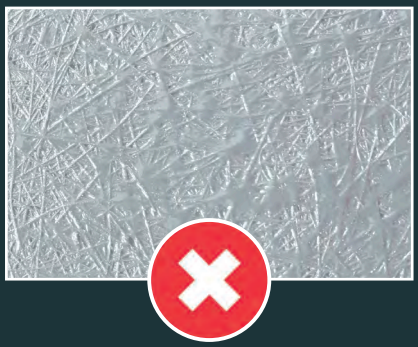
Correct amount of resin applied to the deck and on top of the matting.

Correct wet out of fibres ensuring fibres release from imulsion binder.

No visible fibres.

Resin drawn through fibres to provide stipple effect finish.

Washcoat finish applied.



INCORRECT

Insuffient amount of resin applied to the deck and on top of the matting.

Insuffient wet out of fibres allowing fibres to remain intact.

Fibres straight and prominent.

Small pinholes present which will allow for water ingress.

Poor visual finish.

No Washcoat finish applied.

MIXING PROCESS

TuffStuff FlexiPLUS is a high-performance, year-round GRP roofing resin system that requires the addition of Liquid Catalyst to initiate curing. The type of Liquid Catalyst Summer or Winter should be selected based on the temperature at the time of installation.

Standard Mixing Instructions (9°C – 25°C)

- Use pre-measured Liquid Catalyst Shots provided for ease and accuracy.
- Pour the entire Liquid Catalyst Shot(s) into the 16kg resin can.
- 9 – 11 degrees - use 2 Winter Liquid Catalyst Shots.
- 12 – 15 degrees - use 1 Winter Liquid Catalyst Shot.
- 16 – 20 degrees - use 2 Summer Liquid Catalyst Shots.
- 21 – 25 degrees - use 1 Summer Liquid Catalyst Shot.
- Mix thoroughly using a paddle whisk to ensure even dispersion. The resin will not cure unless the Liquid Catalyst Shot(s) is added.

Extreme Temperature Adjustments

Cold Weather (0°C – 8°C)

- Add a pre-measured accelerator to the resin before the Liquid Catalyst Shot(s).
- Mix the accelerator thoroughly into the 16kg resin can.
- Then add the Winter Liquid Catalyst Shot(s) and mix again thoroughly.
- 0-4 degrees - 2 x winter Liquid Catalyst Shots should be used.
- 5-8 degrees - 1 x winter Liquid Catalyst Shot should be used.
- This ensures proper curing in cold conditions.

Hot Weather (26°C – 35°C)

- Add a pre-measured inhibitor to slow the curing process.
- Mix the inhibitor thoroughly into the 16kg resin can.
- Then add the summer Liquid Catalyst Packs and mix thoroughly.
- 26-30 degrees - 2 x summer Liquid Catalyst Shots should be used.
- 31-35 degrees - 1 x summer Liquid Catalyst Shot should be used.
- This prevents premature gelling and maintains suitable working time in hot conditions.

MIXING PROCESS

TuffStuff FlexiPLUS can also be used with standard TuffStuff Liquid Catalyst, and mixes can be split into smaller quantities using mixing buckets-provided all mixing is done in accordance with the official guidance.

However, please note:

- Splitting mixes manually may lead to fluctuations in working times, especially in varying temperature conditions.
- For greater consistency, accuracy, and ease of use, we recommend using the pre-measured Liquid Catalyst Shots supplied with the system.

Note: These Liquid Catalyst Shots are specifically designed to deliver optimum cure rates and ensure reliable performance across the full temperature range.

26°C to 35°C Very Hot Conditions	1 Inhibitor Pack & 1 Summer Liquid Catalyst Shot	31°C to 35°C
	1 Inhibitor Pack & 2 Summer Liquid Catalyst Shots	26°C to 30°C
16°C to 25°C Hot Conditions	1 Summer Liquid Catalyst Shot	21°C to 25°C
	2 Summer Liquid Catalyst Shots	16°C to 20°C
9°C to 15°C Cool Conditions	1 Winter Liquid Catalyst Shot	12°C to 15°C
	2 Winter Liquid Catalyst Shots	9°C to 11°C
5°C to 8°C Cold Conditions	1 Accelerator Pack & 1 Winter Liquid Catalyst Shot	5°C to 8°C
0°C to 4°C Very Cold Conditions	1 Accelerator Pack & 2 Winter Liquid Catalyst Shots	0°C to 4°C

1 Warm Liquid Catalyst Shot = 1% Liquid Catalyst

1 Cool Liquid Catalyst Shot = 2% Liquid Catalyst

Liquid Catalyst Required Always Mix Well

	Warmer	<<<	Catalyst Req.	>>>	Cooler
Kilos	1% Min		2%	3%	4% Max
1	10ML		20ML	30ML	40ML
2	20ML		40ML	60ML	80ML
3	30ML		60ML	90ML	120ML
4	40ML		80ML	120ML	160ML
5	50ML		100ML	150ML	200ML

	Warmer	<<<	Catalyst Req.	>>>	Cooler
Kilos	1% Min		2%	3%	4% Max
6	60ML		120ML	180ML	240ML
7	70ML		140ML	210ML	280ML
8	80ML		160ML	240ML	320ML
9	90ML		180ML	270ML	360ML
10	100ML		200ML	300ML	400ML

LAMINATE TROUBLESHOOTING

ISSUE	REASON	RESULT
Matting lifting	Insufficient resin on the substrate, debris left on the substrate	Poor adhesion, bubbles in the laminate finish
White matting visible	Insufficient resin on matting	Roof failure
Visible fibres	Insufficient resin and not working matting in enough with the laminating roller	Pinholes in the surface, Roof failure
Fibres lifting	Too much pressure on the laminating roller when the matting is broken down	Poor finish to the laminate
Splashes on trim	Working the laminating roller over the resin too fast	Poor finish to trim and potential splashes to the surrounding area
Prominent Swirly fibre finish	Soft roller used instead of a laminating roller	Poor finish, additional coat with a soft roller needed for a smoother finish
The roller is not holding enough resin, or harder to break down the matting	Resin residue in roller pile starting to cure	More work and potentially not enough resin applied could lead to roof failure
Lumps of resin in areas	Resin and drips from the roller are not evenly spread out over the matting before curing	Poor finish to the laminate

ANTI-SLIP FINISH

Anti-Slip Finish

Additional coats can be applied to the finished GRP surface if required. These should always be applied using a standard soft roller, not a laminating roller, to ensure a smooth, even finish.

Anti-Slip Finish Application (per 1m² section):

1. Apply a thin layer of resin directly to the finished surface using a soft roller.
2. Immediately sprinkle TuffStuff slate granules evenly into the wet resin.
3. Work the granules into the resin with the roller to ensure good adhesion and coat granules.
4. Continue this process 1m² section at a time to maintain consistency and working time.

CLEANING UP

If using buckets instead of full cans, these can be reused once the resin has cured, peel out the residue in the bucket, and it's ready to use for your next job.

Brushes can get reused but will need to be cleaned with acetone whilst they are still wet. Pour acetone into a bucket or container and submerge and clean, then remove from the acetone and allow to dry. Used acetone can be poured back into the original container and re used.

Remove roller sleeve from handles, dispose of, and replacement sleeves can be purchased for your next job.

FINAL INSPECTIONS

Once all works are fully completed, a final inspection must be carried out to ensure there are no defects or issues that could arise from the installation (see checklist below). This inspection confirms that TuffStuff FlexiPLUS has been installed in accordance with the specified standards.

It is essential that the contractor is confident in the quality of their work and is prepared to issue a workmanship guarantee for the installation carried out.

The contractor must ensure that all aspects of the installation comply with current product guidance and system specific instructions. Full adherence to the manufacturer's recommendations is critical to ensure long-term performance and to maintain the system's product guarantee supplied by TuffStuff FlexiPLUS.

FINAL INSPECTION CHECKLIST

1	**The entire roof area is fully laminated and cured**	✔
2	**No visible pinholes, dry patches, or missed areas**	✔
3	**All trims are correctly bonded and secured**	✔
4	**Edge trims and details are fully sealed and coated**	✔
5	**Roof surface has a consistent, resin-rich finish**	✔
6	**Drainage outlets and upstands are correctly detailed**	✔
7	**Cover flashing in place if necessary**	✔
8	**All waste materials removed from the site**	✔

SAFE WORKING PRACTICES

As the installer, it is your responsibility to ensure safe working practices are followed at all times, for yourself, your team, and any others who may be directly affected by the work. This includes employees, subcontractors, site visitors, and members of the public.

Before starting any project, you must:

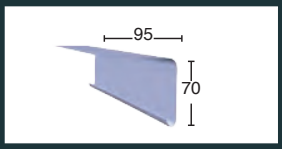
- Obtain Materials Safety Data Sheets.
- Identify and assess potential risks or hazards.
- Implement appropriate control measures and safe systems of work.
- Ensure all individuals on-site are aware of the safety procedures.
- Use appropriate PPE and follow relevant HSE and site regulations.

Note: Material Safety Data Sheets (MSDS) are available for all TuffStuff FlexiPLUS components. It is the installer's responsibility to ensure that all concerned are aware of the nature of the product.

See website for info www.tuffstuff.co.uk

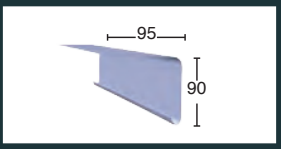
TRIM RANGE PRODUCTS

A170
Product Code: TST05



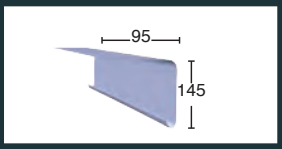
Fascia Trim - Fitted to roof edges to allow drainage**.**

A200
Product Code: TST06



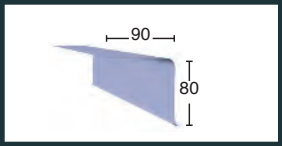
Fascia Trim - Fitted to roof edges to allow drainage into gutter. Compatible with C1, C2 and C4 corner trims.

A250
Product Code: TST07



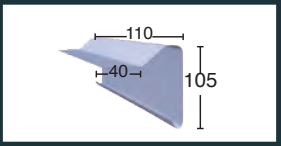
Fascia Trim - Fitted to roof edges to allow drainage into gutter. Compatible with C1, C2 and C4 corner trims.

AF200
Product Code: TST06AF



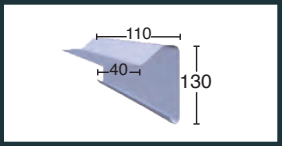
Advanced Drip Fascia Trim - The new design eliminates water kick-back and only requires a single support batten.

B230
Product Code: TST08



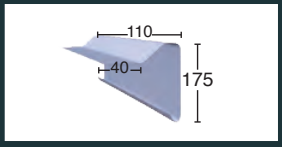
Raised Edge Trim - Flat roof edge detail to prevent water run off. Drip matches A170.

B260
Product Code: TST09



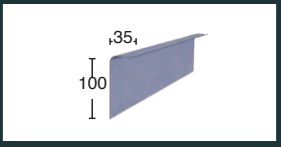
Raised Edge Trim - Flat roof edge detail to prevent water run off. Compatible with C1, C2 and C4 corner trims.

B300
Product Code: TST10



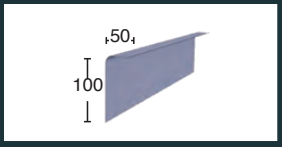
Deep fascia raised edge trim. Ideal for a warm roof specification. Drip matches with A250 trim.

C100
Product Code: TST11



Simulated Lead Flashing - Replaces traditional lead flashing. Dark grey, non adhesive finish to simulate the appearance of lead.

C100L
Product Code: TST13

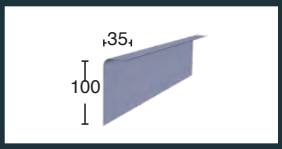


Simulated Lead Flashing Long Leg - As C100 with deep wall penetration.

TRIM RANGE PRODUCTS

C100MT

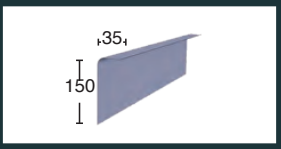
Product Code: TST12



Simulated Lead Flashing with Moisture Trap - As C100 with integral self-securing moisture trap.

C150

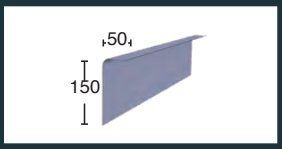
Product Code: TST15



Simulated Lead Flashing - Replaces traditional lead flashing. Dark grey, non adhesive finish to simulate the appearance of lead.

C150L

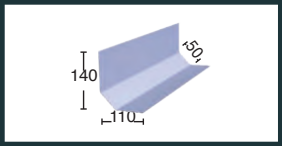
Product Code: TST16



Simulated Lead Flashing Long Leg - As C150 with deep wall penetration.

D260

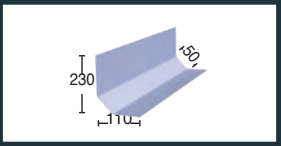
Product Code: TST17



Wall Fillet - Asymmetric fillet trim for use against abutting walls. Also provides expansion.

D300

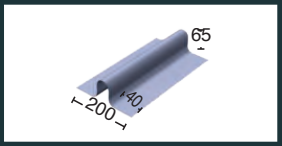
Product Code: TST18



Raised Edge Trim - Flat roof edge detail to prevent water run off. Drip matches A170.

E280

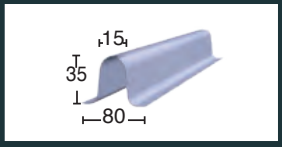
Product Code: TST20



Raised Ridge Roll - Used as an expansion joint on larger roofs and to create rolls on any ridge details. Compatible with C5 preformed closures.

ER15

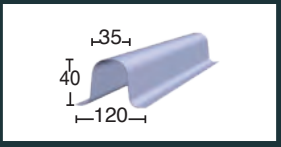
Product Code: TST42



Simulated Zinc Standing Seam Trim - Simulates the appearance and finish of a traditional Zinc standing seam roof.

ER40

Product Code: TST19



Simulated Lead Rolled Joint (Rolled Rib) - Simulates the appearance of raised rolled lead joints. Compatible with C6 preformed closures.

TRIM RANGE PRODUCTS

F150 / F300 / F600 / F900

Product Code: TST44/TST45

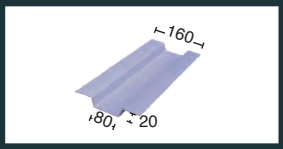
Flat Flashing - Flat section for use as continuous flashing under slates at a roof junction. It can also be used as a gutter lining. Min width: 150 - Max width: 900 Max length: 20m Roll

Trim	Length	Product Code
F150	150mm Width - 20m	TRF150
F150	150mm Width - 10m	TRF15010MTR
F300	300mm Width - 20m	TST21
F300	300mm Width - 10m	TST44
F300	300mm Width - 3m	TST45
F600	600mm Width - 20m	TST22
F600	600mm Width - 10m	TRF60010MTR
F600	600mm Width - 5m	TRF6005MTR
F900	900mm Width - 20m	TST23
F900	900mm Width - 10m	TRF90010MTR

TRIM RANGE PRODUCTS

G180

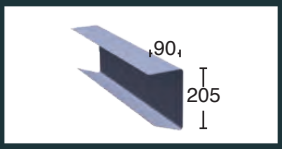
Product Code: TST04



Gulley Trim - Used on larger roofs to aid drainage.

S500

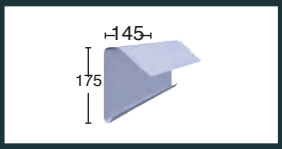
Product Code: TST03



Soffit Trim - To fully encapsulate a concrete edge or similar roof edge detail.

OLB300

Product Code: TST10OL



Overlay Trim - Extra wide trim to encapsulate existing edge detail.

TECHNICAL SUPPORT

Please call **01977 68025**0 if you need technical support (office hours are Monday to Friday 9.00am - 5.00pm). During very busy periods we may have to call you back.

FOLLOW US SOCIAL MEDIA

Follow us on our social media platforms for more information about Tuff Stuff Flexi Plus!

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X

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Tuff Waterproofing Limited

Unit 5 | First Avenue | Sherburn Industrial Estate | Sherburn in Elmet | North Yorkshire | LS25 6PD

Telephone: 01977 680250 | Email: info@tuffwaterproofing.co.uk

www.tuffstuff.co.uk