GRP ROOF INSTALLATION GUIDE

CATALYST ADDITION TIPS

1 **Use an infrared thermometer** to accurately measure the surface temperature of the roof.

2 **Always use a minimum of 1% catalyst even in summer** to ensure a thorough cure. On a hot day, this may mean mixing less at any one time.

3 **The maximum catalyst level to use is 4%** - the cure time will not reduce with higher catalyst levels.

4 **Never underestimate the effect of temperature.** Resins and topcoats will not cure at or below freezing and we recommend they should be used above 7.5°C. However, CrysticROOF® COOLCure can be used at temperatures as low as 3°C.

5 **When applying topcoat late in the day, add more catalyst** to allow for the lack of sunlight (but not above an addition level of 4%.) Do not use if temperature is set to drop rapidly at night.

6 Summer grade catalysts are available to help **slow the resin or topcoat down** on hotter days.

7 **Remember any catalysed resin left in the bucket will exotherm.** Heat is generated as it cures and it should be left well away from other stored materials. If you are finished with the resin in the container, water may be poured over it to suppress the heat gain (do not use this once the water has been added).

PLEASE NOTE

Resins and topcoats will cure a lot quicker in warmer conditions.

CATALYST ADDITION CHART

CrysticROOF COOLCure Resin uses **HBO 50** (Winter Catalyst). All other CrysticROOF products use **Catalyst M** (or Butanox M50).

% of Catalyst to Resin and Topcoat / Temperature	4% CATALYST	3% CATALYST	2% CATALYST	1% CATALYST
CrysticROOF COOLCure	**5-6°C** Winter / Cold Weather	**7-8°C** Winter / Cold Weather	**9-10°C** Winter / Cold Weather	**11-14°C** Winter / Cold Weather
CrysticROOF Premier, CrysticROOF FR, CrysticROOF Standard	**7.5-13°C** Winter / Cold Weather	**13-20°C** Winter / Cold Weather	**21-28°C** Spring / Autumn / Ambient	**29-35°C** Summer / Warm Weather

RESIN / TOPCOAT	CATALYST	CATALYST	CATALYST	CATALYST
500g	20ml	15ml	10ml	5ml
1kg	40ml	30ml	20ml	10ml
2kg	80ml	60ml	40ml	20ml
3kg	120ml	90ml	60ml	30ml
4kg	160ml	120ml	80ml	40ml
5kg	200ml	150ml	100ml	50ml
6kg	240ml	180ml	120ml	60ml
7kg	280ml	210ml	140ml	70ml
8kg	320ml	240ml	160ml	80ml
9kg	360ml	270ml	180ml	90ml
10kg	400ml	300ml	200ml	100ml

INSTALLATION GUIDE

STEP 1
BEFORE INSTALLATION

Ensure all working and weather conditions are correct before commencing installation. Remove any vehicles etc. and take care to mask off any windows below the working area, as drips and airborne particles may be difficult to remove later on. The outside temperature must be above 7.5°C before beginning GRP work. Also, be sure to avoid chances of rain within the installation time as this will affect how the resins or topcoats catalyse and cure.

During winter months, do not apply the topcoat past 2pm, as there will not be sufficient UV daylight necessary to cure the resin and topcoat. Overnight curing is unlikely. Resin and topcoats are temperature sensitive and so we recommend that they are stored inside before use in order to bring them up to the correct temperature (15°C). You can purchase keg or drum heaters if required.

STEP 2
PREPARING THE ROOF DECK

Strip the old roof covering from the timber substrate and replace with the recommended SmartPly® OSB 18mm boards with tongue and grooved edges - 2400 x 600mm. Before you begin, ensure joists or rafters are level, free from debris, and pre-treated with water based preservatives.

RECOMMENDED:
SmartPly® OSB 18mm boards with tongue and grooved edges - 2400 x 600mm

STEP 3
FIXING THE OSB3 BOARDS

Lay the roof boarders length ways across the supporting joists or rafters, making sure they are in a straight line. The direction arrows indicate the major axis laying direction. Place the shorter edges in the centre of the support rafters using bridging or noggin supports with a minimum bearing of 18mm on the joists or rafters. Recommended fixings are 50mm screws or 65mm ring shank nails maximum, 150mm centres on all joists, rafters and battens.
If using nails, a powered nail gun is preferable to avoid internal ceiling damage. As with any wooden floor or deck, stagger the joints in order to create a stronger structure.

Start placing the boards from the furthest edge from the drip trim, leaving an expansion gap of 10mm between the edge of the board and any rigid upstand e.g. a wall. A 3-5mm gap should be left between cut boards. If possible allow a fall across the roof to allow for natural water drainage. It is also recommended that a drainage channel is incorporated into the roof surface to allow standing water to escape if the construction allows.

STEP 4
SUPPORT AND FLASHING PREPARATION

Support batons should be fixed around the perimeter edges of the roof, creating a gap for the gutter to fit behind the trim. A 25mm x 40mm baton is recommended. This should be fixed to the top of the fascia boards flush on the top edge of the roof boards. Ensure a suitable sized chase has been made along any connecting walls. The simulated lead flashing will be inserted as a final step (see trim guide on page 15).

STEP 5
ATTACHING THE ROOF TRIMS

NB. Timber absorbs moisture, so ensure that the deck boards are totally dry before starting the lamination process to avoid future movement that may result in joint failures.

Attach the roof trims and secure the upstands to any adjoining walls ready to take the GRP flashings. Details on all trims can be found within this guide to allow for the selection of the specific trims needed for the roof being installed.

Screw or nail the trims to the roof deck. Flat flashing (F range) and wall fillets (D260) need to be bonded using Fix ALL or similar adhesive. Non-structural adhesives such as silicone or mastic must not be used as the bond strength will not be sufficient to prevent leaks. Use Fix ALL adhesive (8mm bead) along the support batons to hold the trims in place vertically. Join lengths of trims together using Fix ALL adhesive in a 50mm overlap, and slot one trim over the top of the over. Press together firmly.

STEP 6
TAPING THE JOINTS

Once all trims are in position, tape all the board and trim joints in order to prevent stress cracking at the joints. This is done by applying a 3" wide woven tape to each joint. Mirror the taping procedure on a smaller scale to that used for the main laminate. Decant about 1kg of CrysticROOF® resin into a small bucket and mix well with catalyst (see Catalyst Addition Chart on page 10). Apply the catalysed resin to the joints using either a small brush or roller. Roll out the pre-cut tape over the resin and apply a further amount of resin to the glass tape, consolidating with a small metal consolidation roller. All detailed work may also be completed at this stage. Tape all drain outfalls, channels, pipes and roof fittings using this procedure. You may find a brush easier to use than a roller on complex shapes.

STEP 7
LAYING THE MAIN LAMINATE

The main laminate may be applied either before or after the bandage has cured. The resin will cure faster in warmer weather conditions – refer to the catalyst addition chart, starting with a smaller quantity.

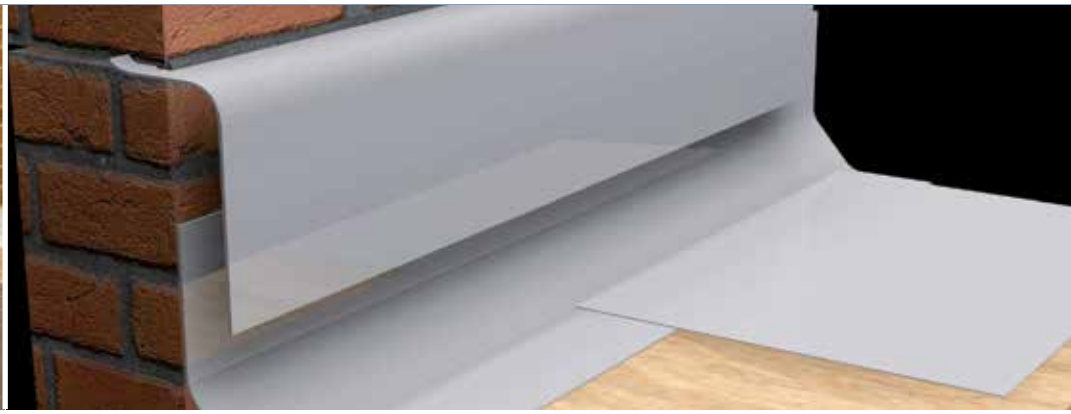
Pre-cut the glass to the same length of the roof and roll it back up for easier handling. Mix sufficient resin and catalyst to complete the first "run" – the catalyst should change the resin from a blue/ green colour to a darker brown. However, do not allow the resin to become too dark and thick as this means it has started to cure and your working time (usually 20-30 mins) is over. If this happens catalyse some fresh resin and continue to work.

Firstly, prime the boards using a 6-10" fabric roller. Dip the roller into the resin and roll the resin onto the deck and flat surface of the edge trims. Then start to apply the chopped strand mat without waiting – unroll 1m of glass along the lowest part of the roof and align it so that it will not run off once completely unrolled. Apply further resin to the top of the glass using a fabric roller. Use a brush to stipple in awkward areas.

You should ensure that there are no dry white patches once the glass is wet, nor should you 'flood' the glass. Use a consolidating metal roller (see ancillaries on page 26), rollering over the glass several times to ensure the resin is spread evenly and any trapped air is released. When correctly wetted out, the glass will appear transparent. Continue this process moving along the roof, priming the board, rolling out more glass, wetting the glass and consolidating, until the far edge of the roof is reached. Continue with the next run of glass overlapping the first by 50mm taking note to overlap using the feathered edge of the glass to ensure a flat surface aspect. Do not step on the wet glass and resin.

STEP 8
ALLOW CRYSTICROOF® RESIN TO CURE

The CrysticROOF® resin needs to be left to cure for between 1 and 4 hours depending on application conditions. Test the laminate for cure by applying slight pressure with your finger. The laminate is approximately half cured when it is impossible to move the glass fibres within the resin matrix. At this point it will withstand light foot traffic so that you may stand on the laminate to complete the top coating. Try not to leave the laminate overnight before top coating.



STEP 9
APPLY THE TOPCOAT

The CrysticROOF® topcoat can now be applied. Lightly sand the resin surface before applying the topcoat. Stir the topcoat before use, add the catalyst and thoroughly mix (use same amount as in the resin). After adding catalyst, quickly apply the topcoat, as the curing process will have started and you have limited working time. Apply using a brush or roller, ensuring there is an even thickness across the surface of 0.5mm. A topcoat thickness gauge can be used to measure the thickness. If the topcoat is applied too generously it may crack, if it is too thin it will not cure thoroughly. Topcoat across the whole roof including up and over the face of the roofing trims. If it hasn't been possible to apply the topcoat within 24 hours of laying the laminate, then wipe down the laminate with acetone to gain a good bond surface.

STEP 10
SIMULATING LEAD FLASHING

Slot the flashing into the pre-chased slots in the wall, with the vertical face sitting on top of the D trims. Secure with Fix ALL adhesive on the back of the C trims. Apply a bead of Fix ALL adhesive into the chase length to seal.

STEP 11
CLEANING TOOLS

Acetone can be used to clean uncured resin/ topcoat from tools so that they can be reused. Waste product can also be 'knocked out' of buckets once cured, so that the bucket can be reused.

STEP 12
THE FINISHED ROOF

The finished laminate needs to be left to cure which will take several days and should not be walked on during this time. It will not deteriorate and may be cleaned occasionally with soap and warm water. DO NOT USE BLEACH or any strong alkali on the roof. The roof will withstand light foot traffic and may have planters or tiles or other decorative finishes applied to it with no detrimental effects.

REPAIRING
A GRP ROOF

Clean around the damaged area with brush cleaner (acetone). Sand back an area around the damage approx. 10cm, and wipe down with acetone. Prepare a patch of CSM if required, prime the area with catalysed resin, apply the CSM and wet out with further resin. Consolidate for air release.

Once cured, catalyse the topcoat and apply with a brush or small roller and allow to cure. Excessive foot traffic may wear through the topcoat eventually. If this happens then a further coat can be applied to the affected area. Abrade and wipe down the area with acetone first.

FOR ANTI-SLIP OPTION

A domestic anti slip surface can be achieved by using crushed iron stone silicate, maximum 30% addition by weight into topcoat prior to application or sprinkled directly onto pre-applied wet topcoat.