



**TECHNICAL TRAINING  
MANUAL**

**DECORATIVE RESIN BOUND  
STONE/PEBBLE FLOORING**

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## Contents:

Title	Subcategory	Page
<b>Risk Assessment</b>		3
<b>Different Types of Resin</b>	TradeBound	4
	TradeBound UVR	4
	Primer C	4
	TradeBond	5
<b>Resin Bound Installation</b>	Appropriate Sub-Bases	5
	Preparing Edges / Manholes	5
	Sub-Base Repairs	6
	Preparing your surface	6
	Patterns and Toe-Ins	6
	Mixers	7
	Dried Aggregates	7
	Mixing Your Materials	7
	Other Mixing Key Points...	8
	Problems to Avoid During Install	8
	Calculating materials	9
<b>Resin Bonded Installation</b>	Appropriate Sub-Bases	9
	Preparing Edges / Manholes	9
	Sub-Base Repairs	9
	Preparing your surface	10
	Mixing Your Materials	10
	Problems to Avoid During Install	10
	Health and Safety	10
<b>Internal Flooring</b>		10
<b>Tree Pits</b>		10
<b>Tool Cleaning</b>		11
<b>SUDS</b>		11

#### Site Risk Assessment

1. Resin tubs should not be stacked in vehicle during transport
2. Always use the protective clothing supplied, long sleeved shirts, trousers and gloves.
3. Other trades working on site should be segregated from the mixing and laying area
4. Resin containers should be poured from one side to avoid splashing or contamination
5. Gloves should be worn during the mixing process
6. Report any rashes or sores immediately where resin has contacted the skin
7. Any material that has entered the eyes should be rinsed with warm water continuously for fifteen minutes and the patient take to A & E for further treatment, ensuring the resin labels are taken as reference.
8. Dispose of cured resin tubs in site waste disposal containers, any uncured resin should be disposed of responsibly

## **Different Types of Resin**

### **TradeBound**

- This is an amber coloured polyurethane resin that consists of 2 parts, base and activator.
- The Part A Base component weighs 4.79Kgs
- The Part B Activator weighs 2.21Kgs
- Tradebound can be mixed with 4 bags (100Kgs) of stone
- This resin shouldn't be mixed with beige, silver or black stones
- When the two resins are mixed this should give a trowel time of around 20 minutes after mixing with your dried aggregates (this will depend on ambient temperature).
- Tubs should be stored above 0 degrees, off the ground in air tight containers. This is especially important with the Part B Activator which begins to cure when exposed to moisture in the air.

### **TradeBound UVR**

- This is a 2 part polyurethane base and activator that contains a built in catalyst to reduce curing times. The Part B activator is clear and is modified to prevent colour change by UV light when installed
- The Part A Base component weighs 3.31Kgs
- The Part B Activator weighs 3.19Kgs
- Can be mixed with 4 bags (100kgs) of stone
- This resin is predominantly used with beiges, blacks and silver stones
- When the components are mixed the trowel time is around 20 minutes
- Storage conditions are the same as the standard TradeBound resin
- A small amount of catalyst can be used when the temperature is below 15C to reduce the curing time of the resin.

### **Primer C**

- Used to aid the adhesion between your resin bound surface and concrete sub-base
- Becomes tacky to touch after around 20 minutes, at which point your TradeBound, TradeBound UVR or TradeBond mixtures can be installed over the top.
- Supplied in 5L tins, coverage can depend on how porous the sub-base is, generally each tin will cover 48m<sup>2</sup>



- This fast drying polyurethane resin is touch dry within one hour
- Primer C should be roller applied to ensure a strong bond between surfaces.

### **TradeBond**

- Supplied in a 17.5kg kit two part kit
- This resin is installed directly onto the sub-base and dried aggregates are cast into the resin to create a rougher anti-skid surface
- Primer C is still used for any concrete surface installation to aid adhesion.
- Each resin mixture will cover 8 / 12m<sup>2</sup> depending on how porous the surface is
- Curing time of the resin is around 20 minutes, this is dependent on ambient temperature
- The Part A base unit weights 10.58Kgs, the activator weighs 4.92Kgs
- Each bag of 25Kg Stone will cover 3.3m<sup>2</sup> when cast into the system

## **Resin Bound Installations:**

### **Appropriate Sub-Bases**

- Tarmac and concrete are the most appropriate sub-bases for resin bound surfacing.
- Paving slabs and block paving can be installed onto however movement in the sub-base is more likely and can cause cracking in your resin surface and isn't recommended.
- Ecogrid systems can also be used to install resin bound surfacing onto. The grid should be installed onto a compressed MOT base.
- If a new sub-base is required 3/6 inches of MOT type 1 should be installed. This should then be followed with a minimum of 2 inches of 10mm base coat tarmac. This will allow you to return in 3 days to install your resin surface; concrete may take a month to fully cure.

### **Preparing Edges / Manholes**

- Resin bound installations are generally installed at 15mm for driveways and 12mm for paths and patios.
- Your resin surface can be installed against house walls, block edging, key kerbs, pin kerbs, fences or aluminium beading.
- Installing an edge at the front and sides of an existing surface gives a professional finish

- Recessed manholes can be installed to create a seamless looking driveway path or patio. The existing manhole cover should be removed and any circular manholes excavated to fit a rectangular recessed tray. Your resin and stone mixture can be used to 'Cement' the new manhole into place during the install.

#### **Sub-Base Repairs:**

- The current sub-base may need some attention before your resin installation takes place.
- Concrete surface flaking can be removed during the jet washing of the drive and covered with your resin surface as the issues are usually cosmetic
- Any surface cracking that has occurred can be cut out using a still saw in a 'V' shape during your preparations. Instead of using cement to finish the repair, your resin and stone mixture can be used
- Structural cracking that cannot be repaired will require a new sub-base installation.

#### **Preparing your surface:**

- Before installing your resin bound surface you need to ensure that the surface is clear from:
- Oil / Grease
- Surface plaster / Dust
- Water
- If these are not removed before installation, delaminating can take place which will mean the full driveway may need re-installing!

#### **Patterns and Toe-Ins:**

- Your customer may want a design implementing into their resin bound install which can be achieved in several ways
- The most popular is to install an aluminium stencil which allows the installer to complete the install the same day. For intricate designs a stencil can be purchased and installed onto the sub-base using plugs, screws and washers.
- Aluminium stop beading can also be cut to create your own stencils for numbers and letters. This is installed with plugs, screws and washers and is left in the surface. A bendy beading is also used to create any curves for your letters and numbers
- Pattern Formers (made of Ply or Foamex) can be used with a Vaseline or similar release agent. These can be removed the next day and the install can continue with a different colour.

## **Mixers**

- Mixing resin bound materials should be done in a forced action mixer
- Forced action mixers prevent dry spots and offer a more even mixture than cement mixers. These upright mixers give an even mixture by folding the material into itself and should be used to ensure the final surface is the same strength in all areas.
- For smaller areas (under 30m<sup>2</sup>) a cement mixer can be used however this isn't recommended as dry spots can occur in the mixture
- Your mixer should be 120L in size or larger to ensure that all your aggregates can be mixed in one go. Smaller mixers can be hired from local hire shops however these are usually only 70L in size which makes mixing the materials more difficult on site.

## **Dried Aggregates**

- Resin Bound and Bonded paving must be carried out using specialised dried aggregates
- Normal aggregates contain dirt and moisture which react with the resin and prevent a good bond
- There are around 25 different colours to choose from. Most contractors will mix 2 colours together to make a 'blend'.
- 4 bags weighing 25kgs can be mixed with each resin kit to cover 4m<sup>2</sup>
- Your resin stone should be turned in the mixer for 1 minute before adding your resin to remove and dust and fully mix your 'blend'.
- Generally a 2-5mm stone is used for domestic driveways for resin bound. A 1-3mm stone can be added to the mixture to strengthen the final surface however coverage is reduced due to the larger surface area of the stone
- 1-3mm stone is generally used for resin bonded surfacing and 10mm aggregates for tree pits.

## **Mixing Your Materials**

- Your aggregates should be added to the mixer for 1 minute before mixing your resin materials to remove any dust
- To mix your two part resin a plasterer's electric hand mixer must be used.
- Your Activator (Part B) can be poured into the larger Base unit (Part A) and mixed for 1 minute until thoroughly mixed.
- A stick can't be used as this will result in soft patches in the finished driveway, path or patio.



- Your resin should then be added to the mixer, ensure that all your resin is added, a piece of card may be required to scrape all your mixture from the bucket.
- The resin and stone should be mixed for two minutes, until all the stone is fully covered.
- It is important to leave the stone and resin in the mixer for the same amount of time for each mixture to avoid colour changes
- Don't forget! Stone is a naturally source product and can have small colour variations, for larger installs you should mix each batch to avoid changes.

#### **Other Mixing Key Points...**

- It is possible to add 5Kgs of Kiln dried sand into each mixture to increase the anti-skid properties
- Always put your mixing paddle down on a clean place / plastic cover to avoid marks on other surfaces
- Your next mixture should be produced while the current mixture is being laid
- Setting times will vary depending on temperatures
- Wheel barrows that collect material should be lined with a polythene bag to prolong life expectancy
- Stone should be kept covered if left over night to avoid getting wet
- Condensation in cold temperatures can affect the stone, try to keep in cool dry conditions
- Recycled glass can be installed with the stone to give the surface a different look however glass installed with TradeBound only can only be used for decorative areas without footfall.
- Glass Beading can be scattered into the final surface before setting to give a more anti slip surface

#### **Problems to Avoid During Install**

- Stone should be kept dry at all times to avoid white patches when the resin cures.
- Tarpaulin sheets should be kept to hand to cover the surface if a rain shower starts.
- For larger jobs, stone from different batches should be mixed to avoid colour change.
- The resin and stone should be left in the mixer for the same period of time to avoid colour change.



- Marks on UPVC doors and windows can be removed with white spirits, wood fences however will remain stained
- If the resin bubbles to the surface the most likely issue is the stone to resin ratio.
- A barrier should be placed to stop people entering the driveway once the install is finished.

### **Calculating materials**

- Always remember to add an extra 10% onto your order, once you start laying your surface any stops will leave visible joints.
- Take your total area to cover in m<sup>2</sup> and divide by 4 to calculate how many resin kits are needed
- Add 10% to this figure then times by 4 to check how many bags of stone you need.
- Don't forget a Primer C if installing onto concrete, each 5L tin covers roughly 48m<sup>2</sup>
- Each pallet sent can take 40 bags (1 Ton) maximum. Anything over this will result in 2 pallets.
- This above is based on a driveway laid at 15mm

## **Installing Resin Bonded Surfacing**

### **Appropriate Sub-Bases**

- Only tarmac or concrete sub-bases are appropriate for resin bonded surfacing, a better resin coverage rate on concrete means this surface is preferred.

### **Preparing Edges / Manholes**

- If a new sub-base is installed a 3mm up stand can be left to give a flush finish with your resin bonded surface.
- When installing into an existing surface a gaffer tape can be applied to the edges to retain a straight finish to the surface. Your resin material should be squeegeed over the surface up to the edges of the tape

### **Sub-Base Repairs**

- The sub-base of the resin bonded surface should be as flat and even as possible as the resin surface will follow the contours of the existing tarmac or concrete.
- Any surface flaking should be removed and repaired with a void filler to create a flat surface.
- Surface cracking that might have appeared should be cut with a still saw and repaired like any concrete surface before install of your resin

### **Preparing your surface**

- Much like your resin bound surfacing, your surface should be jet washed to remove any dirt or grease allowing the resin to stick to the sub-base.
- For concrete surfacing a Primer C should be installed around 20 minutes before the surface is laid. You should ensure that the sub-base has fully dried before applying the Primer C

### **Mixing Your Materials**

- To mix your two part resin a plasterer's electric hand mixer must be used.
- Your Activator (Part B) can be poured into the larger Base unit (Part A) and mixed for 1 minute until thoroughly mixed.
- A stick can't be used as this will result in soft patches in the finished driveway, path or patio.

### **Problems to Avoid During Install**

- Your stone should be scattered into the resin before it cures, this is usually within 20 minutes however this can reduce depending on the ambient temperature.
- Each resin mixture should be pulled across the sub-base using a serrated squeegee, this is to ensure that an even coating is applied
- Your resin material should be mixed one container at a time, squeegeed across the sub-base and scattered with stone before the next mixture is made.
- In tight areas where you may need to walk over the resin surface to scatter the stone, a pair of football boots or gardening shoes can be used
- When scattering your stone, it is advisable to place the stone in a bucket, this is to reduce the chance of dust being scattered into the resin that can be found in the bottom of the bags of stone
- Any tape that has been used to create an edge should be removed while still tacky. This will ensure that the tape can be removed evenly to give a straight finish
- Excess stone can be swept away after the resin has fully cured. This is typically after 2 hours
- Any excess stone that has been swept off can be re bagged and utilised on other installs.
- If any resin can be seen bleeding through the stone when applied additional stone should be added to this area to ensure a strong even bond.

## **Health and Safety**

- The resins used for installation are polyurethane based and can be an irritant to the skin.
- Gloves should be worn at all times with long sleeve t-shirts to avoid direct contact with skin
- If any materials make contact with eyes, they area should be washed continuously for 15 minutes and the patient taken to the local A & E department for closer examination.
- People can develop allergies and anaphylaxis to substances, this is rare but symptoms may include swelling around the eyes, hives and severe itching.
- Any mixed resin that comes in contact with skin and is allowed to dry will turn black. This can be difficult to remove and can take around a week to disappear.

## **Internal Flooring**

- TradeBound UVR resin should always be used as colour change may occur when doors and windows are opened.
- A 1-3mm stone should be laid with the resin at a depth of 12mm onto a concrete base.
- The products aren't suitable for wet rooms as skin can get trapped between the stones.
- The surface can be sealed with a specialised void filler to stop the surface being porous. This must be installed after your resin surface has cured and can take 24 hours to cure.
- The surface can be cleaned using a water vacuum or steam cleaner once set.

## **Tree Pits**

- Your resin material can be installed directly onto a 35mm – 65mm gravel that has been wacker plated at a depth of 40-50mm thick, for light foot traffic
- A 10mm stone is usually installed flush to the existing paving to increase the porosity of the surface around the tree.
- If the area has a high amount of foot traffic, the resin should be laid at 75mm depth
- The 10mm stone is only suitable for foot traffic and shouldn't be used on driveways.
- Your stone and resin mix will be the same ratios as a drive, path or patio.
- A collar needs to be placed around saplings to ensure that the tree has room to grow. Your resin materials should be installed up to the collar at the depths suggested.

## **Tool Cleaning**

- Cleaning resin from your tools can be difficult when the resin has set. Where possible, use white spirits to clean trowels after the install
- Mixers can be scraped out as much as possible after the install then left to dry. A product called Xylene can put into the mixer and left over night to break down the resin.
- Mixing paddles and your mixer may want to be burnt out with a gas torch once a week.

## **SUDs**

- SUDS – Sustainable Urban Drainage systems are a sequence of water practices to drain surface water in a manner that will provide a more sustainable approach than conventional practices of routing water through run-off pipes to a water course.
- As the resin bound surface is porous, planning permission isn't required.
- Resin Bound surfacing is popular with architects and often passes for listed buildings, conservation areas and areas of outstanding natural beauty.