GlassCast®

HOW TO MAKE A

Resin River Table

THE COMPLETE GUIDE

How to Make a Live-Edge Resin River Table

Contents

Introduction

The aim of this guide

Live-edge resin river tables are one of the most desirable pieces of furniture available today and can be seen adorning the stylish living rooms of interior design magazines and the showrooms of exclusive furniture retailers.

The aim of this guide is to provide professional furniture makers, artisan joiners and keen DIY'ers with a detailed guide that can be followed step-by-step on how to make one of these stunning tables.
Of course this procedure can be used to make a range of furniture pieces which combine wood and clear resin to create stunning effects, including tables of any size or shape, serving boards, chairs and more.
This guide includes all the expert advice you will need to avoid common mistakes and make a success of your live-edge resin furniture project; so if you're serious about making one of these pieces of furniture it is suggested you read this guide in full before you start!

All about live edges, waney edges and resin rivers

'Live-edge' is the name given to the natural outside edge on a timber plank. The term 'waney-edge' is also used to refer to the same thing. Live edges (or waney edges) like this provide a visual link back to the living shape of the wood and can be used in furniture making to produce interesting and unique lines and features.

To make use of live-edge planks on a piece of furniture like a dining table, whilst still retaining the practicality of straight edges on the table the live-edge planks can be turned in on themselves - creating a gap where the waney edges meet, like a river channel.

By filling this gap with a clear (or tinted) epoxy resin it is possible to retain the appearance of the live edge of the wood but to still have a perfectly smooth, flat surface to the table.

The appearance of this resin-filled meandering gap through the middle of the table gives rise to the term 'river table'.

Of course there are many other ways that resin can be used in and around live edged timber that differ from the established design of a gap down the middle, such as leaving the waney edge on the outside of the table and resin filling the outside lines to make them square or simply using resin to fill large gaps or knotholes in the wood and retaining the irregular shaped live edge on the table.

Before You Begin

Choosing your Wood

The first step in creating your own resin river table is choosing the piece of timber for your project. Just about any type of wood will do but you'll probably want to go for a type that has an attractive grain and colouring.

There are a number of specialist 'exotic wood' suppliers to choose from and a visit to any of them is likely to turn up the perfect piece of wood for your project.

The piece of English Yew used in our tutorial was supplied by the very knowledgeable and helpful staff of Exotic Hardwoods UK Ltd in the Staffordshire Moorlands.

The most important thing when choosing your piece of wood is to make sure that the wood is seasoned, properly dry and as flat as possible. This guide assumes that your piece of wood is all of these things.

Whilst you're at the wood suppliers, you could ask them to plane down the wood to achieve the thickness you want and leave a reasonably smooth finish on the wood. You could also ask them to cut the wood down the middle if you plan to split the board in two to make your river.

Tools, Materials & Workshop Conditions

A number of joinery tools could be helpful for your project but as a bare minimum (assuming the timber supplier planed the wood for you) the following tools and materials would be required to complete this project:

Materials

- GlassCast® 50 clear epoxy casting resin
- Polishing compound (such as Pai Cristal NW1)
- Polypropylene sheet or similar (to act as a barrier for the base and edges)

Tools

- Circular saw or table/dimensions saw
- Orbital sander (aka DA/dual action) with a range of abrasive pads/papers
- Hand-held polisher with polishing pads and polishing compound
- Hot-melt glue-gun
- PPE equipment

Accessories

- Resin spreader
- Measuring/mixing buckets and mixing stick
- 80 grit abrasive paper
- Micro-fibre Cloth
- Paint Brush (disposable)
- Vacuum cleaner / dust extractor

Optional tools, equipment and materials

- Permabond ET500 clear epoxy adhesive (if cutting/mitring the legs)
- 50ml adhesive dispenser gun & nozzles (if using the above adhesive)
- Compatible tinting pigment (if colouring the resin)
- GlassCast® 3 and digital scales if coating the surface (step 7 - option 1)
- Wax/stain to finish the wood
- Flash/Release Tape or similar

Workshop conditions

A dry, heated workshop environment is essential for both the wood and the GlassCast® 50 epoxy resin. During setup and throughout the curing time of the resin it is important to maintain a stable workshop temperature of at least 15°C but ideally 20°C or more. Do not attempt this project in cold or damp conditions as this will certainly spoil the performance and appearance of the resin.

Epoxy Resin for your River Table Project

Epoxy is epoxy, right?

The resin used in this tutorial is GlassCast® 50 from Easy Composites which is a resin specially developed for use alongside natural wood materials to create professional quality resin furniture pieces.

To ensure the best possible appearance for projects like river tables this resin is incredibly clear, highly UV resistant and is designed to degas itself during cure.

Unlike more conventional epoxy resins, GlassCast® 50 can be cast in thicknesses up to 50mm in a single pour adequate for just about any river table) and if more thickness is required it can be layered on itself to produce a seamless block of resin of almost any thickness.

When it comes to finishing your project, GlassCast® 50 is highly polishable and can easily be buffed to a glass-like finish and it's super tough formulation makes it hard wearing and less prone to scratches.

How much resin will I need?

The very nature of a 'live-edge' on a piece of wood makes it difficult to calculate exactly how much resin you will need for the project.

There are some practical methods that can be used to actually measure the exact volume of an irregular shaped cavity - such as pouring rice or sand into the gap and then measuring the volume - but in most cases it is probably more a case of estimating the volume of the gap and then allowing a little extra.

Areas that are to be filled with resin (for example the gap between two live-edge planks on a river table) should be measured approximately in length, width and depth to find the cuboid volume, as follows:

$$Length_{(in\ metres)} \times Width_{(in\ metres)} \times Depth_{(in\ millimetres)}$$

The resulting number will be the volume of this shape in litres: For example:

$$1{\cdot}5m_{(length)} \times 0{\cdot}15m_{(width)} \times 30mm_{(depth)} = 6{\cdot}75_{litres}$$

In simple terms, 6.75 litres of resin can be approximated as 6.75 kilograms of resin.

We would always suggest slightly overestimating the amount of resin you think you will need as it is likely that the wood will absorb some of the resin and it's always better to have mixed too much rather than too little - especially when colouring the resin, to ensure a consistent colour.

Avoiding Overheating / Exotherm

The GlassCast range of resins, in common with all epoxies, generate heat as part of the curing process. In order to ensure that the resin does not overheat during mixing and curing, it is essential to make sure you stay within strict limits of ambient temperature, time-in-pot and pour depth, as well as avoiding localised overheating from direct sunlight, nearby radiators or heat guns/hair dryers. Failure to do so could result in damaged resin, or in extreme cases, resin smoking or igniting.

The recommended working temperature for GlassCast is 18-20°C. When working in higher ambient temperatures, pay attention to the reduced pot-life and maximum pour depth, as shown below.

Ambient Temperature	15°C (minimum)	20°C (recommended)	25°C (maximum)
Maximum Time in Pot (Pot- Life)	**80mins**	**60mins**	**40mins**
Maximum Pour Depth Into a thin-walled mould (silicone/plastic)	**50mm**	**40mm**	**30mm**
Maximum Pour Depth Into wood or an insulating mould	**25mm**	**25mm**	**18mm**
Initial Cure Time	**96hrs**	**72hrs**	**48hrs**

Ambient Temperature

Epoxy resins are highly sensitive to ambient temperature (room temperature) throughout their cure. For best results, we recommend working in a consistent room temperature of 18-20°C. GlassCast can be used in temperatures from 15 to 25°C but higher temperatures will reduce the pot-life and the maximum pour-depth of the resin significantly. Never work in ambient temperatures exceeding 25°C, or exceed the maximum pour depth for a given ambient temperature (as shown in the table above) otherwise the resin could dangerously overheat, especially on larger pours.

Maximum Time in Pot (Pot-Life)

As soon as the resin and hardener are mixed together, the curing reaction begins. Due to the volume of resin all in one place, mixed resin in the pot will begin to gradually warm up. The amount of time that mixed resin can stay in the mixing pot before it overheats is known as its pot-life. Once you've mixed your resin, make sure you use it within the pot-life stated for your ambient temperature (see table above). Once you're done, if you have more than the maximum pour depth of leftover resin in the pot, place the pot outside - just in case it starts to overheat.

Maximum Pour Depth

The thicker the pour, the more the heat builds up as the resin cures and so it is important to stay within the maximum pour depth for the ambient temperature you're working in. Care needs to be taken when pouring into or around insulating materials such as wood or foams as they will retain heat and will reduce the maximum depth that can be safely poured at a given temperature. Never exceed the maximum pour depth listed for the temperature you're working in; doing so will almost certainly result in potentially dangerous overheating of the resin.

Localised Heat Sources

Whilst close attention should be paid to the ambient (room) temperature, it is also important to avoid any localised heat sources which can also cause an exotherm. Examples of localised heat sources include:

- A hot radiator at one end of a cooler room
  If the resin project is positioned above or near the radiator it could start to exotherm, even though the room temperature is within the recommended limits.

- Direct sunlight from a window
  Sun shining through a window onto your resin project or surrounding area can cause significant hot-spots which can easily cause the resin to exotherm, even in a relatively cool room.

- Heat-guns or hair dryers
  If using a heat-gun or hair-dryer as part of your resin project, do so sparingly to avoid warming up the resin significantly. Excessive use of a heat-gun or hair dryer can easily accelerate the cure and cause the resin to exotherm.

Step-by-Step Guide

The most important advice...

When preparing for and undertaking the resin pour itself, the key to success is following these essential requirements:

- Don't start with cold materials
  Your workshop, wood and unmixed resin containers should all be at 20°C before you start (if your resin is delivered cold it can take several hours for the resin to reach room temperature).

- Maintain temperature during cure
  The temperature of 20°C must be maintained throughout the curing time of the resin (at least 48hours). You should not allow the workshop to become cold overnight.

- Work in a dust-free environment
  Your working environment should be clean, clear and level and as dust free as possible.

- Test your barriers and prepare clamping in advance
  Test your resin barriers with water to ensure they don't leak. Think about how you will clamp the planks down before you pour the resin and test the process.

- Measure accurately and mix thoroughly
  When measuring out the resin and hardener make sure you understand the difference between parts-by-weight and parts-by-volume. Use the correct mix ratio for your chosen measurement method. Measure as accurately as possible, and never for example 'add extra hardener'. Mix the resin thoroughly and always use the 'double potting' method.

- Pour the resin in two stages
  Wood breathes, which can cause air bubbles in the resin. Use an initial shallow layer of GlassCast® 50 to seal the wood (including the underside) before the main pour.

By following these simple steps you will avoid many common problems associated with working with resin and wood. Preparation and a controlled environment will minimise problems and produce better results.

1. Prepare the Wood

If you're following the conventional river table format, start with your live-edge board already cut down the middle and with the ends squared off so they will form an accurate rectangle.

Although you probably love the appearance of the bark on the live edge of your timber, it's advisable to completely remove this bark and sand the edge of the timber back to the good wood. This will allow the resin to bond to the solid material and result in a much more sturdy finished piece.
Use a chisel or other scraper to remove the bark.

Then use some 80 grit abrasive paper to rub back any loose material left on the de-barked edge to ensure the edge is left as smooth as possible ready for the next stage.
Make sure you clean any dust and dirt from the wood using a cloth or vacuum cleaner.

Decide on table-top

You will need to decide on which side of the wood you want to be your finished table top and for the next step you need to work on the underside only.

2. Stabilising the Underside

It's quite likely that your piece of wood will have gaps, cracks, knotholes and possibly even some rot on one or both sides of the planks. Any of these can be filled on the top side of the wood when the main pour is made but any areas such as these on what will be the underside of the table will need to be filled with resin with the planks turned upside down.

Use tape to prevent resin running out

Use some plastic tape to create a temporary barrier that will prevent resin from running out of any cracks like this.
In the project we used Flash/Release Tape.

Mix a small batch of resin

Mix a small batch of GlassCast® 50 resin with the correct amount of hardener.

*If you prefer to measure out the resin **by volume** then the correct mix ratio is:*

2 parts resin to 1 part hardener

*If measuring **by weight** the mix ratio is:*

100 parts resin to 45 parts hardener

Best practise

When mixing GlassCast® 50 it is best practise to measure and mix in one cup and then to pour the mixed resin into a second cup and mix again. This will ensure that no unmixed resin is accidentally transferred from the mixing cup into your project.

Pour the resin into cracks and knots

Carefully pour some of the mixed resin into any cracks, splits or knotholes in the wood. You may be surprised by how much resin this will use. The aim is to completely fill all cavities on the underside of the planks. Mix up more resin if you find you do not have enough. The aim is to leave the resin slightly proud of the surrounding area so that it can be sanded flush once cured. You may find after a few hours that the resin you poured may have soaked into the knotholes and cavities and needs topping up. If this is the case, make up another small batch of resin and top-up as required.

Allow resin to cure then sand flat

In an ambient temperature of 20°C, GlassCast® 50 takes around 48 hours to reach initial cure. Make sure the resin is properly hard with no tack whatsoever before attempting to sand it.

Use a sander (orbital or dual-action) with a coarse abrasive (around 80 grit) to remove any high-spots from the resin and leave all areas of the resin with a keyed surface.

3. Set up the Resin Barrier

Because most river table designs feature unsupported areas of resin (which it's possible to look straight through) these areas of resin need supporting and containing somehow whilst the resin cures. The material we use to contain the resin is referred to as baseboard barriers and side barriers.

It's very important that the barriers are totally sealed, otherwise the resin could leak out and spoil the project (not to mention waste resin). We strongly recommend choosing a barrier material that the Glasscast® 50 will not stick to and which will leave a smooth finish on the cured resin - we use polypropylene plastic sheet in the project.

Plastic base sheet

We suggest starting with a flat sheet of chipboard or MDF as a base to work on. The sheet should be just slightly larger than your table to allow clamps to reach around it when clamping down the planks.

Polyproplyene plastic sheet can be purchased from plastic stockholders (including online suppliers) and is ideal (and inexpensive) as a barrier material.

Cut the plastic base sheet about 8cm larger than your finished table size to allow space for barriers (and battens) around the edge.

Can't get polypropylene sheet?

If polypropylene sheet is not available then brown polypropylene packing tape (parcel tape) can be stuck to just about any material to give it a non-stick coating, however this will leave 'lines' on the finished plastic and will need to be polished out.

Other alternatives include applying a release agent such as Meguir's #8 mould release wax or Easy-Lease chemical relese agent to non-porous materials (such as aluminium, Foamex, fluted sign-board etc.) or pulling a layer of thin release film tight over any type of board. Test alternative barrier materials with resin before using in the project.

Side barriers

Cut strips of the polypropylene plastic to use as side barriers. The barriers should be just slightly deeper than the wood to allow the barrier box to fully contain the resin when it is poured to completely fill the gap.

Position your wood planks on the base sheet and measure their position to ensure they are correctly alligned. Clamps or weights could be used to ensure the planks do not move whilst you position the side barriers. Then using the planks as a guide, use a hot-melt glue gun to temporarily fix and seal the barriers in position snugly against the edge of the planks.

Support the side barriers

When the project is filled with resin there will be quite a weight of resin pushing on the barriers so use some timber strips to reinforce and support the plastic barriers. These can be glued, screwed or double-sided taped into position.

Once you have built and positioned your resin barriers it is a good idea to test them with water to make sure they are watertight. If they hold water they will hold resin. If you do test your barriers with water, make sure you drain and dry thoroughly before continuing.

Planning the clamping

Hopefully your planks will be pretty flat but some light clamping will always be necessary to hold them down and keep them flat during the resin pour. Before proceeding, work out how you will clamp the planks into position and have any equipment to hand.

In our example, we used some wooden batons to span the planks with bar clamps to clamp the whole assembly down to the workbench.

Important! - Once you're happy with this set-up remove the clamps and the wood from the barrier container ready for the next step.

4. Pour Resin Base Layer & Apply Sealing Coat

What is the purpose of the sealing layer/coat?

Pouring a separate base/sealing layer before doing the main pour is one of the most important pieces of advice in this guide and is designed to minimise the risk of air bubbles (small or large) emerging from underneath the wood or from inside the wood itself during the time when the main resin pour is curing.

With this first layer the intention is to seal all the faces of the wood that will be in contact with the poured resin and also to completely seal the underside of the wood down onto the baseboard so that no air trapped underneath the wood can escape during the cure.

Tinting, colouring and altering

Whether you choose to tint the resin for your river table is a matter of personal taste. If you do choose to tint the resin then, because you will be pouring the resin in two sessions (if the depth is greater than 25mm) you should tint all your resin at the same time to give a consistent colour.

Which tints to use

For tinting GlassCast® 50 we recommend using Translucent Resin Tinting Pigments from Easy Composites. These special tints are available in a wide range of colours and are fully compatible with the Glasscast® range of clear epoxies. They are also known to produce consistent and predictable results. Only a few drops of these pigments are required to create a subtle tint whilst more vivid colours can be achieved by using more pigment.

How to tint

If you are using one of the Translucent Tinting Pigments from Easy Composites then it is best practise to pour the full amount of resin required to complete the project into a

mixing bucket and then add a few drops of pigment at a time, stirring thoroughy to disperse the tint and repeating until the colour required is achieved. When you're happy, store the tinted resin ready to use later.

Alternatives to translucent tints

With thorough testing first in a small amount of resin to ensure compatibility, it may be possible to use alternative pigments and powders like glitters, mica powder and powder pigments to achieve different results. You must conduct your own tests in advance.

How much resin for the base layer?

When working out how much resin you will need for the base layer and sealing coat (i.e. the first batch of resin) you should simply measure the total area inside your barriers and then allow 2 kilograms (or 2 litres) per square metre.

$$1{\cdot}5m_{(length)} \times 0{\cdot}7m_{(width)} = 1{\cdot}05_{(sqm)} \times 2_{(kg/sqm)} = 2{\cdot}10kg$$

Since the exact quantity you need for this first pour is not critical you can simply round this to an easy number - in the above example we would round down to 2kg.

Measuring and mixing the resin

As before, measure out the GlassCast® 50 resin (tinted if required) and hardener as accuratley as possible in their correct ratios. If you mix 2 litres (2kg) of resin, as in the above example, this would mean:

$$By\ Volume: 1{\cdot}333_{(litres\ of\ resin)}\ and\ 0{\cdot}666_{(litres\ of\ hardener)}$$

$$By\ Weight: 1{\cdot}379_{(kilograms\ of\ resin)}\ and\ 0{\cdot}621_{(kilograms\ of\ hardener)}$$

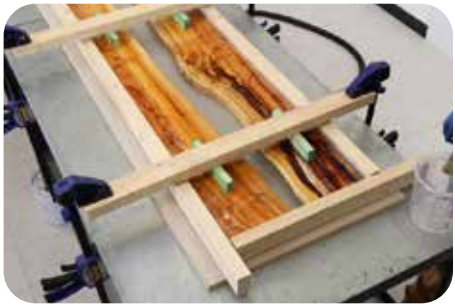
After mixing the resin in the first mixing bucket, transfer the mixture in to a second bucket and mix again to ensure a complete mix - this is known as 'double potting'.
Best practise for mixing resin is to always mix for approximately 3 minutes, making sure that you scrape the sides and bottom of the container before transfering to a clean container and mix again.

Pour the Resin and Position the Wood

Pour the resin directly onto the baseboard inside the barrier container, it should fill the total area to a thickness of around 2mm. Now place the two wooden table planks into the resin (the correct way up) and position them into the correct finish position.

Coat remaining 'resin contact' surfaces

Using a clean brush, paint resin onto the waney edge of the wood. If you plan to pour resin over the top of the table you should paint a coat on the whole top surface at this stage, making sure no areas are missed.



Use clamps to hold wood in position

Use the clamps prepared earlier to hold the wood down firmly against the baseboard whilst the resin base layer cures. In the project we covered the small wood blocks with flash/release tape so it would not stick to the resin.

Allow cure to reach 'B-stage'

This first layer of resin should be allowed to partially cure to what is known as the 'B-stage'. This means that the resin has started to become firm but still has a tackiness to the surface. To tell if the resin is at the B-stage you should be able to touch the surface (with your gloved finger) and make a mark on the surface but no resin should stick to your finger. By only allowing the resin to reach the B-stage of it's cure means that if new resin is added in contact with the partially cured resin, the two layers of resin will be able to chemically bond with each other as if they had been poured in one go.

Don't allow the first layer to cure past the B-stage!

It's very important that you don't allow the first resin pour to cure past the B-stage.

If the first resin layer is allowed to cure past the B-stage to the point that it feels hard and there is no remaining tack left then any subsequent pours will not be able to cross-link (chemically bond) and therefore the base layer would need to be keyed all over with coarse abrasive paper in order for the next pour to bond to it mechanically.

5. The Main Resin Pour - (Layer 1)

IMPORTANT:
Maximum casting thickness into wood is 25mm per pour!

When epoxy resins cure they give off heat (i.e. what is known as an exothermic reaction). The heat they give off can cause them to cure faster, which can in turn cause them to give off more heat and create a cycle that is known as an exotherm. To avoid this problem, different resins are designed to be more or less reactive depending on the thickness that they are intended to be used for.

Glasscast® 50 has been formulated to allow up to 50mm castings in a single pour, however; when casting into highly insulating materials like wood, this maximum thickness should be reduced to 25mm. Attempting to cast at a depth of more than 25mm into wood in a single pour can lead to the resin discolouring, distorting or both. Therefore, if your project calls for a casting thickness of more than 25mm then you will need to split the main pour into two (or more layers if casting deeper) stages, allowing the previous layer to reach the B-stage before pouring the next layer.

When pouring in multiple stages, the best procedure is to allow the previous layer to cure to it's B-stage (where it's firm but still tacky) and then immediately pour the next layer on top of the partially cured layer underneath.

In the following instructions we will follow the procedure for a main pour done in two layers (excluding the base layer).

Wait until sealing/base coat is at the B-stage

Once the sealing/base coat of the resin has cured to the B-stage it is important to continue straight away with the first stage of the main pour, otherwise the two layers will not bond properly to each other (see preceding notes on the B-stage).

Mix resin in multiple smaller batches

Remember that in total, for this project we are only casting a maximum depth of 25mm per layer - so in the first stage we will only be mixing and pouring half of the remaining resin.

When you do the main pours, it's likely that you will need to be mixing quite large quantities of resin (anywhere between 5 and 15+kg for a typical table). This means that mixing in multiple smaller batches is highly recommended.

As well as making thorough mixing more practical, mixing in multiple smaller batches has some other advantages too:

- Each batch can be individually attended to with a heat gun/ hair dryer to gently remove any trapped air meaning that you are only ever working on a depth of 25mm in this case.
- You can avoid waste by only mixing as much resin as you need. Once you have nearly filled the cavity you can adjust the size of your final mix accordingly, avoiding being left with mixed resin that you don't need.

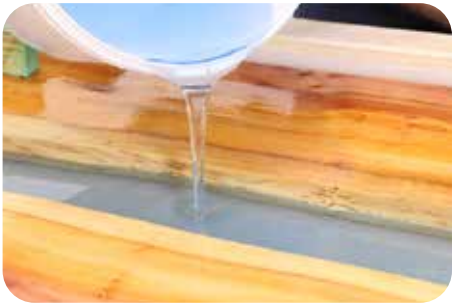
Measure > Mix > Pour > Heat-Gun > Repeat

Measuring the resin

If measuring by volume, simply measure out twice the volume of resin as hardener into your first mixing bucket, choosing an amount that you can comfortably mix in one go. A maximum of about 3 litres is recommended meaning you would measure 2 litres of GlassCast® 50 resin and 1 litre of it's hardener.

Double-potting

Mix thoroughly in a clean mixing bucket and then transfer to a second clean bucket and mix again (double -potting).



Pouring

Pour the mixed resin gently onto the sealing coat at the bottom of your river.
The special formula of GlassCast® 50 does mean that actually these bubbles will always clear themselves without requiring intervention however - for a project like a river table where a single bubble would be unsightly - it's worth making sure!

Air bubbles

Allow the resin to self-level and then gently go over the surface using a hair dryer or a heat-gun (on a low setting) to help to pop any air bubbles that form near the surface of the resin.

Repeat the batch mixing process until the resin half fills your river or is at a maximum of 25mm depth.

Allow to cure to the B-stage

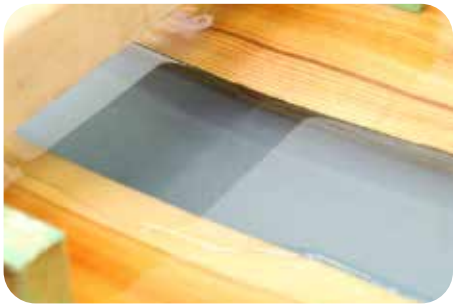
The first stage of the main pour should now be allowed to cure to the B-stage (where it is firm but still tacky) which will take between 12 and 24 hours depending on the ambient temperature and the size and depth of the river. Once the resin has cured to this point you should continue to pour the second stage of the main pour.

6. The Main Resin Pour - (Layer 2)

Having allowed the first layer to cure to it's B-stage, follow the exact same procedure used for the first layer of the main pour to complete the second layer.

Filling the river

By mixing in smaller multiple batches you can adjust the size of the last batch so that you can mix up just enough resin to fill the river, thus avoiding any waste.
If possible, aim to fill your river just slightly proud of the surrounding wood. This will make it easier when you come to flat and polish the surface.



Leave to cure fully

Once you have filled the cavity completely with resin, allow the Glasscast® 50 to cure fully. This will take at least 48hrs at 20°C but will vary depending on the shape and size of the casting, as well as other factors.

Removing the barriers

Once you are sure the resin is fully cured, the barriers can be removed from all around. Providing suitable material has been used as barriers, they should only take light pressure to remove from the project.

7. Finishing the Surface

There are a number of ways that you can finish the surface of your river table, depending on the equipment you have available and the appearance you want the piece to have.

A deep glossy resin finish across the whole surface of your table can easily be achieved by pouring a layer of GlassCast® 3 Surface Coating Resin over the whole project. If you prefer a natural finish to the wood (i.e. no resin coating) then you will generally need to sand the whole surface of the table flat and then polish the resin back up to a gloss.

See the instructions below for examples of how both of these finishes can be achieved:

OPTION #1: Giving the table a glossy finish using GlassCast® 3

The easiest way to finish the surface of your river table is to pour a layer of the special formulated GlassCast® 3 Surface Coating Resin over the whole surface of the table. This clear, self-levelling epoxy has been designed to work perfectly with the GlassCast® 50 casting resin and once cured will leave a perfectly smooth, deep, glossy finish on your piece. Even better; it takes almost no work to do!

Preparing the Surface

If you will be using a layer of GlassCast® 3 to finish the surface of your table then very little preparation is needed. You don't even need the surface to be particularly flat or smooth, although having a relatively flat surface (without too many high spots) will reduce the amount of resin needed to create a flat surface.

If you do have any high spots, remove them first with a sanding block or sanding machine.
Then to prepare your table ready for a GlassCast® 3 surface, simply use a coarse abrasive paper over the whole surface of the table, including the resin river and the wood. If you poured the resin river so that it was not as high as the surrounding wood, be sure to 'key' the surface of the resin river (even if this means sanding it by hand) to ensure the GlassCast® 3 has something to adhere to. Don't worry about the resin looking very scuffed, this will disappear completely once the GlassCast® 3 is poured over.

Pouring the GlassCast® 3 Surface

You should aim for a coating thickness of about 2mm for the GlassCast® 3 surface. This is a sufficient depth for the GlassCast® 3 to self-level properly. This means you will need 2kg of GlassCast® 3 per square metre of surface to be covered.

Example calculation for a table surface measuring 1.5m x 0.7m

1·5m (length) x 0·7m (width) x 2mm (depth) = 2·1kg

Follow the usual instructions for mixing and pouring GlassCast® 3. Remember, the mix ratio for GlassCast® 3 is 2:1 by weight not volume!

Once poured, cover the table to keep any dust and dirt off whilst the resin fully cures (24 - 48 hours). The surface should be perfectly glossy and flat and need no further finishing.

OPTION #2: Sanding the surface for a natural wood finish

If you prefer the wood parts of your table to have a natural finish, contrasting against the glossy high-shine resin parts then you will need to sand or machine the whole surface of the table and then polish the resin up to a full gloss.

Ways to Make the Surface Flat

Ensuring that the surface of your table is perfecty flat will make the difference between a good looking piece of furniture and a great looking piece of furniture. There are a number of ways to make the surface flat, depending on the equipment that you have available.
If you have access to industrial equipment like a thicknesser or drum sander then these tools will make very light work of flatting the surface (and the reverse or underside) of your table if you choose.

Routing the surface

If you don't have access to industrial equipment like this (which most people don't) then you could use a power sander to just flatten the surface of your table by eye. This is the simplest method in terms of equipment but will need skill and patience to achieve a really flat finish, especially if the surface is not particularly flat to begin with.

An alternative method is to set up a bridge over your table and use multiple passes of a router to make the table flat. because the bridge holds the router's cutter at exactly the same height, you can work your way down the table making a perfectly consistent thickness. This can be done on just the top surface or both the top and underside if you choose (which would remove the resin finish from the underside of the table).

Sanding the wood and resin to a smooth finish

Once the surface of your table is flat, you will need to use a hand-held sander (orbital or dual action) to sand and smooth the surface of the wood and resin. Start with the most coarse grit abrasive and work up to the finer papers through the grits. We would suggest the following grits - 120, 240, 400, 800 and finishing on 1200.

Although the surface of the wood will quickly become very smooth, it is really important to take time on the resin to make sure that all scratches from the previous grit have been completely removed by the current grit before progressing on to the next one. If you don't do this, you will find that when you polish the resin at the end of the process, you will see shiny scratches left by earlier grits in the sanding process.

8. Cutting and Bonding the Mitred Sides

You can of course choose any design and construction for the legs on your table. Some projects will choose a more conventional metal frame and legs and others something more original altogether. In our example piece we have chosen to cut the river table slab and mitre it to make the river flow over the sides like a waterfall in one continuous piece. If you would like to follow our example, this section includes details on how we cut and bonded the mitred sides.
It is suggested that you complete the flatting of the table process before cutting and bonding the mitred sides, but to leave the final polishing stage until the sides have been bonded into place.

Cutting and mitring the sides

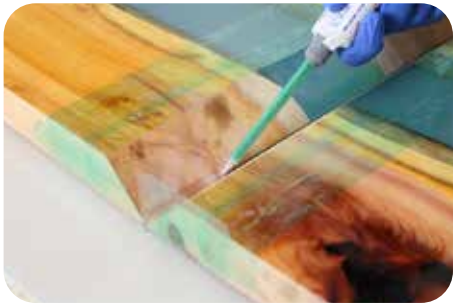
To create our 90° mitred joints we cut straight across our table using a 45° blade angle. The section that is cut off is then turned around and put through the saw again using another 45° angled cut so that the two cut edges will come together in a 90° joint.

Bonding with Clear Adhesive

In order to bring our mitred sections together and securely fix the sides to the top of the table, a high strength clear epoxy adhesive is used. The clear epoxy will provide an excellent bond to the wood and cured resin whilst at the same time maintaining the transparency of the resin at the join. The adhesive we recommend is the Permabond ET500 but be aware that this adhesive cures within about 5 minutes and so you will need to work quickly after applying the adhesive to make sure the joints are in position before it cures.

Step 1. Use tape to set up the join

To hold the mitre joint properly in position, a strip of flash/release tape can be applied to the outside of the joint to form a sort of hinge. The tape will also prevent excess resin from being squeezed out of the joint. Additional tape can also be used on the inside of the joints to prevent excess adhesive from sticking to surrounding areas.



Step 2. Use clear epoxy adhesive to bond the joint

In order to completely fill the mitre and ensure a transparent and bubble-free bond you should apply the adhesive only to the outside of the join; this will allow the adhesive to be squeezed gradually from the outside to the inside as the joint is closed up. It is also important to ensure that you use plenty of adhesive. If there is not enough adhesive to completely fill the joint then the seamless transparent join will not be achieved.

Step 3. Clamp the sides in place whilst the adhesive cures

Working quickly, before the adhesive sets, use clamps and blocks to hold the sides at the correct 90° angle and leave the adhesive to fully cure (at least 1 hr).

9. Sealing and Finishing the Wood

Without anything to seal and protect the wood it can be vulnerable to staining and moisture absorption and therefore it is recommended to seal the wood using some sort of wax, oil or other wood finish.

Your choice of wood finish is a matter of personal taste as different products will provide different levels of protection and varying finished appearances. It is also important to seal and finish the wood before we do the final polish of the GlassCast® river. By sealing the wood first it helps avoid the wood being marked by the polishing process; we used a clear Danish Oil.

10. Polishing the Resin

Glasscast® 50 is designed to be highly polishable, however the resin is very tough and requires a high quality polishing compound and a power polisher in order to finish it to a high gloss.

When polishing GlassCast® 50 it is extremely important that all sanding and flatting with the sander and abrasive papers has been done properly. If you find that when you start polishing the resin you can see swirls or scratches emerging in the surface of the resin, this indicates that the sanding and flatting has not been done correctly and the sanding process will need to be repeated.

When polishing GlassCast® 50 we suggest starting from at least a 1200 grit abrasive paper finish. We recommend Pai Cristal NW1 polishing compound to polish the GlassCast® 50 because it is a fast-cutting compound designed specifically for hard-wearing plastics like epoxy resin. Additionally, NW1 uses a special low-drag formula which reduces heat build-up whilst polishing. Nonetheless, if you do start to feel heat building up in the resin when polishing you should stop or move on to another area.

Liberally apply your chosen polishing compound to the satin finished resin and then use a power polisher with a medium to hard polishing pad to polish the surface. Keep topping up the NW1 as needed until it reaches full gloss.