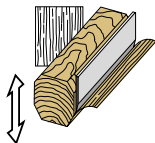


GUIDE MARIEN-FINASPAN
by imperfection of the tree, artistry starts

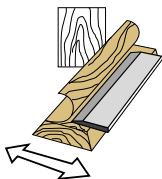
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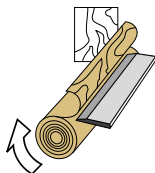
About slicing techniques



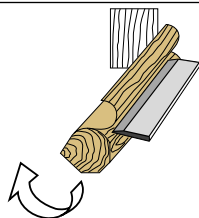
■ **Quarter Cut | Q** : The log is cut in four quarters. The knife runs through the growth rings. The pattern is mainly straight grained.



■ **Crown Cut | Cr** : The log is opened in two half rounds. The knife runs along a tangent to the growth rings. The pattern is that of rounded shape (also called 'flame-shaped arches' or 'cathedrals').



■ **Rotary Cut | R** : The full log is mounted on a lathe and turns around its axis against the knife. This method follows the growth rings. The pattern is that of a coarse round shape and is not of big interest. In some cases however it can help to emphasize a particular character of the wood (pommelés, bird eyes, and so on).



■ **Rift | Ri** : This is a combination of the 3 previous techniques : the log is cut in quarters and these are mounted on a lathe of 'stay log' type. 'stay log'. The cutting angle (15°) is set in order to produce a straight grain with a minimum of flake. This technique is mainly applied to the Oak.

About jointing patterns

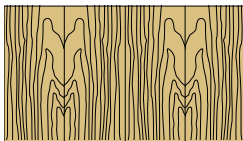
Burls and Curls : B and C

Burls and Curls are very often taken One for the other. Burls are excrescences appearing on the side of the tree carrying many little branches. The result is a wild pattern combined with a lot of pin knots close to each other. According to individual case, burls are peeled or sliced but are always producing veneers of small sizes and are very fragile.

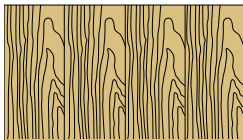
Curls are structures which are produced by the split of a tree at the level of the first big branches or at the bottom of the tree close to the big roots. Curls are generally flat siced.

Veneer is jointed by means of a glue-covered thread (zig-zag) or by gluing the edges. Depending on how the veneers are jointed, the appearance will differ greatly.

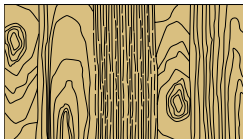
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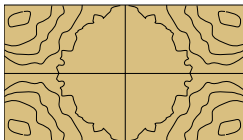
Slipmatched



Random matched



End matched



A couple of questions





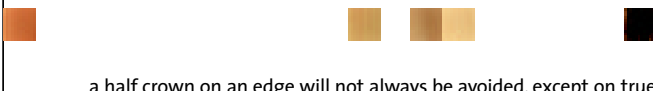
■ **Flake** : Is flake a defect ?

This question is a matter of endless discussion but before answering, we have to explain to you what flake is exactly. And first of all, what it is not : a veneer defect; and secondly what it really is : a perfectly natural occurrence.

In each tree we find very thin cells whose function is to redistribute the nutritive materials from the cambium (sapwood) to the heart. In hardwood species, these are called 'medullary rays'. By most species these rays are so thin as to be invisible. In some cases however, they show up clearly and are called 'flake'. For example *Oak*, but also *Lacewood*, *Louro Faia* and, to a lesser degree, *Beech* and even *Maple* show us a well pronounced flake. These rays cross the growth rings with a 90° angle and because of the cut angle it is in quarter cut veneer that flake is shown to us with all its brightness.

Composed of hard and dense cells, flake is as fragile as crystal and doesn't react to stains and lacquers as does the rest of the veneer; for this it is unfairly criticised by those who wish to stain or lime *Oak* or, more simply, to speed up a lacquer finish.

For centuries however, *Oak* flake was appreciated and even sought as it was the distinctive sign of a valuable wood; those who couldn't afford to pay for it would even copy it by painting on cheaper wood... Even if times are changing and, with them, our perception of things, *Oak* does not change ! It should therefore never be forgotten that flake forms an integral part of quarter cut oak veneer; only a very small proportion ($\pm 2\%$) of veneers produced from a log can claim for appellation 'straight grain without flake' and even then, the start of



a half crown on an edge will not always be avoided, except on true Rift production on a Stay Log machine, but in such case, the grain will never be perfectly straight : it will always deviate slightly to the end. As these veneers are very rare, they are automatically most of the time very expensive... Those who are looking for straight grain, narrow and without flake will find an advantageous alternative in *Quarter Cut Larch* or *Oregon Pine*.

Strangely, the market doesn't build up the same presumption against flake in *Lacewood* or *Louro Faia* : the larger the flake, the more these two species will be appreciated but, once more, this is not the most common occurrence.

■ **Half-crowns and false-quarters** : We have seen above how veneer was sliced in crowns and quarters; in practice however, things are not so obvious : when you slice half a log indeed, there is a moment where the knife is reaching the core of the log; as this part is unusable, the flitches will have to be opened in a first step, then, in a second one, the log itself.

The result ? a substantial proportion of veneer in half-crown and false-quarter ($\pm 30\%$). It is therefore unreasonable to expect large quantities of boards in full crowns only (neither in full quarters too) in species where the market is not very large; on the other hand, when you fade from the crowns to the quarters, you will also come across half-crowns which will have to be classified somewhere; except by particular agreement, half-crowns are classified among Crowns.



■ **Steaming** : Steaming has the objective to make the wood softer in order to make the slicing operation easier. But it also modifies its colour; the art consists in trying to achieve the most uniform colour, regardless of the production or the origin of the batch. Steaming however is not an exact science and many factors come into play. Therefore you must expect some variation from one log to another. On the other hand it is important to note that, if some species are mostly steamed for slicing, they are not necessarily steamed for sawing; colour variations between solid wood and veneer should therefore not always be completely excluded.

■ **American White Oak versus European Oak :** **Which one to choose ?**

Under market pressure (mainly prices) European Oak has been more and more replaced by North American Oak and has today finished with a sometimes damaged reputation : is it justified ? We don't think so. Of course, American Oak is generally lighter in colour when it is freshly sliced, but, if European Oak is sometimes darker indeed, it is above all a question of drying; with appropriate drying, it is perfectly possible to produce European Oak veneer of a fairly light colour. Actually it is more a matter of shades : American Oak is moving in the grey shades when European Oak is moving in the brown shades. With time, European Oak will actually take a much warmer sheen which explains why it has the favour of parquet flooring producers. In conclusion, don't throw the anathema on one Oak or the other according its origin; simply learn to appreciate good things and make your choice in function of objective considerations.

About grading





The diversity of veneers that nature provides us with is huge, as are the tastes and perceptions of human beings. It is therefore not possible to produce a single quality that will satisfy the entire market. We grade each specie into 4 or 5 standard qualities that already offer a great range of possibilities. It is also possible to obtain specially graded veneers, but only to order.

■ **A sequential** : in principle, the veneers are jointed from top quality crowns; a repeated (but evolving) pattern is found over a series of panels, which are numbered. Recommended for high class fittings.

■ **A** : the pattern is well structured and balanced. This grade includes some sequences, but not necessarily. A few small, pin knots or sound knots may be included, on condition that they are not visible at first glance. An oblique flake is tolerated in the case of straight-grain oak.

■ **Standard** : This particular grade is only available in those species having a large number of natural features such as oak, for example. This veneer is close to 'A', but distinguishes itself by the presence of one or other particular features : a slightly darker colour, one or two rows of pin knots or sound knots, slightly more pronounced veins, or a more marked flake, etc. The general structure, however, remains attractive and will fully satisfy wood lovers who find in these the mark of a natural product.



■ **Special** : The best value for money. Veneers of character, combining wild crowns, half crowns or false quarters in a random mixture, large variations in colour, healthy knots or large flake, but no open shelling. No mismatched sheets are used however. Suitable for use in all applications requiring well figured woods.

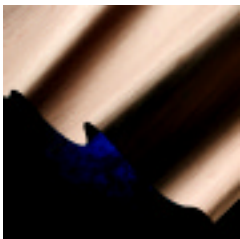
■ **B** : Balancing veneer of the same specie. High tolerance on natural defects, including sapwood in acceptable proportions, but no open defects. Approximately 30 to 40% of mismatched leaves.

■ **C** : Cheap balancing veneer, accepting any natural defect as well as significant discoloration, substantial traces of sapwood, open knots, but filled. No major open defects allowed however.

Bending an Oak, is it possible ?

Yes indeed, what even H.G. Wells wouldn't have dreamed about, is now possible with Masterflex®. Thanks to a special process that breaks down the cohesion between the fibres, the wood loses all stiffness and can then be made to follow any curved shape you wish. But it can do much more than this : it can be handled without risk of tearing, it can be cut easily and glued using a simple contact adhesive.

Ideal for application to curved surface, for all delicate works, for all repair or renovation jobs, this product is highly popular and has seen sales grow exponentially over the past few years. It is available from stock in a choice of over 20 species, given in the following paragraph.



master FLEX

Careful with the finish !

Before moving on to finishing, it could be worth looking more closely at the veneer.

First of all, never lose sight of the fact that veneer is not solid wood; it is barely a few tenths of mm thick and has had to be jointed one way or another and bonded to its substrates. This means that on the other side of this thin layer of wood you will find either glue or zig-zag, or both and you will have to avoid the finishing products crossing this layer and coming into contact with the adhesives.

We are going to look at a few of the more commonly occurring situations and the measures to be taken in case of problems.





Reception of panels.

■ **Question** : *Upon receiving your panels, you notice that zig-zag is visible along the length of the joint. Should it be used nonetheless ?*

■ **Answer** : that depends.

1. If the zig-zag is only visible by reflection, under indirect lighting, then there is no problem. It is due simply to insufficient sanding. Lightly sanding before finishing will resolve the problem.
2. If the zig-zag is visible as a dark mark, don't do anything more to the panel as it has probably been over sanded. Check the thickness, but also make sure that it is the supplier's sanding that is at fault and not your own...
3. Finally, if the zig-zag shows up as a light mark against a darker background, it may only be the result of insufficient sanding : a slight surface oxidation except at the zig-zag will be quickly corrected with a little additional sanding. It could, however, also be due to a chemical reaction between the veneer and the various steams given off by the panel during pressing and cooling, but which only become fully visible after a few days. American cherry is particularly sensitive to this type of phenomenon. Unfortunately additional sanding will not resolve the problem; in such case you are better not to use the board and ask your supplier to use a thinner thread or a edge glued joint.

■ **Question** : *Upon receiving your panels, you notice that the faces are showing small open joints. Is this acceptable ?*

■ **Answer** : in theory no. However minor incidents are sometimes inevitable during the production of large panels, particularly at the beginning of the run, and if these small defects can be neatly hidden or if you can use 80% or so of the panel, do so ! That will be your contribution to a rational use of forest resources.

■ **Question** : *Upon reception, you notice that glue has bled through to the surface. Is it acceptable ?*

■ **Answer** : of course not. However, if the glue percolation is small, additional sanding will solve the problem. Where a large amount of glue has bled through to the surface, it must be scratched off before sanding. Obviously, you are not supposed to do this yourself, but if time is short and you are ready to make the effort, you can do so without fear, unless you intend to stain the panel, especially using a water stain, in which case it is better to replace it.




Storage of panels.

Whether you are a distributor or a user, sooner or later you will be required to store decorative veneered panels : protect them well ! These panels do not always stand up well to a long period of storage, as the veneers are sensitive to light, moisture and dust. A simple cardboard covering will therefore only protect your boards during transport or during 2/3 weeks in storage. If some of your panels are likely to remain in storage for a period of months, it is important that you protect them with a covering panel, preferably rigid, or at the very least applied over the entire surface and held in place with a certain amount of pressure to prevent damp air or dust from spoiling the veneer.

You wish to apply a clear or coloured varnish finish.

You are a wise person. The advantage of lacquer, if it is properly applied, is that it remains on the surface and will therefore cause you fewer surprises. Nevertheless, some problems can occur.

- **Problem** : *After applying the final coat, the differences in colour between the strips of veneer are further emphasised causing an unattractive dark and light effect.*
- **Answer** : During the slicing operation, the pores of the wood are cut on an oblique angle and reflect light differently according to the angle of incidence. A lighter coloured strip will appear darker if looked from the other side of the panel and vice versa. A clear lacquer will only make this phenomenon more obvious; this is particularly visible on quarter cut veneers. If this light and dark effect disturbs you, ask for a slip matched or a random matched veneer. The differences of colour will remain but the repetitive effect will be lost.

- 
- **Problem** : *Small grey spots appear after applying a pore sealer on beech or oak.*
 - **Answer** : You have possibly applied the sealer with a spray gun and your compressed air lines are not completely dry. Tiny metal particles become loose and are carried by the compressed air, mix with the lacquer and fixed to the veneer. The classic reaction with the tannin contained in certain woods causes greying to occur. If the compressor and the air lines are stored in a warm, dry place, you will have few problems; if it is not the case, it will be necessary to install a dryer on your compressed air supply.
 - **Problem** : *The pore sealer appears to have been correctly applied, but when a coloured lacquer is applied, openings, or even little white marks appear at the pores and the joints.*
 - **Answer** : Here again, you have possibly applied the sealer using a spray gun and in order to do so have diluted the base coat too much; it has not penetrated into the pores and the joints and has coated the sides instead of filling them. Later, when the finishing lacquer is applied, it gains no hold in the vicinity of the openings and disappears into them, pulling the pigments to the bottom and leaving only a thin film on the surface. As it dries, this film will retract, leaving either a hollow or a void below and thus white marks everywhere where the varnish doesn't adhere to the base coat. The solution is simple : do not over-dilute the pore sealer or apply it in two coats, taking care to sand between coats. If the harm is already done, re-sand and apply a second coat of pore sealer before applying the finishing coat.



■ **Problem** : *After applying a finishing lacquer, small cracks become visible in places after a few days.*

■ **Answer** : There are a number of possible answers.

Start by resanding the finishing coat.

If the cracks are confined to the lacquer and the wood appears intact, you have used a too hard lacquer, probably a lacquer for metal. Indeed, the wood reacts to variations in humidity. If the lacquer is too hard, it doesn't follow the movements of the wood and crazes. In this case, simply resand the finishing coat and apply a plastified coat that is more suitable for the wood. If cracks remain visible in the veneer, the bonding of the outer layer, or of the under layer (in the case of veneered multiplex) is probably deficient, causing the veneer to move and crack in those places where it is not supported.

If the cracks are only small, you can try to repair them using a PVAc adhesive and an iron, but there is a strong chance that the problem is more serious and that the defective panel will require to be replaced.

Check, however, that you have not submitted the panel to extreme conditions (full sunlight, air conditioning, close to a spotlight or other source of heat or damp, etc); the UF glue that we use is of high quality, but also has its limits.

■ **Problem** : *Small bubbles appear in places after application of a finishing coat.*

■ **Answer** : The bubbles indicate the presence of moisture during the application of the final coat, possibly with a spray gun. The water repels the lacquer and then evaporates, leaving small bubbles or craters. Resand and start again, taking care to work in a dry environment.

■ **Problem** : *Small craters appear over the entire surface after application of a finishing coat.*

■ **Answer** : The surface of your panel has been contaminated with paraffin in one way or another. Paraffin is present everywhere (cutting tools, various release agents, proximity of chemical plant, or even eating an orange...). Resand, and attempt to remove the grease from your panel or add an anti silicone agent to your lacquer.

*A few lacquers, particularly some NC lacquers, are reacting slowly with the glue thread, through the veneer. After a while a yellowish trace appears in the lacquer coating. **Ensure with your lacquer supplier that the lacquer is compatible with the glue thread !***




You wish to stain and then finish with a lacquer.

You are therefore a purist and not afraid to take risks. You must be aware that the stain will penetrate deep into the veneer. This will make the grain of the wood show out much better, but it will also come into contact with all kinds of adhesives hidden behind the 0.4/0.5 mm thick veneer, and the risk for a nasty surprise is at your door.

■ **Problem** : *White marks appear in a number of places as soon as the stain is applied.*

■ **Answer** : The stain has come into contact with the layer of glue bonding the veneer on the substrates. It is possible that this is due to bleed through of glue, but it is also possible that the veneer has been over sanded or that the stain has penetrated too deeply. If the bleed through was visible to the naked eye before staining, it would perhaps have been better not to start. If it wasn't, it is difficult, technically speaking to speak of bleed through. At most, it could be considered that the panel manufacturer had used a little too much glue (but is it not better to have too much rather than too little ?) and that it has penetrated 0.2/0.3 mm into the panels. Even if the veneer is only reduced to 0.4 mm thick after sanding, that would only leave 0.1 / 0.2 mm of material to absorb the stain and avoid it coming into contact with the layer of glue, which is too little.

There is a solution, however. Most stain producers manufacture what could be called an 'isolator'. This is a product that is applied as an under coat and which fills the bottom of the pores of the veneer in such a way as to create a uniform barrier at a depth of 0.2/0.3 mm over the entire surface. Next, the stain can be applied as a second coat : obviously, it will penetrate less



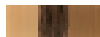
deeply and the contrasts will no doubt be less marked, but the stain will be more uniform and free of blotches.

■ **Problem** : *The zig-zag shows through along the joints after the stain is applied.*

■ **Answer** : This situation is fairly similar to the previous one. The stain has come into contact with the zig-zag thread joining two strips of veneer together. In principle, the glue of the stitching thread does not penetrate deeply into the veneer as its quantity is always calibrated and is never excessive. At most, the jointing temperature may have been a little high for the glue, making it more liquid and allowing it to penetrate 0.1/0.2 mm into the veneer. It is also possible that the veneer is a little more porous or has been sanded a little too much, or that the stain is too penetrating, or it may be due to a combination of several of these things. Be that as it may, the use of an 'isolator' as in the previous case will usually resolve this problem.

■ **Problem** : *Dark patches appear when stain is applied to a cherry veneer (particularly American cherry).*

■ **Answer** : American cherry contains many zones of cross grain-ing and where the density of the pores is greater. It is these zones that create what is known as 'mottle', and will absorb a greater deal of the stain. This phenomenon is inevitable ! You may be lucky once or twice, but sooner or later you will be faced with a problem of this type. An isolator will be of no help. Either you accept these 'blemishes' as a natural feature, which they are, or, if you do not like them, avoid using a stain and instead use a pore sealer followed by a coloured varnish, which is by no means the solution we would recommend.



■ **Problem** : *You apply a wood stain to a white beech veneer and immediately begin to curse your supplier, because the veneer begins to lift at certain joints.*

■ **Answer** : Of course, you are entitled to expect a perfectly jointed veneer ! But white beech is the most capricious of all veneers. It's a very nervous wood that is also sensitive to humidity. Consequently, in spite of all the precautions one might take, tiny overlaps can occur along certain joints at one moment or another during production. These overlaps will be virtually invisible and will escape detection both by our own inspection prior to delivery and your own prior to staining. The frustration will be all the greater when, after having copiously sprayed the panels with a water-based stain, you see the veneer lift at some of the joints.

A word of sound advice then : never stain white beech, especially not with a water stain !

Why would you wish to anyway ? Your only reason for buying white beech is that you like its natural colour. If you like it as it is, apply a clear varnish finish : this varnish will agress the joints only very little and the invisible overlap will resist and remain in place.

If you really don't like the natural colour of beech and wish to make it darker in colour, use either a coloured varnish or, if staining is unavoidable, specify steamed beech : firstly, it is not as dark as all that, at most slightly pinkish, but above all the steaming process reduces the tension in the wood and provides a veneer that is much more flexible and easy to joint. The risk of overlapped joints is not totally eliminated, but considerably reduced.



- **Problem** : *You have already used stains with all sorts of species, but continue to have problems with beech and birch.*
- **Answer** : This is not surprising : beech and birch both have one of the highest levels of acidity, and any staining product that does not have a neutral pH will react with these species in a sometimes unexpected manner. You must therefore be very careful, always carry out a test before staining full panels.

You wish to apply a linseed oil finish.

An oil will also penetrate deep into the veneer, but it also has another property : it will turn light coloured veneers virtually transparent, in particular sycamore and birch. You will then uncover all the hidden marvels lying beneath the veneer : jointing thread, repairing tape, discoloration of the substrates. We do not therefore recommend this finish for light coloured species, especially when they are veneered on blockboard or plywood.

Regarding the stability of natural wood colours.

The colours of most species of wood are each more beautiful than the next. They are not permanent, however, and will change under the effect of light and moisture. Paradoxically, light species will become darker and dark species will become lighter. In fact, over time, all species turn grey ! Hence the importance of a good finish to protect the wood from both UV and humidity.

Certain species, however, take a few days for the fullness of their splendour to show. This is true of African Mahogany (Khaya), and particularly true of Brazilian Mahogany (Swietenia), which both take on a brighter sheen after a matter of weeks and must not receive a UV finish too soon.



A final comment.

There are countless numbers of finishing products, but also countless numbers of species having grown in countless different environments. Each combination can produce unexpected results for which your panel supplier cannot necessarily be held responsible.

A last word of advice, therefore : to avoid unpleasant surprises, always carry out a test first ! Remember : appreciation of wood is a subjective science !

The information given in this Bible is intended to assist your selection and use of a natural product. It is not a definitive guide nor is it intended as a warranty or guarantee as to the suitability of any veneer, finish or progress.

Normal TTF Contract conditions apply.



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