N.E.J. STEVENSON

DESIGNERS & MAKERS OF FINE FURNITURE

Top Tip Guide

Introduction

As a designer and manufacturer of bespoke furniture and architectural joinery, **N.E.J. Stevenson Ltd** spends a great deal of time investigating and testing new materials and products, as well as educating designers, architects, contractors and end clients about the best way to undertake a project in respect of technical solutions, environmental performance and economy.

We often encounter poor practice in design and specification as well as general misconceptions about materials and techniques. Our knowledge is normally passed on through the project design process or at specialised lectures and seminars to individual companies and institutions.

We have prepared a range of bite sized articles about a variety of subjects in order to provide a basic understanding of each topic and to avoid or correct errors and misunderstandings. The information is aimed to be short and useful but not necessarily comprehensive. Should you have a desire for more detail we will be happy to answer any questions you may have.

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Tip 1: Sustainable Timber

Timber Certification

Less than 15% of the world's timber is certified as sustainable, which is not a measure of how much is sustainable but a measure of how much has been assessed, is easily accessible and requires assessment.

The vast majority of certified forests are in Europe and North America. In the UK most specifications only refer to FSC (Forest Stewardship Council), which adds further restrictions to choice. There are many other certification bodies. The largest is the PEFC (Programme for the Endorsement of Forest Certification) but it is not well known in the UK.

How do we stop illegal and unsustainable timber ending up in our project?

Fortunately, this is fairly easy assuming that all timber is purchased in the EU. The EU Timber Regulations March 2013 strictly prohibits the sale of illegally harvested timber in the EU and puts the onus on importers with heavy penalties for infringement.

Whilst legal does not guarantee sustainable it is a reasonable assumption, particularly with regard to the northern hemisphere, that legal infers a properly constituted business with a vested interest in longevity and therefore a likelihood of investment in the future and hence replanting and high-quality land management.

Where the resources are abundant and regulation patchy, particularly forests in South America, Africa and Asia, a more cynical attitude might be appropriate and this is where the certification bodies may help, although offering only a limited selection.

Where can we get help?

https://www.efeca.com/about-us/
https://fsc.org/en
https://www.pefc.org/

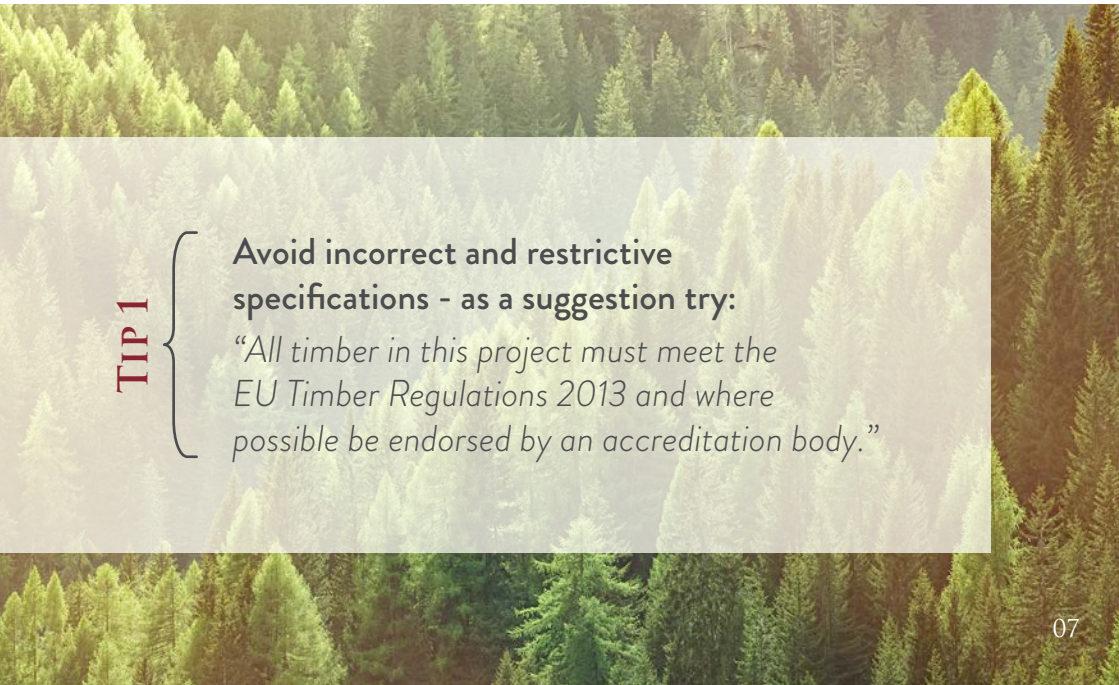
Should we stop using timber?

It is widely assumed that the destruction of the rainforests is down to the timber trade and whilst it is true that illegally felled timber is a problem, the largest culprit by far is agriculture, either local subsistence farming or large commercial enterprises catering for the world's demand for beef, soya and palm oil.

Europe and North America have a mature attitude towards their forests and their preservation, but this is only after we have learnt from our own exploitation of our indigenous resources. The rest of the timber producing world has still to fully understand timber as a renewable resource, but deciding not to purchase timber may hasten its destruction as the land beneath becomes more valuable than the tree.

Why wouldn't we specify accredited timber?

There are many timbers that are not accredited and accreditation is no assessment for quality, which is fine if you are making a garden shed but not so good if you have demanding specifications for size, aesthetics or stability.



TIP 1

Avoid incorrect and restrictive specifications - as a suggestion try:

"All timber in this project must meet the EU Timber Regulations 2013 and where possible be endorsed by an accreditation body."

Tip 2: Timber Specification

Can we specify any timber we like the look of?

No. Not all timbers are the same and many are unsuitable for particular constructions and environments. Fruit trees for example are generally short and narrow with many branches, so obtaining tall clean wide panels is almost impossible; if such a tree does come to light it will invariably go for veneer production. Particular thought should be given to climatic conditions as some timbers discolour badly and others disintegrate in damp conditions.

Why is it difficult to match veneers to solid timber?

For run of the mill timbers it is not too much of a problem, although veneers will always be cut from the very best trees so they tend to be cleaner and more even in colour and grain. Some veneers are cut to create a specific look which you won't be able to replicate evenly or regularly in solid pieces such as Lacewood, which is cut from London Plane and looks entirely different.

Most of the coloured veneers such as Tabu are unique to the manufacturer and trying to match lippings and mouldings, even if using the same species, is difficult particularly as there will be a tendency for the colours to change differently as the piece ages.

We specified Oak but the sample we got looks different from what we were expecting?

A common mistake in specifications is the use of generic or common terms for timbers. This is a particular problem with Oak and Rosewood, but affects a great many other timbers as well.

If you don't specify the exact timber and cut you require, then the tenderer is entitled to price for the simplest and cheapest option. So, if you wanted Quarter sawn English Oak but only stated Oak then you could easily get Through and Through cut American White Oak. If you stated Walnut and wanted French Walnut, you could be presented with American Black Walnut or even African Walnut. Things get worse with Rosewood where there are at least seven different possibilities.

TIP 2

Ensure that you have specified the correct botanical name, the cut and understood the characteristics and limitations.

https://www.trada.co.uk/wood-species/

Tip 3: Types Of Timber Cuts

Why does timber vary so much?

Unlike many materials that are specified, timber is not uniform and varies dramatically dependent on a range of environmental and climatic conditions. This is further complicated by the method of conversion or the way the tree is cut into planks.

How many different cuts are there?

There are many variations however the most common are:

Through and Through
(also known as Plain sawn)

This is the most efficient method of conversion providing the most timber from a log. The centre planks are effectively Quarter sawn but the rest will show increasing amounts of crown and the planks will become more prone to unwanted movement as you move outwards.

Quarter sawn

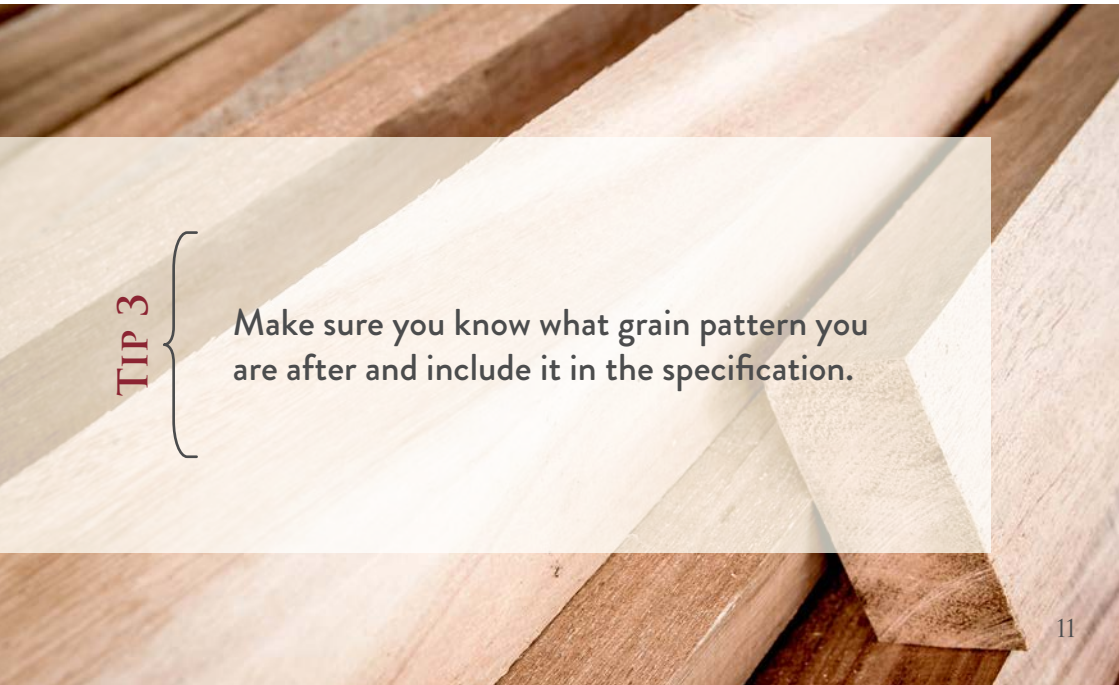
This is the most expensive method of conversion providing the most stable planks. Some species such as oak will reveal a beautiful figuring where the medullary rays are sliced tangentially. However other planks will appear to be straight grained without figure.

Rift sawn

Sometimes sold as Quarter sawn as much of the timber is similar, however it usually lacks the heavy figuring so a good choice if you require a uniform straight pattern. The medullary rays appear as regular narrow flecks.

Why are there different conversion methods?

As the structure and characteristics of timbers were discovered, different methods developed to counteract movement, enhance attributes and emphasise aesthetics.



TIP 3

Make sure you know what grain pattern you are after and include it in the specification.

Tip 4: Timber Sizes

What are the most cost-effective sections to use?

The standard thicknesses for most commercially available timbers are 25mm, 38mm and 50mm. The most popular timbers may also be available in 32mm, 62mm and 75mm. A few such as English Oak, can be found in 20mm. These are the cut sizes so they need to be planed to a uniform section, which will generally mean that you lose 5mm; so when drawing timber sections it is best to work around 20mm, 33mm and 45mm.

If we specify 22mm rather than 20mm will it cost a lot more?

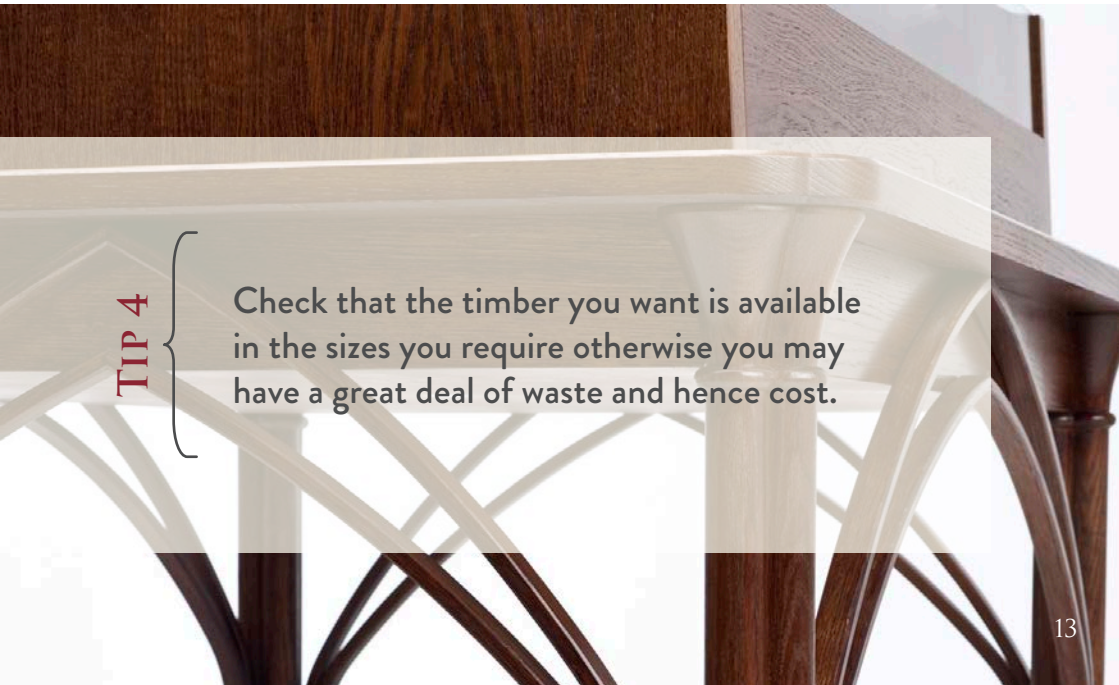
Potentially yes. If you finish at 20mm you will be able to buy 25mm stock so you would have a wastage factor of 20%. At 22mm you would buy 32mm if available, giving you a wastage factor of 31%, if you could only get 38mm then this would increase to 42%.

What happens if we want a bigger finished section than 70mm?

Some timbers are available in 80mm giving you 75mm finished, but over that you will almost certainly have to laminate pieces together, so some thought should be given as to where the joint line will fall.

If you wanted a leg finished to 90mm, then the cheapest option is to slab two 50mm pieces together and then machine those to 90mm, but this would give a joint line down the centre of two sides. The best option but more expensive is to join the leg across the diagonal, thereby hiding the joint on the corner but this would require slabbing up two pieces of 75mm.

SAWN THICKNESS	MAX FINISHED THICKNESS	COMMON	RARE
20mm	16mm		X
25mm	20mm	X	
32mm	28mm		X
40mm	36mm	X	
50mm	46mm	X	
62mm	57mm		X
80mm	75mm	X	
100mm	90mm		X



TIP 4

Check that the timber you want is available in the sizes you require otherwise you may have a great deal of waste and hence cost.

Tip 5: Standard Sizes

Lots of materials that we use regularly are supplied in standard sizes and for the purposes of economy and lead times it is sensible to fit within those sizes wherever possible. There are many variations of standard sizes from various manufacturers so this is only an overall guide.

Solid timber

SAWN THICKNESS	MAX FINISHED THICKNESS	COMMON	RARE
20mm	16mm		X
25mm	20mm	X	
32mm	28mm		X
40mm	36mm	X	
50mm	46mm	X	
62mm	57mm		X
80mm	75mm	X	
100mm	90mm		X

Standard MDF

	1220 x 2440	1220 x 2745	1220 x 3050	2440 x 1830	1525 x 2440	1525 x 3050	1525 x 3050
3mm	X	X	X	X	X	X	X
4mm	X	X	X	X	X	X	X
6mm	X	X	X	X	X	X	X
9mm	Xz	X	X	X	X	X	X
12mm	Xz	X	X	X	X	X	X
15mm	X	X	X	X	X	X	X
18mm	Xz	X	X	X	X	X	X
22mm	X	X	X	X	X	X	X
25mm	X	X	X	X	X	X	X
30mm	X	X	X	X	X	X	X
32mm	X	X	X	X	X	X	X
36mm	X	X	X	X	X	X	X
38mm	X	X	X	X	X	X	X
40mm	X	X	X	X	X	X	X

Moisture resistant Fire resistant class C Fire resistant class C & B Xz Zero formaldehyde

Pre-Veneered MDF

	1220 x 2440	1220 x 3050
7mm	X	X
10mm	X	X
13mm	X	X
16mm	X	X
19mm	X	X
26mm	X	X
31mm	X	X

Pre-veneered boards are a low-cost option and should not be confused with project selected bespoke materials.

Generally available in the following veneers:

- Crown cut American White Oak
- Quarter cut American White Oak
- Sapele
- Crown cut American Black Walnut
- American White Ash
- Beech
- American Cherry
- American Maple

TIP 5

Intelligent use of standard finished timber and sheet material sizes can have significant benefits in regards to budgets and lead times.

Tip 6: Hanging Rails

What are our options?

There is a vast choice of hanging rails in a wide range of qualities and finishes. Some are solid brass or stainless steel but most are plated or coated, of which the most popular are brass, bronze, chrome and nickel. There are a number of anodised aluminium options, which tend to look rather ordinary, but if you want an integrated light then this is where the main options will be found.

Can we use timber?

Any good joiner will be able to make you a rail in any suitable timber. However, timber can be flexible and you will probably need more support or thicker rails.

Which type should we choose?

When specifying the material and size, you should consider the length of the rail and the weight of the clothes. The cheaper options will almost certainly require a central support.

If the clothes are going to be used often then the finish is important as the hangers will mark most finishes quite quickly; high gloss and lightly plated options should be avoided. If it fits with your scheme, a brushed stainless steel will maintain its appearance longer than most, as it doesn't require a protective coating.

Does the rail have to be tubular?

No. There are many shapes of standard rail but not all are available in every finish. There are many different metal extrusions designed for a range of commercial purposes which could be utilised and possibly coated to suit. In addition, there probably won't be suitable ends or supports but these can be fashioned in timber or made to order.

We don't like seeing a large collar holding the rail what are our options?

Most manufacturers have their own system of supports and only a few have hidden fixing options, so this will restrict your material and size choice. It is quite possible to have timber supports made to match the internal finish.

TIP 6

Once the wardrobe is filled with clothes the hanging rail and it's fixing will be mostly hidden so a simpler standard option can be a good practical solution.

Tip 7: Hinges

The options are many and you should be able to find a standard hinge to suit your purpose. However, it is not uncommon to be presented with a design that requires a certain type of hinge but the specification explicitly excludes it. Once you get into having bespoke hinges made then costs will rocket.

We don't like kitchen door hinges what are our options?

The first thing to do is to ensure that the door design is suitable for other options. The classic solution is a butt hinge but some designers don't like to see the knuckle from the front. The improvement in the "Soss" style hinges with increasing levels of adjustment have made them a practical option despite them being considerably more expensive.

Pivot hinges can also offer concealed options as well as cranked variants which are partly visible at the top and the bottom.

Why are kitchen door hinges so horrible?

They are required to do an awful lot of work with the mechanism being able to throw doors clear of surrounding structures. They also offer a great range of adjustments allowing for easy tweaking of doors when the house and joinery has settled. There are of course cheaper products that don't work very well, but if you invest in a good make they work well in service and offer other benefits such as integrated push catches and soft close systems.

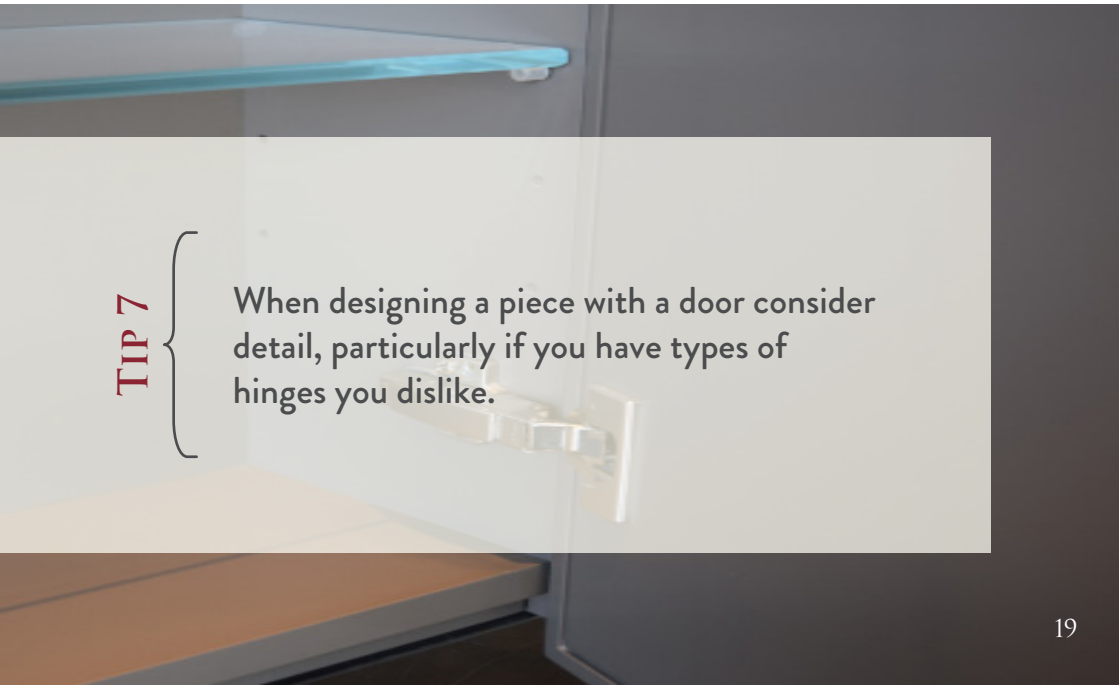
Is metal the only option?

No. You can make hinges from timber and acrylic but this needs to be thought about early in the design stage as it will be difficult later on.

How do we ensure that we get the hinge we want?

Speak to your preferred craftsperson who will have more experience of the options. If you do this at an early stage it may avoid the common discussion around "I know you don't want that type of hinge but what you have designed is only suitable for that type of hinge".

After you have done your research make sure the specification is clear, just writing 'brass butt hinge' is not enough. If you want a beautiful polished solid drawn brass hinge then state that very clearly. The difference in price between the cheapest brass butt hinge and the best is over 1000%!



TIP 7

When designing a piece with a door consider detail, particularly if you have types of hinges you dislike.

Tip 8: Adjustable Shelves

This is an area that clients can become fixated about, objecting to seeing multiple holes in the cabinet side or lengths of brass strip. The only way to really avoid this is to work out carefully the spacings and have fixed shelves!

What is the neatest method of providing adjustable shelves?

There is no simple answer to this as it fundamentally comes down to personal preference. Our preferred option is to drill 7mm holes into the sides at 50mm spacings starting 200mm from the base and finishing 200mm from the top. The shelves have stopped grooves to the underside hiding the shelf peg and making the shelf secure. We can remove some of the holes if there is going to be a minimum space between each shelf.

What about Tonk Strip?

Tonk strip is a traditional method using a slotted metal strip set into a groove, with metal plates that hook into the slots. It is quick to fit and relatively cheap but you can see the strip very clearly.

Can we have lighting in our shelves?

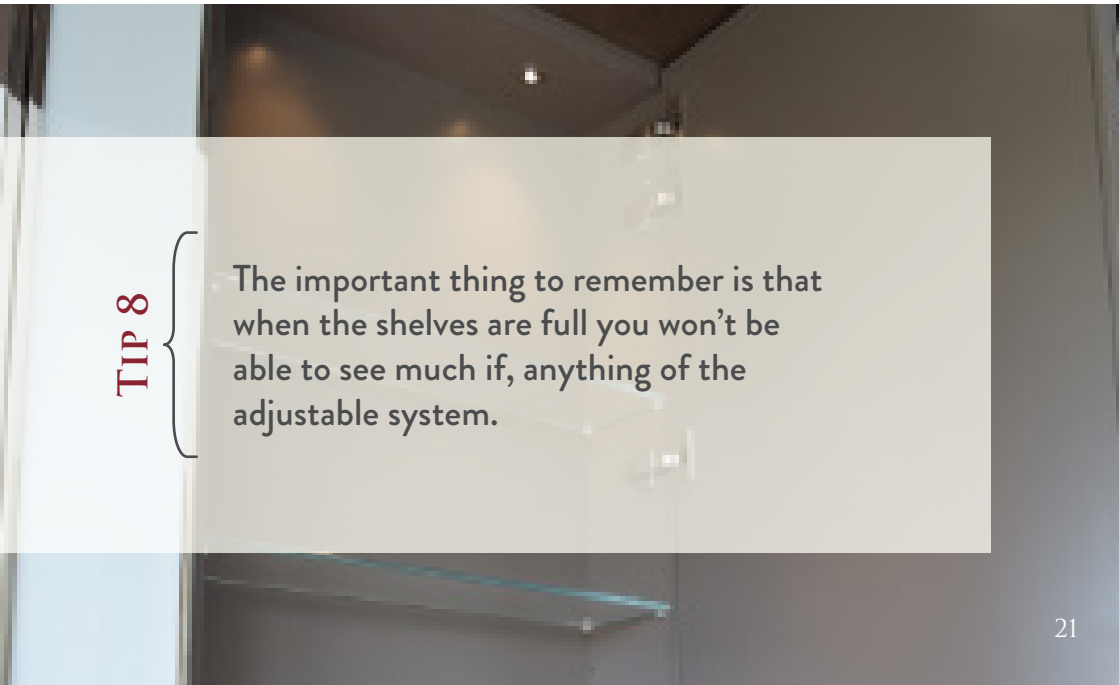
There have been attempts to provide an effective solution for this, but fundamentally it has not been very successful and it is also very expensive. The best solution is to run vertical light strips up the sides at the front in angled grooves.

Are there any other methods?

There are a large range of solutions many based around wall mounted shelves but in respect of cabinetry the options are limited. The traditional method of a ladder system is expensive and cumbersome. There is a system which requires the sides to be grooved so that shelves slot in and you can also use vertical wires, but realistically none of these is a practical modern solution.

What about glass shelves?

Glass shelves can be used with all the standard shelving systems but they should be adapted to have a soft coating on the shelf support.



TIP 8

The important thing to remember is that when the shelves are full you won't be able to see much if, anything of the adjustable system.

Tip 9: Glass

We use a lot of glass in our furniture from decorative panels to simple protection of a surface. It is a major subject but for this section it will just be the basics.

What is the difference between Float glass and Annealed glass?

Fundamentally they are the same thing, the float process is the method of making flat glass by running the molten glass over hot liquid metal. Annealing is the secondary process that controls the cooling of the glass so that it equalises the internal stresses and gives a stable product.

What is Laminated glass?

It is formed of two sheets of glass with one or more plastic layers sandwiched between and bonded together with heat and pressure. The major benefit is that when the glass is broken the plastic layer holds the glass together and it remains transparent. Security and bulletproof glass are particular types.

Is Toughened glass the same as safety glass?

Toughened glass is produced by a heating process or chemical process. The majority of toughened glass is produced by being heated to just below it's softening point and rapidly cooled by jets of cold air. This glass is much stronger than standard annealed glass and when broken it shatters into small blunt edged pieces. Toughened glass is safety glass but so is laminated glass.

What's special about Low-iron glass?

Low-iron glass is made from silica with very low amounts of iron, which results in much higher clarity removing the greenish tinge that standard annealed glass has. It is used widely for display cases and aquariums.

What can you do to glass to make it more interesting?

The simple stuff is bevelling and cutting it into shapes, which you have to do before it's toughened. There are a great many applied surface treatments you can use such as paint and silver leaf and then you can change the surface by acid etching and sandblasting.

TIP 9

Glass is heavy so be aware of the size of any glass/mirrored door in relation to the frame structure and hinging options.

Tip 10: Pocket Doors

What is a pocket door?

A pocket door can refer to two different types of doors:

1. A door that slides in one direction into a preformed cavity. This is normally a room door where the door leaf disappears into the wall next to it and can be a single or a pair.
2. A door that opens at 90 degrees and is then slid back into a pocket at right angles to the doors closed position. You can also have pairs of doors that slide together first and then go back into a pocket. For accuracy refer to this as a hinged pocket door.

Are there any things that we should be concerned about when specifying a sliding pocket door?

There are a few things to consider:

- Access
  Simple overhead tracks very rarely go wrong but you will need access for maintenance, particularly if you have automated and/or soft close systems. Therefore, you will need removable panels to access the mechanism and awkward details can be avoided by considering this at an early stage.
- Weight
  If your door is particularly heavy you should incorporate a soft close or damping system otherwise you will find that using them will be accompanied by loud thuds and bangs. You should be aware that a heavy door closing can be quite dangerous to children and hands.
- Handles
  It seems fairly obvious to say that if you want your door to be hidden completely in the pocket then the handles have to be flush with the face or in the edge.
  If you are having a surface mounted handle make sure the door stops before it meets the frame to avoid damage and to make use easier.

Are hinged pocket doors a problem?

They can be and our general advice to customers is to avoid them where possible.

What are the main problems?

- The biggest problem is that often the mechanism is not good enough for the application. The specifications might give a maximum height, width and weight but in our experience, these are at the very limit of operational efficiency.

- If you are going to use a system then buy the very best and ensure the specification greatly exceeds the door dimensions and weight. If not, you will quite quickly find that the door goes out of alignment and can catch, so you start damaging the cabinet and/or door. In the end people just leave them in the pockets.

What is the cost of a good mechanism?

If you are looking to have a small door (up to 700mm high) in a cabinet to cover a tv then you will need to budget a minimum of £100 per door. If you are looking at a tall door, anything over 1500mm, then budget around £1000. For a bi-fold pocket door then you should be looking at £1500 per door.

So hinged pocket doors are quite an expensive option?

Yes, because on top of the mechanism cost you have the additional cabinetry to form the pockets and all of that is additional to the normal cost of the cabinet.

Are there any other options?

There are but we would start with do you really need to hide something in the first place? If you do then is it possible to change the method of concealment so that the tv or bar area rise up on a lift from below or can doors slide across in front or behind other areas of cabinetry?

Tambour doors, either horizontal or vertical, can be a solution as long as they aren't too big and then you can also have front panels that move vertically up or down.

Tip 10

Avoid complicated mechanical systems where possible, they are expensive and often fail.

Tip 11: Drawer Construction

Why do drawers vary so much in price?

Given that a drawer is basically a box you would think it was a fairly simple item, but the options for construction are enormous along with materials and types of runners, so that the difference between a simple box with side mounted runners and a hand dovetailed one with a traditional timber guide is huge.

How do we make sure we get the drawer type we want?

As with all things in our sector, it comes down to proper specification, but as there are infinite variables it would seem practical to define a range of drawers that can be specified for different types of projects and budgets.

If we wanted the best drawer for the finest piece of free-standing furniture how would we specify that?

Most furnituremakers will always head towards a solid timber, hand dovetailed drawer with a loose base running on timber guides to the bottom, top and side. This would normally be described as a Georgian style drawer relating to the golden age of English cabinetmaking, when the likes of Chippendale and Hepplewhite were at their peak.

Lapped dovetails to front and through dovetails to the rear in the Georgian style. Base to be solid timber with grain direction right to left and chamfered underneath to sit in grooved slips attached to the sides. Base secured to the back using a screw within a slot to allow movement. Back to be short to allow the base to run through. Sides and back to be no more than 9mm thick.

It is traditional for the drawer box to be made in Oak with the drawer front in a material to match the outer carcase. Veneering, crossbanding, inlays and cock-beading are all further embellishments.

That sounds expensive, what if we just wanted a good quality drawer for general use?

A simple method is to form the main box from 4 pieces of timber or veneered board with a captive veneered base. Use high quality, concealed, soft close runners and have a separate drawer front that is fixed to the box.

Is there a mid-point between the two drawer types?

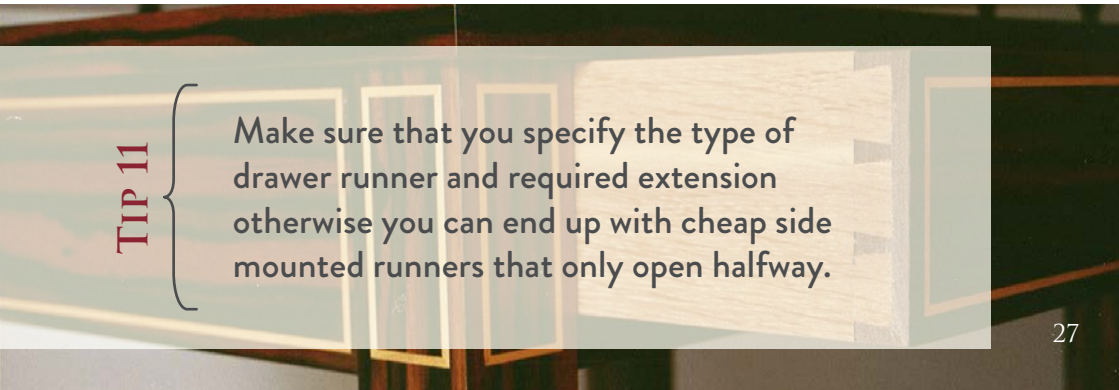
You can easily add perceived quality to the cheaper drawer by machine dovetailing the box joints.

How many different ways are there of making a drawer box?

Hundreds, but they all form the same four-sided box. You can use dowels, biscuits, rebates, grooves in fact any method that can hold a box together.

Is wood the only option for a drawer box?

No, you can make a drawer from any material that can form the required shape, so metal, glass, plastic etc.



TIP 11

Make sure that you specify the type of drawer runner and required extension otherwise you can end up with cheap side mounted runners that only open halfway.

Tip 12: MDF

Medium density fibreboard (MDF) is a great material but has a poor reputation with the general public and some specifiers. Like all materials there are good ways of using them and bad ways. We sometimes try to illustrate this by comparing canvas with silk, they are both fabrics and you could make a tent from silk and a ball gown from canvas, but it is not the best use of their characteristics. This is the same with MDF and solid timber. The majority of designs for high-end furniture and fitted joinery are not suitable to be made entirely from solid timber and so MDF and other sheet materials come into their own being fantastic surfaces to paint and veneer.

What is MDF?

It is made from hardwood and softwood fibres combined with wax and a resin binder and then formed into panels by the application of heat and pressure.

Is all MDF the same?

There are many different manufacturers of MDF based in many countries, all who have their own standards. However, there is a set of British Standards which guarantee a minimum standard. As with all things you get what you pay for and we always opt for a higher quality known brand.

Are there different types of MDF?

Yes, there are a vast range of different types but the ones that you will mostly come across are as follows:

Standard MDF
Light weight MDF
Ultra-light weight MDF
Fire resistant MDF
Moisture resistant MDF

Is there such a thing as high density MDF?

HDF (high density fibreboard) is a specialist material which is used a lot for furniture and joinery, although this is something we specify as part of the manufacturing process rather than being specified by a designer or architect. Unlike MDF it tends to have a consistent density throughout so that it can be machined into complex shapes that maintain structural stability.

If you want different sizes can you stick sheets together?

Yes you can, however you need to be mindful of the general rules of balancing, so it is generally better to do it with odd number of boards. So, if you wanted 50mm (available from some manufacturers) sticking 2 x 25mm boards together works, but you would be better adjusting your design to use 51mm as you can have 2 x 18mm outer sheets and a core of 15mm.

The prices we received for identical veneered wardrobes are massively different, why?

This is probably down to the interpretation of your specification by the supplier. Stating that you want an oak veneered wardrobe is not enough as this allows the supplier to specify standard veneered boards with applied lippings, whereas what you probably want is matching veneers with concealed lippings.

A 2440mm x 1220mm x 19mm sheet of standard veneered MDF can be as little as £40, however this will be what is classed as an A/B board with one good face and one poor face. In reality, neither face will generally meet any designer's standard as they can have entirely different looking veneers on the same face and quite often very narrow leaves giving a very striped effect.

Individually selected veneer from one matching log cut and jointed and then applied to pre-lipped and cut to size MDF is entirely different and massively more expensive.

Tip 12

Think about the size of the item you are designing a carcase side of 2600mm x 650mm is considerably more expensive than one 2430mm x 600mm by up to 250%.

Tip 13: Manufactured Boards

We have already covered fibreboards, but there are many other types of manufactured boards such as plywood, chipboard and OSB.

Why would you use plywood and chipboard instead of MDF?

Plywood and chipboard have particular characteristics that make them more useful than MDF in certain circumstances. Chipboard is cheaper but its generally weak structure means that it's not popular with craftspeople. It is used primarily as a flooring material in low-grade mass produced furniture and can be effectively used as a core material for fire doors.


Chipboard

Plywood has many more uses as it is considerably stronger than MDF, being made from solid wood layers arranged at 90 degrees to each other and always in odd numbers. There are many different types of plywood, but the predominant one in the specialist joinery and furniture sector is birch ply. This is fundamentally the same as every other plywood but the birch is a very hard and strong timber with a tight even structure giving a very dense solid board. When combined with water resistant glues it is far superior to MDF in wet areas and has a specific configuration for marine use.


Birch Ply

What sizes are available?

If you follow the general sizes for MDF you won't go wrong.

What is OSB?

OSB stands for orientated strand board, which in simple terms means that large shavings of wood are pressed together in random directions to form interlocking layers. It is cheap and mostly used for things like concrete formers and shuttering. It has been used for furniture and interiors but is hardly ever used within the high-end sector.


OSB

Are there particular things you would use plywood for instead of MDF?

There will always be a specific set of requirements where plywood becomes the obvious choice, but the area where it has always scored highly is for laminating curves. Because of its structure you can create flexible sheets that are as thin as 1.5mm. They can be easily wrapped around shaped moulds and when glued and laminated with other sheets the resulting structure is very strong and retains the desired shapes much better than MDF.

Can you make plywood out of different woods?

There are a number of companies that supply plywoods made from other timbers such as oak, mahogany and beech.

Can you make your own plywood?

You can but in most cases it wouldn't make much sense. However, there are times when making your own is the best solution, such as the fretted edge to a traditional tea table. Trying to make a finely cut shaped edge from solid timber would be nearly impossible but you can take veneer and laminate it into the correct shape and then cut the incised pattern giving you a much stronger structure with finer detail.

TIP 13

Within every type of manufactured board there are specialist derivatives that have engineered characteristics to optimise performance. If you have an unusual requirement speak to a specialist before confirming a specification.

Tip 14: Wood Veneer

What is veneer?

There are two main types of veneer:

Decorative veneer, which is a thin slice of wood usually 0.6mm cut in different ways to create a variety of effects.

Construction veneer, which is usually between 1.5mm and 4mm and is normally cut through and through.

What is the difference?

Fundamentally they are the same but they have different uses.

Construction veneer can be used to make laminated shapes with a consistent material throughout and where decorative veneer is too thin, such as a desire to have a textured surface.


Carved constructional veneer


Quarter cut brown oak with a silver inlay and a crossbanded edge

Decorative veneer can also be used for laminating or as the outer face for a constructional veneer core. Decorative veneer as the name suggests is something that you apply to achieve a particular effect. The effects can be created by the way the veneer is cut from the tree or from cutting shapes and/or changing the angles at which pieces join, or a combination of the two.

How do you colour veneer?

There are a number of ways of doing this.

- **Steaming** – some timbers such as Swiss Pear and Sycamore can be steamed and go pink
- **Pressure dying** – the veneer is pre-stained by the manufacturer to specific shades
- **Chemical** – certain chemicals react with different timbers to produce interesting colours
- **Post - staining** – undertaken by the craftspeople after the piece is made

We have heard that grey veneers turn green?

All timbers will change colour over time, but this is not a particular issue and it is quite common, particularly where the veneer is exposed to sunlight. It can be avoided by using the best quality pressure dyed veneers and by ensuring that you use the recommended glues and lacquers.

What are the different ways of cutting a veneer log?

Rotary Cut Veneers
A whole log is mounted in the center of the lathe and turned against a sharp blade, much like unwinding a roll of paper. It is the most economical method of cutting. Rotary cut veneer can be wide enough to produce a full-sheet, or single piece faces.

Quarter Sliced Veneers
A quarter log is mounted on the flitch table so that the growth rings are perpendicular to the cutting blade, producing a series of stripes. These stripes can be straight in some woods and varies in others.

Flat Cut or Plain Sliced Veneers
A half log is mounted with the heart side flat against the flitch table of the slicer. The cut is then made with the blade parallel to the length of the log producing the appearance of a "cathedral effect".

Half Round Sliced Veneers
A half, third or quarter of a log is attached to a plate on a lathe and turned. Half-round slicing is used to accentuate the different grain in certain woods. However, it can also be used to achieve a flat/plain sliced veneer appearance.

Rift Cut Veneers
Rift slicing uses a "stay log lathe," which cuts with a rotary action. A quarter of the log is fixed to a plate on a turning stay log. As the flitch is rotated, the blade and angle can be varied so that the wood is cut exactly to produce the very straight rift grain. Rift slicing also achieves a straight grain pattern, but avoids the appearance of "flake" that occurs in some species when quarter sliced. Most often, this method is used with oak and it is generally the straightest and free from cathedrals and variations in grain.

(Credit: PlyWood Express https://www.plywoodexpress.com)

TIP 14

Be careful when you decide to specify a pre-coloured veneer for two reasons:

a. **They are produced in batches and may not be available by the time the project gets to construction.**

b. **Make sure that your design is suitable for veneers only as you won't be able to buy solid timber that matches.**

Tip 15: Leather

Which animals does leather come from?

Fundamentally you can make leather from most skinned animals but for interior and furniture purposes the main ones that you will come across are cattle, pigs, sheep and goats.

What are the categories of leather?

Aniline leather is the most natural looking leather with the unique characteristics of the hide on show and is only coloured with dye. A light coating is sometimes applied to offer limited protection.

Semi-aniline leather is a more durable product but still retaining a natural look although with a lightly pigmented coating providing a more consistent appearance.

Pigmented leather is highly durable and used in the majority of furniture upholstery. The durability is gained by the application of a polymer surface coating containing pigments.

Is nubuck the same as suede?

No. Nubuck is an aniline leather that has been lightly abraded to give a fine nap on the grain surface whereas suede is a split leather which has been abraded to give a more distinct nap.

What is embossing?

Embossing is the process of putting an artificial pattern on the leather by the application of heat and pressure through a patterned plate.

How does an animal skin become a usable piece of leather?

Traditionally this is a process that has at least twenty stages so a bit too complex to go through in detail, but basically, it's cured, soaked, painted, limed and fleshed to preserve it and unwanted residue from the animal. It is then delimed, bated, pickled and degreased to provide a flat, relaxed, stable pelt. At this point you can tan, split, shave and neutralise followed by dyeing and fatliquoring, which introduces oils to stop the hide drying out. Then you reduce the water content called samming followed by setting out, drying, staking, buffing and brushing, which will get you to finishing and grading. That's all there is to it!

Should we be worried about the environmental impact of leather production?

Leather production has by all measures a severe environmental impact as it is a by-product of the meat industry and the processing of pelts to finished hides is very toxic, particularly the tanning phase which predominantly uses chromium and is so noxious that tanneries have been forced to close in more highly regulated countries. Tanneries in developing countries are a major concern in respect of workers health and child labour.

Are there any sustainable options?

The Leather Working Group is a multi-stakeholder initiative working to improve the industry with an audit protocol and the Tanners Extract Producers Federation is dedicated to spreading best practise about vegetable extract for tanning, but the overall situation is still poor.

There are synthetic alternatives, which score better than leather but they still have issues with disposal.

Should we stop using leather?

Until the supply of skins reduces significantly by a shift in the demand for meat it would seem a waste to not to use them.

A major change to the process of preparing hides to a more environmental and sustainable method would seem the first sensible step. This will take time until there is legislation banning the importation of hides from countries with low regulation for the environment and workers rights.

Vegan leather is an alternative but is not without its own environmental cost.

TIP 15

To avoid the worse elements of leather production only specify vegetable tanned products from countries with robust workers' rights legislation.

Tip 16: Vellum

What is Vellum?

Vellum is a type of parchment specifically made from calf skin from the French word "veau". Today most parchment irrespective of its source is referred to as vellum. The recent battle about using vellum to record parliamentary history is technically incorrect, as the material used is actually goat skin and therefore parchment.

How is it made?

Like the manufacture of leather covered in TT15 the preparation of vellum is messy and unpleasant. It is though a highly skilled job and the parchminer has a range of complex processes to perform. After the skin is removed from the animal, the hair and flesh are cleaned away and then stretched on a wooden frame. The tensioned hide allows the surface to be scraped with a special curved knife. In order to maintain tension in the hide, scraping is alternated by wetting and drying the skin. This process is repeated several times to achieve the right thickness and tautness. A final finish is achieved by using pumice as an abrasive followed by chalk to prepare the surface of the hide to accept ink.

Is it an environmentally friendly material to use?

This is a difficult one to answer as it can be yes or no dependent on the way you want to look at it.

No, because it's made from animal skin and the process of creation is potentially polluting with the use of lime and lots of water. Yes, because it has a very long lifespan, which is why it is used for important documents and can last for over a thousand years if stored properly. However, within the interiors market the likelihood of the longevity being important is unlikely.

Is there an alternative?

Not that we are aware of. There are papers that are called vellum and made from cotton rag fibres but although the feel can be similar it isn't the same and lacks the strength.

Can it be coloured?

Yes, as a pre-runner of paper it was specifically designed to take ink and you can apply different finishes. It is possible to buy it pre-dyed and have it dyed to order.

What can we use it for?

It is ideal for wall panelling and covering cabinetry.

Can we use it for upholstery?

Vellum is generally quite stiff and does not lend itself to being used like leather. It can be tensioned as seat or back panels in framed chairs.

Where can we get it from?

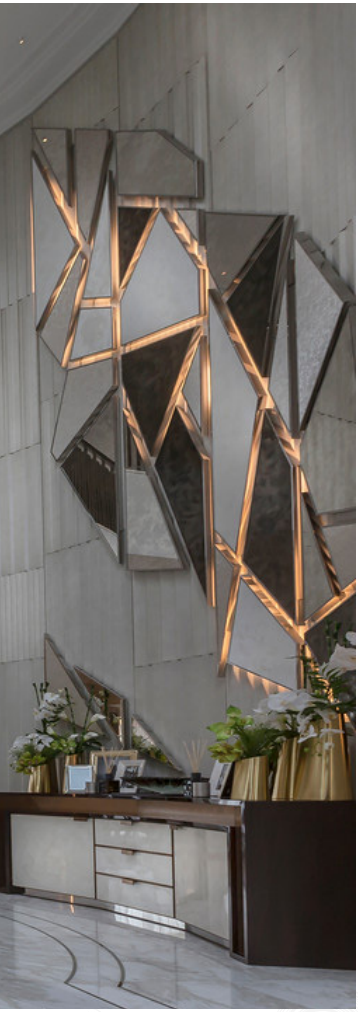
There are a number of people that sell it but we would always go directly to the only UK manufacturer, William Cowley, who have been in business since 1870. http://www.williamcowley.co.uk/

Tip 16

Vellum is hydroscopic so it is important to balance the material when applied to panels to avoid cupping and twisting.

Tip 17: Lighting

Lighting is a very technical subject, with its own consultants and designers so we are not intending to get deeply into the subject only to discuss the type of lighting that we incorporate into our furniture.



Which type of lighting is best for cabinetry?

There is no one ideal and a lot will depend on the use, style and desired effect. We use a lot of LED light strips in wardrobes and bookcases but more downlights in display cabinets.

Are fibre optics a good option?

We used to use a lot of fibre optics in museum style display cases as you could site the light and more importantly the heat source away from the objects. It was always very expensive and we have not used it in a very long time.

Is everything now LED?

For us yes. The flexible LED strips are great for shelves and uprights and around the perimeters of cabinetry particularly if they are shaped. The downlights are small and neat and like the strips have a very long-life span as well as being a lot cooler.

What level of specification do you need?

Not much really. We need to know where they are going so we can select the right product. We need to know the type of light (i.e.) warm white, cool white and also if they are to be dimmable.

Would you recommend that the light strips are in a conduit with diffusers?

Definitely where the strip might be visible as the LED strips are not particularly pretty but where they are being used for lights at low or high level hidden from view, conduits are not necessary.

Do the lights last forever?

In theory they have a very long life but we do experience failures. The biggest thing to worry about is the transformers as these can fail and then your lights won't operate.

There seems to be a great range of prices, how do I know what to choose?

It is true that there are some ranges that seem to cost a lot more than others, this may reflect where they are built and the greater options on offer. We have not found any real difference in service between types, but you will find better quality materials on the more expensive so for highly visible areas it may well be worth investing in a high-quality unit for aesthetic purposes.

TIP 17

It may be worth investing in an individual transformer for each light so that you don't loose all your light if the transformer blows and make access to them simple.

Tip 18: Inlays

There is very little we can't stick into a piece of wood as long as it can be cut and glued. Over the years we have used a vast range of odd things. In this section we will just deal with the more common.

What is an inlay?

We would describe an inlay as being any material inserted into a recess in another piece of material for decorative purposes.

Is veneer an inlay?

It can be used as an inlay, but usually only when set into other veneer to form a decorative feature. There is a strong tradition of bandings in traditional cabinetmaking which are usually narrow strips made up of interesting timbers and/or cut into patterns.

What is stringing?

Stringing is like banding, but is normally a small square section of solid timber normally white or black, but it can be made from any wood and in theory from any other material.

Is metal a good material to use as an inlay?

Metal particularly brass has been used extensively for inlays. Brass is fairly soft and is easily worked within a workshop although the highly complex filigree work would normally be done by a specialist. Brass has the benefit of being soft enough to be sanded smooth once it is glued in and also takes polishes well allowing craftspeople to get a seamless smooth finish. Silver although used less, has similar properties and looks more contemporary.

Why is metal inlay so expensive?

It's not that it is expensive as the basic materials are relatively cheap, it is the amount of work that goes into achieving the finished effect.

If you want a highly polished piece of metal in a veneer or painted surface, the metal has to be cut and fitted and then removed before the finish is applied to the furniture. The metal can then be glued in afterwards. Trying to get this flush is extremely difficult and time-consuming with the added risk of damage as both pieces have finished surfaces.

Unlike brass or silver that can be easily adapted by the craftsperson, a lot of the modern finishes are applied in complex processes to a base material and are only microns thick. The polishing of the metals is a specialist skill and has to be done by others.

Are there materials that you can't use any more?

Things like ivory and tortoise shell shouldn't really be used and where we do, they are for conservation projects using old materials. We would never sanction the use of new ivory or shells.

Can you get alternatives to ivory?

There are very good alternatives to most precious materials so there isn't really a need to use the real stuff. Horn can be a good alternative and arguably sustainable if naturally shed.

What other materials have you used as inlays?

Glass, ceramics, acrylic and stone are fairly normal but we can also use specialist pastes and resins to create interesting effects.

Tip 18

When using materials other than wood, silver and brass, design your inlays so that they are either proud of or recessed into the surface as this makes the manufacturing process considerably simpler and hence cheaper.

Tip 19: Marquetry

Marquetry is the use of small pieces of coloured veneer and other materials to create decorative patterns and pictures.

Are marquetry and parquetry the same?

There are many similarities but parquetry uses thicker pieces of material and is more usually used for flooring than furniture.

How is marquetry made?

Traditionally the pattern was cut out using a fret saw and traditional edge tools, but with the advent of new technology it is now more commonly made using a laser.

Are lasers better?

They are not necessarily better but they are definitely more accurate and usually cheaper particularly for repeat patterns and multiples.

So, is the traditional skill being lost?

Modern technology has the benefit of taking out a large amount of tedious hard work from many traditional skills and marquetry is no different. A laser is an expensive tool, which on its own can't do anything, it stills needs the artistic and design skills of a craftsperson to create the designs and to select the appropriate materials and grain to bring it to life. The process of putting all the pieces together is a highly skilled hand task with a range of additional skills such as sand shading, which is using hot sand to burn the wood to create shading.

What is Boulle work?

Boulle work is named after André-Charles Boulle a French cabinetmaker who produced very high-quality work without wood but using tortoiseshell, brass and pewter. He became Ébéniste du Roi in 1672 to Louis XIV. It was common for pairs of pieces to be made making great use of the materials in that one piece would be première partie - metals with the background in tortoiseshell and contre-partie the opposite.

Bespoke marquetry is expensive, are there other options?

The benefit of computer controlled lasers is that all the programmes are stored and therefore available to be used again. So any design where the copyright is held by the maker can in theory be reproduced at a lower price, so it's worth talking to the company about your requirements. They will also have multiple designs for standard flowers and animals. There are also companies that make standard motifs which are usually quite affordable.

TIP 19

Make sure that you fully understand the standard of marquetry you are getting. Some imported work is very poor and lasered work should be adjusted to compensate for the width of the cut.

Tip 20: How To Meet Budget

We can count on the fingers of one hand the number of times that the joinery budget has been adequate for the specification, which leaves three options:

1. Find a cheaper supplier
2. Increase the budget
3. Reduce the specification

1 is usually a bad option as you will compromise quality, 2 very rarely happens as this requires explaining to the client why the budget was wrong in the first place, which generally leaves 3 and the ability of the craftsperson to come up with a range of options.

Metal

Specialist metalwork is expensive so reducing this is an easy first step allied with adjusting the specification to lose the more expensive coatings, for example, moving from polished nickel to stainless steel.

Nominated suppliers

Being nominated is great but it shouldn't be a licence to raid the client's pocket. There are very few suppliers that have something so unique that you can not go somewhere else. Informing a nominated supplier that for budgetary reasons you are no longer placing an order with them can make them far more amenable, if it doesn't, then go elsewhere.

High gloss finishes

High gloss hand burnished lacquers are very expensive and can be up to a hundred times more expensive than a simpler option.

Hierarchy

It is common for areas of the property to have a hierarchy of finishes and often a hierarchy of suppliers, but there is always more scope for reduction in certain places.

Standardise

Is it necessary to have every piece in a different finish or veneer, can the number of variants be reduced? Can you use the same finish for the interiors of all the cabinetry? Can you settle on one metal finish?

Sizes

A small adjustment in cabinet dimensions and timber sections can have significant savings on material when utilising standard sheet and material sizes.

Simplify

A lot of designs are unnecessarily complicated adding considerable fabrication cost, so consider what is actually vital to the design, for example, does all the glass need to be bevelled?

TIP 20

Before finalising the design, specification and budget pay an expert to go through it in detail and provide recommendations. Given the size and importance of the joinery/furniture package it is surprising that it rarely has an appointed consultant.

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