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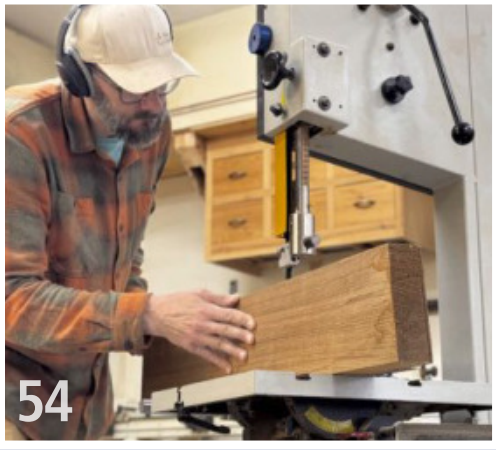

COVER STORY

Cover photo by Rob Brown

editor's letter

rbrown@canadianwoodworking.com

When I'm teaching students at my shop in Peterborough, Ontario, I see a wide range of makers, but there's one commonality among all the folks I see: they like to work wood in their small workshops. The thing I find unique about making things in a small shop is that you have to be resourceful. Although many can't afford every tool under the sun, most folks simply couldn't fit much more into their shop, even if they had the money for more tools.

The tools we choose play a large role in the type of work we do, how successful we are and, to some extent, what level of enjoyment we have as we work in our small workshops. Machines have to be small but efficient, making the best use of shop space while doing the heavy work of truing surfaces, cutting lumber to size and creating joints. Hand tools need to be used to their utmost, fine-tuning joints, easing edges and adding nice details to pieces. Power tools also play an important role in many aspects of our craft. Even jigs and accessories can mean the difference between an enjoyable, productive day in the shop, or a frustrating waste of time and money.

I've always enjoyed teaching folks about woodworking. Beginner topics like breakout and how to use a table saw, as well as more advanced skills like inlay, power carving or how to machine a strong, beautiful joint, are all hot topics for woodworkers. Teaching someone how to enjoy their shop time, while also being productive, is very rewarding. When I started as the editor of this publication over 15 years ago, one of my main goals was to show folks how a small space, without all the tools in the universe, is all that's needed to have fun and be productive. That's why I started the "Working in a Small Shop" themed issue. After 15 years, I think I can say it's worked out quite well.

This issue continues the exploration of what can be done in a small workshop. I had a lot of fun putting together two shop profile articles. Both spaces are roughly the same size, though they're drastically different from each other. There's also an article on working in a table saw-free shop, discussing all of the benefits that provides. Once you've fine-tuned your workshop to be efficient and enjoyable, take a crack at making both the fixture knobs and L-fence jig shop projects in this issue. They'll come in handy down the road. I hope you enjoy this themed issue. I also hope you all keep spending time in your tiny, yet mighty, small shop. — *Rob Brown*

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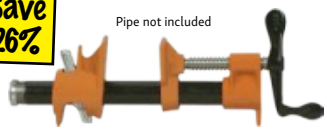

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letters

Another great power carving webinar

You did a great job with your recent webinar on power carving. You gave me some useful insights into electric vs battery units and the relative usefulness of variable speed grinders.

One of the attendees asked about controlling the grinder and cutting attachment for kickback – a useful question. I've resisted buying an angle grinder forever because they scare me. Your webinar has given me the confidence to move forward with the fascinating world of power carving.

Howard R.
Via email

Power carving is a lot of fun, but it has to be done safely. If you're a bit nervous about starting out, I understand. Learning from a trusted teacher will give you the confidence and knowledge to safely proceed. Like anything, take it slow, let the tool do the work, don't ask the tool to do something it's not supposed to do, wear the proper PPE and enjoy the learning process. Before you know it, you'll be incorporating power carving into all sorts of your future woodworking projects.

Be sure to check out the previous power carving webinars we've produced on our website, as well as all the past power carving articles we've published. There's a lot of information for new power carvers. — Rob Brown, Editor

There's so much to learn

I've been woodworking for about two years now and am still having trouble digesting all the information out there. Between the books I bought, the magazines I've subscribed to, the clubs I belong to, and the wild and wonderful world of social media, there are so many ways to learn. It often feels overwhelming. I got into woodworking to make small boxes and other small, more intricate projects, but I sometimes get caught thinking I should learn on less intricate projects first, then move to the projects I really want to make later.

How do you suggest I decipher all the information out there and further my understanding of this fun hobby?

Jacqueline H.
Via email

The first step in any hobby can be daunting, but don't get too caught up in all the things you don't know. Woodworking is very rewarding. Focus on the things you want to learn, bring those skills into your next project so you can practice, then see what you want to do next. Starting with simple projects, then moving to more intricate projects, is a logical way to learn.

You're right about all the places there are to learn about woodworking. Books, magazines and clubs are a great way to find information. Learning the basics from a trusted source is incredibly valuable and will pay off very quickly. Social media can be a double-edged sword, though. Although there are many interesting reels, videos and photos to learn from, it's sometimes confusing to determine what are the safest, most efficient ways to machine or joint, or the best ways to complete a woodworking technique.

One tip I give many of my students is to try and not learn "all" there is to learn about a technique before you try it, or you'll never even start a project. Paralysis by analysis can be debilitating. It's much more important to start a project, learn as much as you can from it while you're in your workshop, then build on those skills you've acquired from the experience of making a few mistakes. Remember, each project doesn't have to be perfect. The main thing to focus on before you get in over your head is safety.

Like many other aspects of life, spending a bit less time on social media, and a bit more time in the shop, is likely a great start. Pick a box design, make any small adjustments to it to suit your needs, ensure you're comfortable doing the machining needed to create that box, then dive right in. Starting with some of the many boxes project articles we have on our website is also a great way to learn from a trusted source as you build an enjoyable project. Enjoy the journey. — Rob Brown, Editor

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Tool Reviews

Mafell DuoDoweler DDF 40

Precision dowelling for the professional woodworker and dedicated hobbyist.

Lamello Zeta P2 Biscuit Joiner

A compact, pro-grade biscuit joiner that cuts form-locking grooves with a mechanical drive for fast, tool-free PSystem connector installation.

Zen-Wu Block Plane A premium titanium block plane delivering smooth, precise cuts with minimal vibration and a refined modern design.

View these reviews and more at:
canadianwoodworking.com/product-reviews

Micro Mystery

Previous issue:
The "S" from the Veritas logo on a Veritas Pocket Layout Square

Can you guess this object commonly found in most shops?
Follow us on Facebook (Facebook.com/canwoodworking) and Instagram (@canadianwoodworking) to see more Micro Mystery challenges.
We will post the answer to this one in our fall issue.

Keep in Touch on Instagram

Here's a mix of informative and entertaining social media influencers to check out.

Nick Mazerolle
Instagram: @nickmazerolle
Handcrafted furniture from Fredricton, New Brunswick

Jacquie Rowe
Instagram: @lumber_jacq
A wood artist who repurposes salvaged material

Standish WoodStory
Instagram: @standishwoodstory
Sharing passion for woodworking and simple DIY projects

Spirit Tree Paddle Company
Instagram: @spirittreepaddlecompany
Creating handcrafted canoe, kayak and SUP paddles in Paris, Ontario

Events

Hamilton Wood Show
November 13-15, 2026
Caledonia Fairgrounds – Riverside Exhibition Centre
Caledonia, Ontario
woodshows.com/hamilton/

Fresh Cuts

Mastering the Festool Domino – Part 1

The Festool Domino has earned a nearmythic reputation in modern woodworking — a tool that promises fast, accurate, repeatable joinery with almost no setup fuss. But what exactly makes it so effective? In Part 1: Mastering the Festool Domino, we look at the three Domino models, the basic types of joints that you can make with the Domino, how it compares to other joinery systems, and why it's become so darn popular among professional and dedicated hobbyist woodworkers.

CNC routers, laser cutters and 3D printers: what woodworkers need to know

In this article, we take a deep dive into how today's digital fabrication tools operate, what sets them apart, and where each one shines in a woodworking environment. Whether you're curious about adding your first machine or looking to expand your digital workflow, this guide will help you understand what these technologies can do — and how to put them to work in your shop.

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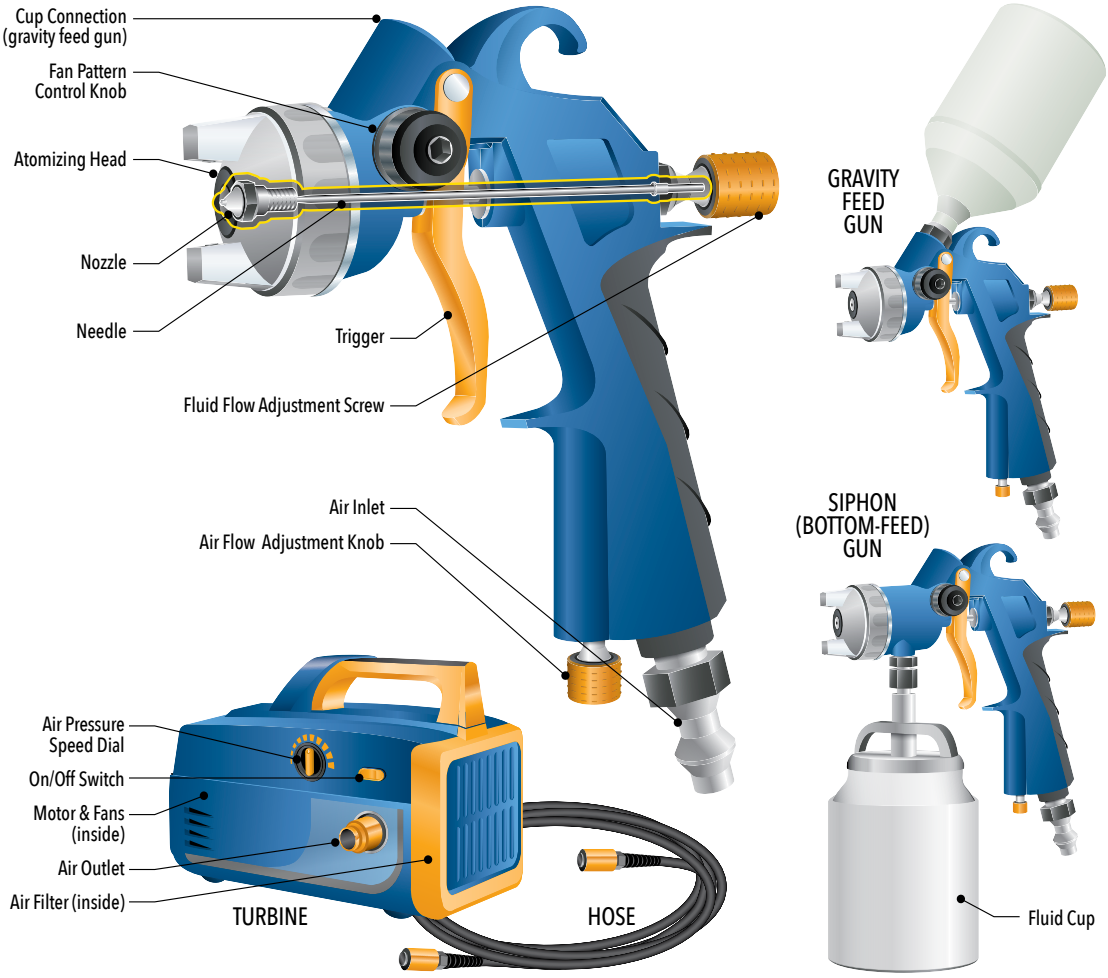

As the name suggests, HVLP technology uses a high volume of air at low pressure to atomize the finish. This results in a softer spray that produces less overspray and bounce-back compared to conventional high-pressure sprayers. HVLP systems can apply clear finishes like shellac, lacquer, polyurethane or waterborne topcoats, as well as pigmented paints and stains.

An HVLP system typically consists of three main components. A **turbine unit** with a compact motor generates a steady stream of high-volume, low-pressure air. Unlike compressor-driven guns, it doesn't require a separate air source, making it portable and easy to set up. A flexible **air hose** connects the turbine to the spray gun, delivering warm, dry air that helps reduce moisture and improve finish quality. The heart of the system is a **spray gun**, featuring a fluid cup, needle and air cap that atomizes the finish into a fine spray. Most guns allow for adjustments in fluid flow, air pressure and spray pattern. **Gravity feed** guns have the fluid cup located on top of the gun while **siphon** (a.k.a. bottom-feed) guns have the cup suspended below the gun.

Together, these components give woodworkers precise control, reduced overspray and professional-quality results on furniture, cabinetry and small projects. Turbines are rated by the number of fan impellers, referred to as "stages" (typically from 1 to 6) stacked in series inside the turbine housing. For example, a single-stage turbine has one fan impeller, a three-stage turbine has three impellers. More impellers deliver greater airflow and pressure for atomizing thicker finishes.

Number of stages: 1 to 6
PSI range: 1.5 to 9.5
Popular brands: Apollo, Earlex, Fuji, Graco and Wagner

Photos by Fuji Spray Illustration by Len Churchill

Get the Most Out of Your **HVLP Spray System**

Thin finishes properly

Many coatings need to be thinned for smooth spraying. Follow the manufacturer's recommendations to ensure the finish atomizes evenly without spitting or orange peel.

Adjust gun settings

Take the time to fine-tune fluid flow, air pressure and spray pattern. Proper adjustments improve efficiency, reduce overspray and give you a more consistent finish.

Keep the gun moving

Maintain a steady speed and overlap each pass by about 50%. This prevents runs, sags and uneven coverage while creating a smooth, professional surface.

Maintain equipment

Clean the gun, fluid cup, needle and filters after every use. A well-maintained system performs better, lasts longer and reduces the risk of clogs or uneven spray.

Practice on scrap

Always test on offcuts before spraying your project. This lets you check spray pattern, finish flow and gun adjustments without risking your workpiece.

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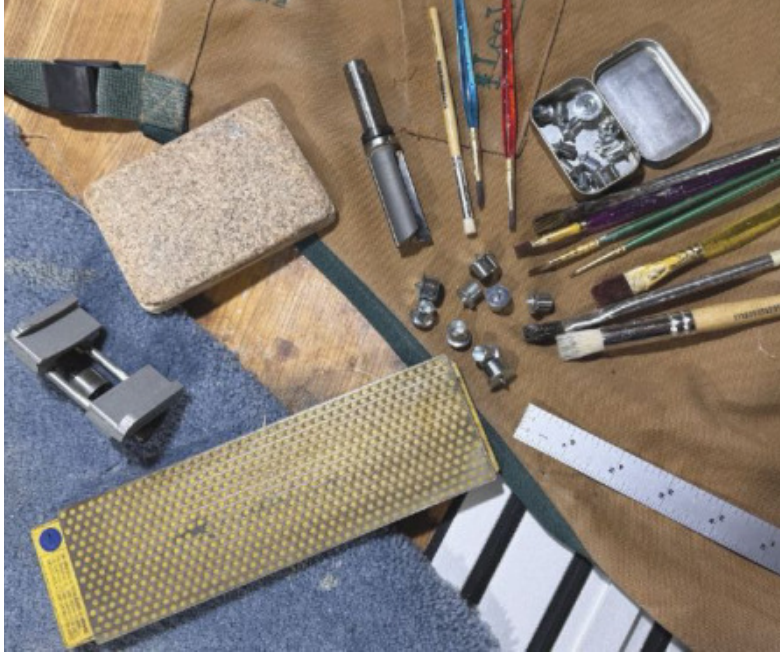
Top 10 Versatile Items for a Small Shop

A small workshop needs to be equipped with tools that are versatile in order to be productive.

BY ROB BROWN



1 Dowel Centres – Some woodworkers avoid dowels, as they think they're weak. While it's true that dowel joints aren't as strong as some other joints, they still create a reasonably strong joint, aid in location, make assembling a project easier and are incredibly versatile. Remember, you don't always need super-strong joints.

2 Track Saw – Not a low-cost item, but worth considering for any hobby workshop. A table saw is more appropriate for a busy professional workshop, but a track saw is a great addition in a small shop, as it's very versatile, easy to use and quite safe.

3 Sanding Block – While it's true that a sanding block only does one main thing, a decent sanding block is not only inexpensive to buy or make, but it might save you a world of time, money and frustration during the finishing process. A good shop-made sanding block can simply consist of a piece of cork adhered to some 1/2" plywood.

4 Sharpening Stone – So many hand tools are virtually useless without a sharp edge. A double-sided stone will put a fine edge on all of these tools, not to mention all the knives in your kitchen. If you really want to get a keen edge, some honing compound on a piece of flat wood will get you there.

5 Honing Jig – Sure, a honing jig really only does one thing, but it does that one thing very well. The real versatility is in how a honing jig makes so many other hand tools work wonderfully.

6 Template Router Bit – Routing multiple parts the same size and adding curves to your work are two tasks that are easily accomplished with a template routing bit. You can also use the bit to plough grooves, machine rabbets, cut dadoes and create mortises. This is versatility at 20,000 RPM.

7 Brush Collection – Brushes help with so many woodworking tasks and they're generally very cost effective to purchase. From applying a coat of paint or polyurethane, to touching up a finish with the right colour, to applying glue precisely where it's needed, there are many tasks brushes excel at. Generally speaking, the smaller the brush, the more often I use it.

8 Carpet Squares – A sanded or finished surface can scratch so easily without the proper protection. Squares of carpet will provide a safe surface for projects to sit on, saving you countless hours of repairing and reworking projects that are nearly completed. I've also spent a lot of time kneeling on a few carpet squares as I work on a low portion of a project. And if that's not enough, transporting a project to a client, friend or family member always goes better with a handful of carpet squares to protect surfaces and corners.

9 Apron – I'll admit that calling an apron versatile might sound like a stretch to some, but an apron does more than just keep the dust out of your pant pockets. An apron protects you and your clothes from errant finishing materials and gobs of excess glue. An apron will also provide some protection from abrasion and the odd errant knife edge. The most important task, at least in my books, is keeping all of your most often used items well within arm's reach.

10 6" Metal Rule – Our work is only as accurate as our measuring devices. A tape measure is great, but I find a 6" metal rule takes accuracy to the next level; a level worthy of celebration. If you've never used a 6" metal rule, you'll be shocked at how often you reach for it, especially if it's just inches away, waiting in your shop apron.

ROB BROWN
rbrown@canadianwoodworking.com

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Photo by Rob Brown

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Adrian Heim

…on white oak, his card scraper and making silly mistakes.

BY ROB BROWN

Whole-House Design – This living room media unit is part of an entire-house project Heim was a big part of. He made all of the built-ins and furniture for this home. Heim found being able to think about design on this large a scale was exciting.

How long have you been building furniture?
I've been doing it more seriously for about four years

What sort of furniture do you specialize in?
My work is split in two avenues: freestanding solid wood furniture from my own design collection and custom built-in furniture and cabinetry.

Tell us a couple interesting things about your personal life
I just moved back to Canada from Amsterdam where I spent the last year and a half working in the cycling industry and going on bikepacking trips throughout Europe. Before that, I spent my 20s playing drums in various bands, releasing albums, and touring all over Canada, the U.S. and Europe.

If you were not a furniture maker what would you be?
I would be doing something bike-related.

In order, what are the three most important items in your shop apron?
6" rule, mechanical pencil, card scraper.

Do you prefer hand tools or power tools?
Got to have a good mix of both.

Solid wood or veneer?
Solid wood, but I've been getting more into veneer since moving into this new shared shop.

Figured wood or straight grain?
Straight grain.

Inherited Vintage Stanley Sweetheart or fresh-out-of-the-box Veritas?
Inherited Vintage Stanley Sweetheart.

Flowing curves or geometric shapes?
Again, I like a balance of both.

Favourite wood?
Black walnut.

Least favourite wood?
White oak which is ironic because it's what I use 75% of the time. I love the way it looks but I don't like the way it works.

Photos by Oliver Brooks (Photo Lead by Josh Yong)

Adrian Heim, 32, Heim Furniture
heimfurniture.com, @heimfurniture on Instagram
Location & size of studio — Vancouver, B.C., 90 sq. ft. bench space in a 3,000 sq. ft. shared shop
Education — B.F.A. in visual arts, University of Victoria
Certificate in Fine Furniture/Joinery Trades Foundation, Camosun College

quotes

I just started renting a bench space in a fairly iconic shared workshop at 1000 Parker Street in East Vancouver.

I like to keep my routine pretty flexible. I usually just wake up when I wake up and head to the shop soon after. Depending on how the work is going and the weather outside, I like to end my day a bit early and go for a bike ride to clear my head.

I love a sharp card scraper. I used to be obsessed with hand planes but now I reach for my card scraper most of the time. Maybe it's because I work with oak so much and I've gotten myself into bad situations with tear-out one too many times.

It's probably obvious but Danish Modern furniture is a huge inspiration for me. I wrote a research paper on Finn Juhl when I was in school and that definitely helped hone my interest in furniture from that time and place. Hans Wegner and J.L. Møller also come to mind.

I can't help but strive for perfection in every part of a project. This can sometimes be a bit self-detrimental because perfection is impossible and there will always be small setbacks along the way.

I only do commissioned work at the moment. I'm still in the early stages of my business and I don't feel I have the audience or reach to be able to reliably sell pieces made on spec every time. My house is already at capacity with things that I made without a client in mind other than myself.

Word of mouth is always the best kind of marketing. My workshop has a big open house every year in the fall as part of a city-wide arts event and that has been a really good source of work for me.

Ināt from Montreal and Fernweh from Bend, Oregon, are two of my favourite makers.

My instructor Sandra Carr from the Camosun Fine Furniture program has had the biggest influence on my career. I still feel like I'm learning every day, but I still give credit to her for teaching me everything I needed to know to get started.

It's the early stages of a project where I feel the most excited. Going to the lumber yard and finding exactly the right material I need, taking it back to the shop and getting started always fills me with energy.

"Reading Chair" – Heim designed and made this chair while studying at Camosun College. Everyone had to design and build a piece of seating for their capstone project and he won the best chair award for his year. Heim was happy with how comfortable it was and other than a few joinery and construction details, the design hasn't changed much since then. This chair also got Heim into Danish cord weaving.

If you want to attract clients, it really helps to present your work as professionally as possible. Good quality photos of your finished pieces is the most obvious first step, but I think documenting the process and giving people some insight into how you do what you do is valuable, too. The key is to make all the content you put out as high quality as you can. Your online presence is usually the first thing your new clients see, so that's your chance to make a good first impression.

Making silly mistakes is frustrating. They're always fixable but it's a frustrating feeling when things are going great, then you make one wrong move and have to stop what you're doing and deal with it.

A few years ago, I got to design and build the furniture for a whole house on Pender Island. There were three large built-in components that were done in collaboration with some good friends of mine and a wide variety of other pieces that I did myself. That was a real dream job and possibly a once-in-a-lifetime opportunity so it's going to stick with me for a long time.

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VIDEOS: Visit our website to see a slideshow of Heim's work.
RELATED ARTICLES: Christina Hilborne *(Dec/Jan 2017)*, Heidi Earnshaw *(Apr/May 2014)*

What's the Difference?

Woodworking tools, terms and techniques can sometimes be confusing. Here, we help you make sense of the finer points of woodworking so you can make the right decision for your situation.

BY CARL DUGUAY

Lumber Grades: FAS, Select and Common Lumber

When you walk into a hardwood supplier for the first time, lumber grades may seem confusing. Terms like Common, Select and FAS aren't about the overall quality of the board — they're about how much clear, usable wood you can expect from each board.

FAS (First and Seconds) is the highest standard grade under the rules of the National Hardwood Lumber Association (NHLA). These boards yield the largest percentage of clear, defect-free cutting area. They're typically wider and longer, making them ideal for large panels, tabletops and high-end furniture parts where long, uninterrupted grain is important. You'll pay more for FAS, but you'll waste less time cutting around knots and defects, and you'll be able to obtain longer, defect-free workpieces.

Select grade is very similar to FAS but allows for slightly more defects, often on one face. It's a common grade for wood species sold in Canada and the U.S. For hobbyists building cabinets, tables or casework, Select often provides an excellent balance between cost and yield.

No. 1 Common is sometimes called the "cabinet grade" for smaller parts. Boards contain more knots, colour variations and defects, but still provide enough clear sections for rails, stiles, drawer parts and face frames.

No. 2 Common has even more defects and shorter clear cutting areas. It's well suited to rustic furniture, short components or projects where character is part of the design.

In some retail settings, especially big-box stores, you may see hardwood grades such as Standard, or Select and Better. These aren't always strict NHLA grades. Select and Better usually means a mix of Select and FAS boards. Standard can vary widely, so inspect each board carefully.

For hobbyist woodworkers, the key is this: higher grades cost more but give you more clear wood per board; lower grades cost less but require more careful layout. Choosing the right grade depends on your project, your budget and how comfortable you are working around defects.

Lumber Grades – Lumber is put into a grade category, depending on how many defects are in a board. A high grade of lumber will give you lots of long, usable material, though it will be much more expensive than a low grade of lumber.

Rails, Aprons and Stretchers

When you start building tables, chairs or cabinets, you'll often hear the terms rails, aprons and stretchers. They're sometimes used interchangeably in casual conversation, but they actually refer to different parts with distinct roles in a piece of furniture.

Rails are generally horizontal structural members that connect legs, posts or stiles. You'll find rails in many types of furniture. For example, there are top and bottom rails in a face frame, long side rails on a bed, and rails in a frame-and-panel door. Their primary job is structural: they tie vertical members together and create a rigid framework. In many cases, rails also house panels or support other components.

Aprons are a specific type of rail found directly beneath the top of a table or desk. They run horizontally between the legs, just under the tabletop, forming a skirt around the piece. While aprons do add strength, their main role is to stabilize the legs and provide a surface for attaching the top (often with figure-eight fasteners or buttons, to allow for wood movement). Visually, the apron defines

Photos by manufacturers, Illustration by Len Churchill

Horizontal Parts – Rails, aprons and stretchers are all horizontal parts of furniture and woodwork. They each have subtle differences, though.

the shadow line under the top and influences the overall proportions of the piece.

Stretchers are horizontal members positioned lower on the legs, usually closer to the floor. Their main purpose is reinforcement. By tying the legs together near the bottom, stretchers greatly reduce racking, especially in long tables, benches and chairs. In some designs, they also serve as a footrest or a decorative feature.

In short, rails form the framework, aprons sit just under the top and stretchers strengthen the lower portion of the structure. Understanding these distinctions will help you plan stronger, better-proportioned projects.

Flat, Satin, Eggshell and Gloss Sheens

When you're choosing a paint or a clear wood finish, colour is only half of the decision. The other half is sheen — the level of gloss or reflectivity in the cured surface. Sheen affects how a project looks, how it feels and even how durable it will be over time.

Flat or **matte** are used interchangeably to describe the lowest sheen. Both have very little reflectivity and help hide surface imperfections. They absorb light rather than reflect it, which helps hide surface imperfections such as sanding scratches, small dents or uneven drywall patches.

With paint, flat finishes are often used on ceilings or low-traffic walls because they can be touched up easily, however they show marks more readily.

With clear wood finishes, matte sheens create a soft, natural look that emphasizes the wood itself rather than the finish film. However, very low sheens can sometimes burnish or develop shiny spots in high-use areas.

Sheen – The finish on this black walnut table reflects a fairly high amount of light, meaning it's likely either semi-gloss or gloss. It may look fancier at first, and be easier to clean, but a scratch on its surface will be easy to see.

Eggshell (in paint) and **satin** (in both paint and clear finishes) have a soft, low lustre. They reflect a small amount of light and are generally more washable and durable than flat finishes.

For painted walls, eggshell and satin are popular because they offer a balance: subtle sheen with improved cleanability.

For wood projects, satin is one of the most commonly chosen sheens. It provides a gentle glow that highlights grain without creating strong reflections. On furniture, satin often looks refined without appearing overly glossy.

Semi-gloss and **gloss** finishes reflect a significant amount of light. They're harder, more moisture-resistant and easier to wipe clean.

In paint, semi-gloss is commonly used on trim, doors and cabinets because it stands up well to handling. Gloss creates a bold, almost mirror-like effect and highlights architectural details, but it also reveals every flaw in the surface beneath it.

In wood finishing, high-gloss lacquer or polyurethane creates depth and dramatic reflection, often seen on formal furniture or musical instruments. The trade-off is that surface prep must be meticulous; any scratch or ripple will be obvious.

Sheen is controlled by flattening agents added to the finish. These settle in the can, so thorough stirring is essential before and during application. For hobbyist woodworkers and DIYers, the best approach is to match sheen to both function and style: lower sheens for subtlety and flaw-hiding; higher sheens for durability and visual impact.

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INFO: DIFFICULTY – **1/5,** LENGTH/TIME – **1/5,** COST – **1/5**

Quick and Easy L-Fence Jig

Make a versatile jig that will come in handy for many years.

Photos by Rick Campbell

BY RICK CAMPBELL

Over the years, I've built countless handy jigs for my table saw that perform a variety of useful tasks. However, if I had to pick a favourite, the versatile, easy-to-build L-fence would be at the top of my list.

In its simplest form, the L-fence is just two boards attached together at right angles to form a template guide suspended over the saw blade. You can build it from scraps in just few minutes.

Jig construction

I used medium-density fibreboard (MDF) for these parts, but any flat, stable stock you have on hand will work just as well. My MDF was 1/2" thick, but 5/8" or 3/4" material would also work well. The dimensions of this jig aren't critical. The overall length can be about the same length as your rip fence. The width of my jig is about 5".

Start by machining the horizontal guide rail that will be positioned above the saw blade during use. Next, cut the narrow end cap that will fit over the end of the horizontal guide rail. This piece should be about 1-1/2" wide. Its main purpose is to help keep the horizontal guide rail parallel with the table saw's surface.

After cutting the blanks, mill a 1/8" deep groove down the centre of the end cap to accept the edge of the horizontal guide rail. I formed this slot at the table saw by completing a series of passes over a standard ripping blade. Begin by setting the blade height to 1/8", then position the rip fence to cut a groove centred over the width of the blank. After passing the workpiece over the blade, rotate the part 180° and make another pass. Now, nudge the rip fence slightly and repeat this process until the slot is just wide enough to receive the guide rail with a snug fit. Alternatively, you could cut the slot using a dado blade or at the router table with a straight bit, using the same cut and flip technique or with a single pass. If this process is new to you, it's safer to cut this groove before ripping the end cap from a larger blank.

After assembly, the jig will be secured to the rip fence using a pair of F-clamps. To provide access for the clamps, drill a couple of 1-1/2" diameter holes in the face of the guide rail. I completed this task using a Forstner bit at the drill press. It's not critical where the holes are located, but they should be closer to the long edge that will have the end cap, rather than the edge that will be used to reference the workpiece against. This leaves you with more working room and means you can trim a wider amount of waste off the workpiece without having to rough it out on the bandsaw.

After drilling the holes, use a sharp chisel, a jigsaw or a coping saw to square off the sides of the openings that will be oriented towards the fence to create a flat area for the clamps to grip.

Now you're ready to assemble the horizontal guide rail and end cap. Spread a bead of glue in the alignment groove, clamp the two parts together and ensure they are perpendicular to each other. Set the jig aside to dry. Once the glue has fully cured, your L-fence is ready to go.

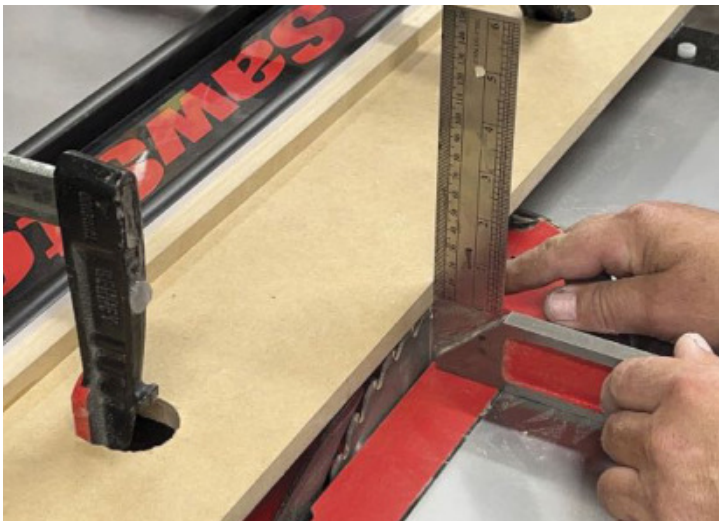
Installation and set-up

To install the jig, start by placing a piece of the stock you will be cutting under the jig to act as a spacer to set the height. Because the gap between the underside of the L-fence and the surface of the

Nice Fit – Once the groove is cut in the end cap, it's ready to be attached to the main horizontal section of the jig for good.

Create a Flat – Notching the hole so the clamp jaw can better seat against the flat edge works nicely.

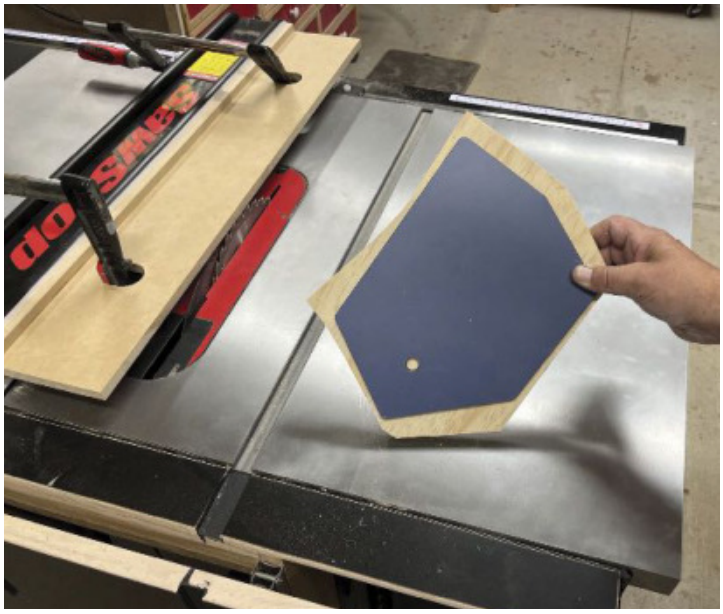
Clamp It Together – A bit of glue in the groove and clamps to bring the parts together are all that's needed.



Careful Set-up – Having the left side of the blade flush with the edge of the jig will mean the cut in the workpiece will be exactly flush with the edge of the straightedge you attach to the workpiece to guide it. Alternatively, you could adjust this distance if you wanted the cut in the workpiece to be slightly offset from the guide.

Precise Placement – When you have the left edge of the blade set flush with the outer edge of the jig, place the straightedge or guide on the workpiece in the exact location you want the cut to be made. Campbell sets the edge of this white straightedge so the defects will be removed from the workpiece and it can then be glued to another workpiece.

A Good Bond – It's imperative that the bond between the workpiece and the guide or pattern is strong enough to keep the two together during the operation. Screwing the two parts together can sometimes work if the screw holes aren't going to be seen. Otherwise, an ample amount of double-sided tape is a good approach.



Trim the Overhang – Campbell applies the dark pattern to the workpiece with double-sided tape, then he ensures the overhanging waste on all sides isn't too large. If the waste overhangs the pattern too much, it can either come into contact with the clamps or the rip fence during use. There's nothing wrong with taking the workpiece and pattern to the bandsaw to remove any excess waste at this stage, before using the jig to trim the workpiece to its finished shape and size.

table saw has to be slightly larger than the workpiece, you'll need to add another spacer about 1/8" thick on top of the workpiece, or just adjust the height of the jig upwards slightly before you clamp it in place.

Next, securely clamp the jig to your rip fence using a pair of F-clamps. For most operations, the blade height should be adjusted so the teeth just barely graze the underside of the jig. Obviously, if you're making a cut that doesn't extend all the way through the material, such as for rabbets, the blade will need to be set lower.

Make the Passes – With the pattern attached to the workpiece, Campbell makes the trim cuts on each side to remove the waste. He's careful to keep the edge of the pattern in contact with the jig during each pass to avoid kickback.

Very Accurate – Once the trim cuts on all the sides are completed, you're left with an exact replica of the pattern. This piece can easily be produced multiple times with a high degree of accuracy.

Adjust the rip fence so the outside edge of the guide rail is perfectly flush with the outermost edge of the saw blade teeth. A square resting on top of the saw table makes it easy to check for proper alignment.

Attach a guide board (or pattern board) to the top of your workpiece with a few strips of quality double-sided tape, ensuring that the edge is flush with the desired cut. If appearance isn't a concern, you could also secure the guide board in place with a few screws or brads. Either way, it's important for the bond between the pattern and workpiece to not fail during the cutting operation. To make the cut, simply pass the workpiece over the blade with the guide board riding firmly against the edge of the L-fence.

When the edge you're cutting is on the longer side (over 12" long) it's easy to ensure the pattern stays in contact with the jig during the entire length of the pass. But when the edge is short, pay extra attention to keeping the edge of the pattern parallel and in contact with the jig during use. Allowing the workpiece and pattern to rotate during the cut may cause kickback.

Final thoughts

With the right set-up, this simple jig becomes a highly versatile tool in your shop. It's perfect for jointing rough edges, cutting clean tapers, duplicating irregular shapes, milling rabbets and much more. After just a few uses, you'll wonder how you ever got along without it.

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RELATED ARTICLES: Make a Table Saw Cut-Off Sled *(June/July 2023)*, Make a Table Saw Mitre Spline Jig *(Feb/Mar 2021)*

INFO: DIFFICULTY – **1/5,** LENGTH/TIME – **1/5,** COST – **1/5**

MAKE YOUR OWN JIG FIXTURE KNOBS

Use simple construction and inexpensive materials to make customizable knobs for all your jigs.

Photos by Bruce Harding Illustration by Len Churchill

BY BRUCE HARDING

While working on a fence for my router table, I realized I didn't have any fixture knobs to complete the project. Not living close to a big city and not wanting to wait for an online order, I decided to make my own. I came up with a solution with what I had on hand and the fact they're made from wood is a nice touch for a woodworker. Turns out they're easy to make, customizable and inexpensive. All you require is some scrap wood and T-nuts.

Each knob is made up of two disks of wood glued together, face to face, with a T-nut encapsulated between the two disks. T-nuts are available in a variety of standard thread sizes (8-32, 10-32, 1/4", 5/16", 3/8") with 1/4" being the most common.

Make many

I'll describe how to make one knob, though I encourage you to make multiple knobs at the same time. You'll need two round pieces of wood for each knob. These pieces can be cut freehand on a scroll saw or bandsaw, but I cut them using a hole saw. The exact diameter for these handles isn't critical. I used a hole saw in my drill press, with a 2-1/4" inside diameter.

Before cutting them out, I bored a shallow 1" diameter recess with a Forstner bit into the 3/4" thick blank I was working with. This recess would accept the flange of the T-nut, and allow the two mating wood disks to come together nicely, around the T-nut.

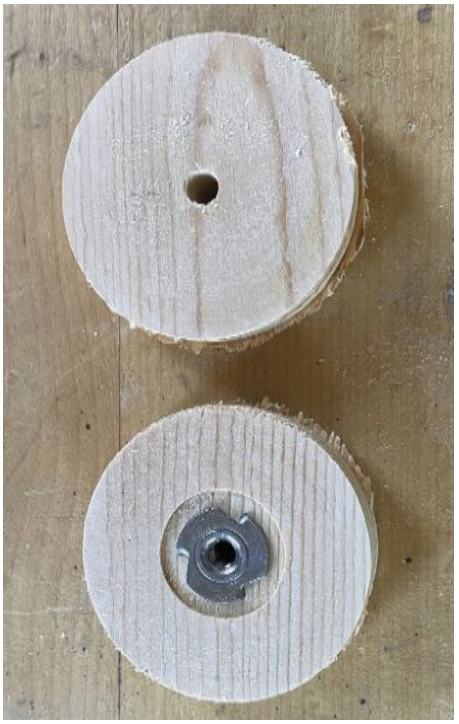
Next, the two round disks are bored at the drill press using a hole saw, with one of the pieces centred on the shallow 1" recess. The piece with the recess will require a 3/8" long clearance hole (size based on available T-nut) to allow the T-nut to seat properly in the piece. Drill that hole now.

Install the T-nut in the recessed disk, then glue and clamp the two halves together, marking one face so you know which side has the T-nut. A 1/4" bolt helps to keep the halves aligned during clamping, but don't overtighten the bolt as it may loosen the T-nut at this stage.

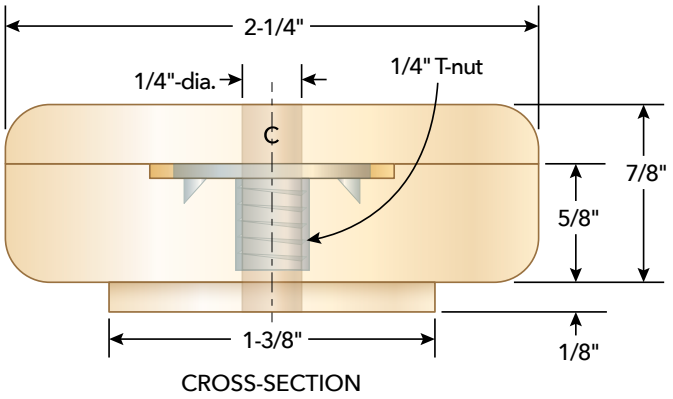
Turn the base

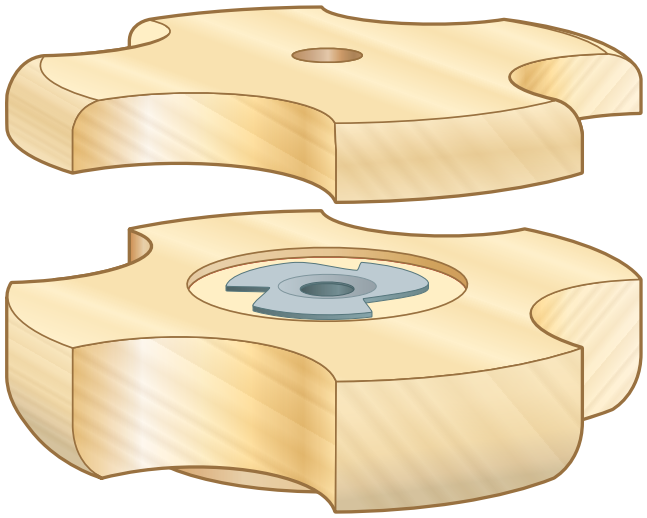
I found the knob easier to use if I turned the base to a smaller diameter. This isn't completely necessary, though, if you don't

Drill the Halves – Harding bores the knob halves on his drill press. Notice the 1" diameter recess that was drilled before the disks were cut with the large hole saw. The centre bit of the hole saw will just be located over the centre of the 1" diameter hole when cutting those parts.



Ready for Glue – The two knob halves are now complete and the T-nut has been installed in one half. A bit of glue will keep these parts together forever.





Add Pressure – Although you don't need a lot of pressure, use even pressure around the assembly to bring the parts together nicely.

Turn a Shoulder – Harding shapes the bottom shoulder at the lathe before shaping and sanding the knobs. This step is a nice way to finish all the knobs, but if you don't have a lathe this can be accomplished by hand.

have a lathe. You could also just use some hand tools to rough out this process.

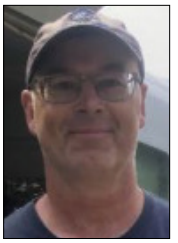
Once the piece has dried, insert the piece into the four-jaw chuck on your lathe, with the T-nut portion of the assembly away from the head stock. Trim down the exposed part of the knob to the required diameter, cut the bottom shoulder, sand the surfaces then part the knob to the required length. Next, flip the piece around and finish the top half. I like to round the top over a bit, but really that's up to you.

Add some grip

I tried using the round knobs as is, but found them to be too hard to get a good grip on. Simply cutting out notches in the perimeter solved that problem. I cut out the bulk of the waste with the bandsaw, and then did the final shaping with the spindle sander. Finish by hand sanding. Pair with a carriage bolt and you can use it in any number of jigs.

You can now make as many knobs as you want, with multiple thread sizes and shapes. There are lots of options to allow for customization. In fact, these are shown as "nuts", however they can be made into "bolts" by adding a threaded rod, and fixing the rod into the T-nut threads using Blue Loctite.

Shape the Notches – After removing most of the waste for the notches on the bandsaw, Harding uses a spindle sander to smooth the inner surfaces and create a unified look and feel.



Bruce works in his southeastern Manitoba shop as a hobby woodworker, with the pastime starting in his father's and grandfather's shops at a very young age. When not in the shop, he enjoys hiking, canoeing and fishing.

BRUCE HARDING

CHOOSING BANDSAW BLADES

Photos by Rob Brown Illustration by Len Churchill

The right bandsaw blade makes all the difference.

BY CARL DUGUAY

Wouldn't it be great if you could do all your bandsaw work with a single blade? Unfortunately, you can't. The right blade depends on what you'll be cutting (wood, metal, plastic, etc.) and the type of cuts you want to make (curved, straight, resawing and so on). Here are some key features to consider.

One of the first things to look at is **blade width**. Narrow blades, from 1/8" to 1/4", are ideal for cutting tight curves and intricate shapes. Medium-width blades, like 3/8" to 1/2", are good for general-purpose use and can handle both straight and curved cuts. Wide blades, typically 5/8" to 1" or more, are best for straight cuts and resawing because they're more rigid and resist deflection.

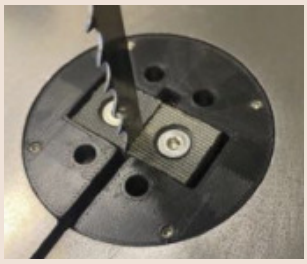
Next, consider the **teeth per inch** (TPI). Blades with fewer teeth (2 to 4 TPI) cut aggressively and are best for thick stock and fast ripping or resawing. Blades with 6 to 10 TPI offer a balance between speed and smoothness, making them suitable for general woodworking. Finer blades with 14 or more TPI produce smoother cuts and are better for thinner materials or cutting metal. A good rule of thumb is to always have at least three teeth in contact with the workpiece to avoid chipping or rough cuts.

Tight Curves – Tight curves can be made with narrow blades, like this 1/8" wide blade. A wider blade is much better at making straighter cuts.

Improve your blade support

Blade support is crucial when using a bandsaw because it directly affects cut quality, accuracy, safety and blade life. Several factors influence blade support, including the condition and set-up of your guides, blade tension, blade size, blade condition, and even your feed technique. One factor that's often overlooked is the condition of the insert plate, which helps reduce tear-out and supports the workpiece right around the blade. A new accessory designed to enhance this support is the BladeLock guide insert. One of BladeLock's key advantages is the integrated blade support built directly into its zero-clearance insert.

Unlike standard throat plates, the BladeLock insert includes embedded blade guides positioned just beneath the workpiece. This added support helps minimize blade deflection during cuts, resulting in cleaner, more precise work. Made from a carbon fibre and polyester blend, the insert also helps reduce heat buildup by naturally lubricating the blade, which can extend blade life. You can check them out at **StockroomSupply.com**



Tooth style also plays a crucial role.

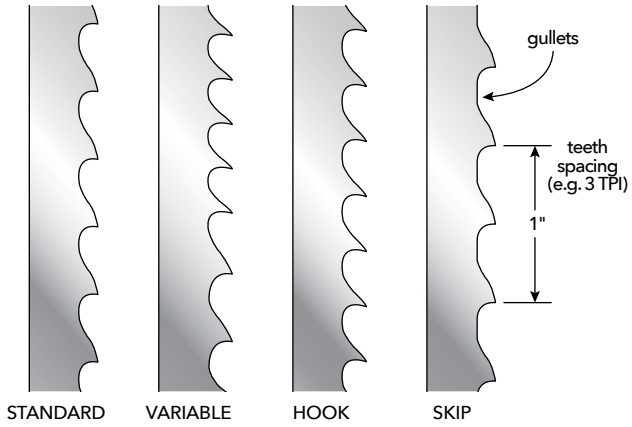
Standard- or regular-tooth blades are evenly spaced and provide a smooth cut, often used for cutting thin wood or metal.

Variable-tooth blades feature a repeating pattern of different tooth sizes and spacing that helps reduce vibration and noise while offering smoother, more versatile cutting. These are especially useful when working with a variety of materials or when a cleaner finish is desired.

Hook-tooth blades have a deep gullet and a positive rake angle that allows for fast, aggressive cutting — great for hardwoods and resawing.

Skip-tooth blades have wider spacing between teeth that helps prevent clogging when cutting softwoods or fibrous materials.

Carbide Is King – Although they're much more expensive, carbide blades remain sharp for a long time. This is most likely a feasible option only for someone who is doing a lot of very specific cutting, like resawing. Carbide blades are especially great in industrial settings.



Keep It Together – A good weld will keep the blade together for a long period of time and not interfere with the cut in any way. (Photo by Carl Duguay)

You'll also want to choose the right **blade material**. Carbon steel blades are affordable and work well for general woodcutting but tend to dull faster. Bi-metal blades are more durable and suitable for cutting metal or for extended use. Carbide-tipped blades are the most durable and are excellent for cutting dense hardwoods, abrasive materials or for frequent resawing, though they come at a higher cost.

Blade thickness matters as well. Thicker blades are sturdier and better suited to straight cuts, while thinner blades are more flexible and ideal for cutting curves, though they can break more easily if twisted or over-tensioned. Of course, the blade length must match your specific bandsaw's requirements. This information is typically found in the user manual or on the existing blade.

If you're buying a pre-welded blade, also check the weld quality. Poor welds can cause vibration or premature blade failure, so it's worth buying from a reputable manufacturer that offers precision-welded blades.

Generally, for basic woodworking a 3/8" wide, 4 TPI hook-tooth carbon steel blade is a solid all-purpose option. If you're doing a lot of resawing, consider a 3/4" wide, 3 TPI hook-tooth carbide-tipped blade for cleaner, straighter cuts and longer life. If you make a lot of tight-radius curves, a blade about 1/8" to 1/4" wide with 10 TPI is going to work well for you.

Wide Blades – Resawing puts more stress on a blade, which is the main reason why these blades are wider. Resaw blades are usually around 3/4" wide so they can better resist deflection while they cut through a lot of material.

Blade suggestions by task

Task	Width	TPI	Tooth Type
Tight curves	1/8" – 1/4"	14	Regular
General purpose	3/8" – 1/2"	10	Skip/hook
Resawing	3/4" – 1"	4	Hook
Metal cutting	1/4"+	24	Regular

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Our experts review new tools and products especially suited to the woodworker and DIYer.

King Canada 4" × 36" Belt and 6" Disc Sander

When flexibility, a compact footprint and value are needed, this might be your best sanding option for a small shop.

BY ROB BROWN

A sander can take care of many different tasks. Preparing flat surfaces and edges to accept a finish is one of its main jobs, though more freeform approaches to shaping and smoothing different radii, straight edges and surfaces in a small workshop setting are also required. This King Canada belt and disc combination benchtop sander can take care of many of these workshop sanding tasks due to its flexible, adjustable nature and two types of sanding surfaces. And its small footprint is a welcome addition to any small shop.

An adjustable work surface, equipped with a mitre gauge slot, makes sanding and shaping parts with the 6" diameter disc easy and accurate. The work surface isn't as strong as I'd like, but its main task is to support smaller workpieces, so this isn't too much of a problem. An included mitre gauge assists with sanding and shaping precise mitres and angles, when required.

The 4" × 36" belt section of the sander can be tilted on the fly between 0° and 90°, depending on your needs. A small stop is included, which makes it easier to shape parts and easily control them while you're sanding or shaping. An included Allan key is needed to install or change the stop. The work surface that's often used with the 6" disc can be repositioned to be on the belt section of the sander, making it even more flexible and functional.

Lots of Options – The disc work surface makes for easy and adjustable sanding. The included mitre gauge will also give you more options for accuracy and flexibility. This surface can also be removed and attached to the belt sanding area, to give you even more functionality.

The belt tensioning and tracking system is easy to use. The 2-1/4" dust collection port keeps dust down when hooked up to a dust extractor.

This sander may not be the best option for the floor of a busy production shop, though it will be right at home in a hobby setting, where flexibility in a small footprint is critical. Even in my shop, where I make high-quality studio furniture, this machine will take care of a wide variety of custom operations and will surely see many, many years of use.

Straight Sanding – The belt tensioning and tracking system allows for quick belt changes that run true.

Accuracy Matters – An included (and removable) stop will assist with freehand shaping on the belt.

Manufacturer: King Canada
Model: KC-705L-6
MSRP: $179.99

Photos by Rob Brown (Photo Lead by King Canada)

CANADIAN Woodworking & HOME IMPROVEMENT

small shop *essentials*

Premium Custom Bandsaw Blades

Engineered for performance and precision, **Skookum Bandsaw Blades** eliminate the need to settle for "close enough." Built in Canada to your exact specifications, they deliver better tracking, reduced vibration, and cleaner cuts tailored to both your saw and your work. When resawing thick hardwoods or making detailed cuts, the right blade matters. Skookum's online builder lets you enter blade length, width, and TPI/material to get instant pricing and the right fit fast. Choose flexback blades for curves and general use, hardback for straight tracking, bi-metal and M42 for tougher materials, or carbide-tipped for dense hardwoods and high-volume work. For over 25 years, Skookum Tools has earned the trust of Canadian woodworkers with consistent quality, responsive service, and dependable turnaround.

Onlinesupply.ca

Compact Power with Serious Turning Capability

The updated **Vicmarc VL150 V3 EVS 0.75kW lathe** arrives with a smarter feature set designed for precision turning in a compact footprint. A remote magnetic switch box improves safety and convenience, while the new RPM display provides accurate spindle speed readings regardless of belt position. For larger work, the lathe now supports outboard turning up to 500 mm in diameter, using a 260 mm bed extension complete with Camlock Riser and Locking Lever. Matching spindle threads on both inboard and outboard sides simplify accessory use. The redesigned tailstock quill key—borrowed from the company's larger machines—adds strength and smoother operation, while a brass-insert toolrest locking lever protects the post from wear. With smooth variable-speed control and thoughtful upgrades throughout, the VL150 V3 EVS delivers big-lathe capability in a workshop-friendly size.

Branchestobowls.com

Expanding the VL150's Turning Capacity

The new **Outboard Extension Bed Retrofit Kit** allows owners of the VL150 V2 to upgrade their lathe for true outboard turning. Designed to mount the tool-rest banjo on the left side of the headstock, the kit increases turning capacity to roughly 500 mm (20"), making it ideal for large bowls and wide-diameter work. It includes the extension bed, Camlock riser and locking lever, spindle adaptor and flange, locking collar, bearing, and all required hardware. Installation is straightforward, requiring the user to drill four 9 mm mounting holes. Unlock big-lathe capability without replacing your existing lathe.

Branchestobowls.com

A Unique Twist on Clamping

BESSEY GearKlamp is the first clamp of its kind, designed for tight, hard-to-reach spaces where traditional clamps can't go. Its patented design separates the spindle from the handle, creating clearance and letting you reach into confined areas for clamping that was once difficult or impossible. A quick-shift button moves the jaw easily, while the around-the-rail handle delivers up to 450 lbs of secure clamping force with a simple twist. Built with tempered steel and reinforced housing, the GearKlamp is durable, reliable, and easy to use. Protective caps and a removable pad also make it ideal for delicate or irregularly shaped workpieces.

Besseytools.com

Reliable Parallel Clamping for Accurate, Stress-Free Glue-Ups

The **BESSEY K Body REVOlution (KRE)** clamp delivers precise, even pressure across panels, making it a dependable choice for cabinetry, furniture parts, and wider glue-ups. Its large, parallel jaws keep workpieces aligned and flat, while the steel-reinforced rail resists flex under load. An ergonomic handle provides strong, controlled tightening without strain. Glue-resistant pads protect surfaces, and the included rail-protection pieces help maintain clean, square edges. With smooth jaw movement and secure locking, setup is quick and intuitive. Built for accuracy and durability, the KRE clamp offers reliable performance for both demanding projects and everyday shop tasks.

Besseytools.com

Compact Power for Clean, Accurate Jointing

The **King Canada KC-6HJC (KC-6HJC)** is a capable 6" benchtop jointer designed for hobbyists who want reliable performance in a small footprint. Its 1 HP, 10 Amp motor spins at 12,000 RPM, giving it enough muscle to handle edge-jointing, face-flattening, and general stock prep with confidence. The helical cutterhead uses 12 replaceable high-speed steel inserts that shear the wood cleanly, reduce tear-out, and stay sharp longer than traditional straight knives. When an insert dulls, you simply rotate it to a fresh edge - no fiddly knife setting required. For small shops or multipurpose workspaces, the KC-6HJC offers a smooth cut, low maintenance, and an efficient workflow in a compact, user-friendly package.

KingCanada.com

Precision Scroll Saw for Detailed Craftsmanship

The **King Canada 22" Professional Scroll Saw (KXL-22**) is built for woodworkers who need accuracy, control, and the ability to cut intricate shapes with ease. Its 1.3-amp DC motor provides variable speeds from 550 to 1,550 strokes per minute, letting you match blade speed to material and cut complexity. The spacious 13-3/4" × 27-5/8" stationary table tilts 45° left and right for stable angled cuts. A tool-free blade change system and holders for standard 5" pinless blades keep setup quick. A built-in dust blower maintains a clear sightline for detailed work. The saw includes two 5" blades and hex keys, making it a strong choice for hobbyists and serious users who value clean, accurate results.

KingCanada.com

Portable Cutting Performance for DIY and Jobsite Work

The **King Canada KC-5100NS (KC-5100NS)** is a budget-friendly jobsite table saw for DIYers and light to medium professional work. Its 15-amp motor provides solid power for ripping framing lumber, trimming sheet goods, and handling most on-site cuts. The lightweight aluminum table resists rust and features extendable rails that increase rip capacity to 25"—ideal for plywood and wider stock. A single handwheel adjusts blade height and bevel, with a blade-height lock and micro-bevel control for added precision. The saw comes ready to use with a 10" 40-tooth blade, rip fence, miter gauge, table inserts, push stick, and wrenches. For small shops or mobile setups, the folding stand and compact design make it a practical, versatile cutting solution.

KingCanada.com

Heavy-Duty Adjustable Sanding

The **King Industrial 6" × 48" belt and 9" disc sander (KC-760L)** is a robust, versatile machine for everything from rapid stock removal to fine surface prep. Its 1 HP, 10-amp direct-drive motor delivers steady performance, spinning the disc at 1,740 RPM and driving the belt at 1,250 SFPM. A cast-iron body and steel base minimize vibration for better control and finish quality. The belt platen's graphite pad reduces friction and extends belt life, while a quick-release lever speeds belt changes. Both cast-iron tables include T-slots and tilt 0° to 45° for bevel work. The belt unit adjusts vertically, horizontally, or at any angle, and dual dust ports (2-1/2" to 4") simplify connection to a shop vac or dust collector.

KingCanada.com

Compact, Quiet Planer

The **King Canada KC-13HPC (KC-13HPC)** is a 13" benchtop planer built to deliver a smooth, consistent finish for hobbyists and small-shop woodworkers. Its 15 Amp motor provides reliable cutting power and includes thermal overload protection for added durability during long planing sessions. The helical cutterhead - fitted with 26 two-sided inserts - shears wood cleanly, reducing tear-out and lowering noise compared to straight-knife designs. With a 13" planer width and a 6" thickness capacity, it handles most project lumber with ease. A standout feature is the two-position dust chute, which accepts both 4" and 2-1/2" dust collection setups, making chip removal efficient in any shop environment. For woodworkers seeking an affordable planer that offers excellent surface quality and practical dust control, the KC-13HPC is a strong, well-rounded choice.

KingCanada.com

Smooth, Accurate Bandsaw Performance

The **King Canada KC-1002C (KC-1002C)** is a dependable 10" bandsaw for hobbyists and small-shop woodworkers who need clean, controlled cutting in a compact footprint. Its sturdy frame and balanced wheels ensure stable blade tracking, while the adjustable guide system maintains accuracy on straight cuts, curves, and light resawing. The saw offers generous cutting height and width for its size, making it suitable for everything from small craft work to stock preparation. A tilting table supports bevel cuts up to 45°, and the rack-and-pinion adjustment provides smooth, precise positioning. The KC-1002C includes a miter gauge, rip fence, and dust port, delivering an affordable, versatile bandsaw with consistent performance and user-friendly operation.

KingCanada.com

Cordless Power and Precision with the Festool DFC 500 DOMINO

The new **Festool DFC 500 cordless DOMINO Joiner ($1,779.00 – #578121)** delivers strong, accurate joinery without the limitations of a cord. Its unique oscillating motion cuts clean, twist-proof mortises that pair perfectly with DOMINO Tenons for alignment, strength, and long-lasting durability. Offering the holding power of mortise-and-tenon joinery with the speed of biscuits and the reliability of dowels, it excels in cabinets, tables, frames, and outdoor projects. The ergonomic D-handle provides comfort and control, while built-in indexing points make alignment fast and consistent. From shop builds to on-site installs, the DFC 500 helps you work efficiently and produce professional-grade results.
FestoolCanada.com

Cordless Precision Planing with the Festool HLC 82

The new **Festool HLC 82 Cordless Planer ($625.00 – #578001)** delivers smooth, controlled cutting with the freedom of cordless power. Designed for one-handed operation, it features quick depth adjustment and integrated V-grooves for clean, accurate chamfers. Its single-knife helical cutterhead produces fast, quiet, chatter-free cuts while maintaining excellent surface quality. Paired with Festool's proven dust-extraction system, it keeps the workspace clean and visibility high. Powerful, compact, and easy to handle, the HLC 82 is an ideal choice for trim work, fitting, remodeling, and fine woodworking where mobility and precision matter.
FestoolCanada.com

Cordless Edge-Routing Control with the Festool MFKC 700

The new Festool **MFKC 700 Cordless Modular Edge Router ($695.00 – #578012)** delivers clean, consistent results on laminate, edge banding, and detailed profiles — without the restrictions of a cord. Its wide, stable base and precise micro-adjustment let you dial in exact depth settings for flawless edges every time. The modular design switches quickly between trimming, chamfering, and fine detail work, adapting to whatever the job demands. Lightweight, well-balanced, and slim in the hand, it offers excellent control and smooth guidance along edges. Built for mobility and accuracy, the MFKC 700 is a versatile, jobsite-ready router for professional-quality edge work anywhere.
FestoolCanada.com

OFKC 500 Cordless Edge Router — Stable, Precise, and Effortless Control

The new **Festool OFKC 500 Cordless Edge Router ($555.00 – #577986)** delivers smooth, controlled routing with a tilt-resistant design and well-balanced center of gravity. Its cordless platform provides unrestricted mobility, while micro-adjustable depth control — accurate to 1/256" (1/10 mm) — ensures consistent, flawless results. A rigid spindle connection maintains precision during trimming, profiling, and detail work. With straightforward setup and intuitive operation, the OFKC 500 produces clean, repeatable edges with no rework required. Compact, agile, and built for accuracy, it's an ideal solution for finish carpenters, cabinetmakers, and installers who need dependable performance anywhere on the job.
FestoolCanada.com

TBX 4 Tabless Battery — Compact Power

The new **Festool TBX 4 Battery ($119.00 – #578745)** uses advanced tabless cell technology to deliver higher power output, cooler operation, and longer service life without added weight. By removing traditional cell tabs, energy flows more efficiently, improving runtime, charging speed, and sustained performance under load. Paired with the AIRSTREAM SCA 16 charger, the battery is actively cooled for faster turnaround on demanding jobs. Bluetooth® connectivity enables automatic dust-extractor activation and detailed battery monitoring through the Festool app. Compact, intelligent, and durable, the TBX 4 provides reliable, high-efficiency power — fully backed by Festool's 3-year warranty.
FestoolCanada.com

BP 18 Li 5.0 HP-ASI — High-Power Performance

The new **Festool 5.0 Ah Li-HighPower Battery ($119.00 – # 578939)** delivers up to 50% more power than a standard 5.0 Ah pack, making it a versatile workhorse for the entire 18V platform. Its advanced cell technology provides strong, consistent output—ideal for high-demand tools like saws — while maintaining balanced handling and practical runtime. Paired with the AIRSTREAM SCA 16 charger, it cools and recharges quickly to minimize downtime. Bluetooth® functionality enables automatic dust-extractor activation and access to detailed battery data via the Festool app. Durable, efficient, and jobsite-ready, it's a dependable everyday battery backed by Festool Service.
FestoolCanada.com

Accurate, Easy Doweling with the Kreg Dowel Jig Kit

The **Kreg Dowel Jig Kit (#KHJD345)** is a straightforward, reliable solution for creating strong, accurately aligned dowel joints in furniture, frames, and small cabinetry projects. Its hardened-steel drill guides keep your bit perfectly centered, ensuring clean, repeatable holes in edge-to-edge, edge-to-face, and mitered joints. The jig's adjustable fence helps you position holes consistently, while the built-in alignment windows make setup quick and intuitive. A non-marring clamping surface keeps your workpiece secure without slipping. With included stops, bushings, and accessories, the Dowel Jig Kit gives hobbyist woodworkers a simple, confidence-building way to produce tight, professional-quality dowel joints across a wide range of materials and project sizes.
KregTool.com

Precise, Guided Drilling with the Kreg Drill Guide Pro

The **Kreg Drill Guide Pro (#KDG6500)** is a compact, self-aligning solution for drilling straight, accurate holes without a drill press. Its hardened-steel guides keep your bit perfectly vertical or angled, helping you drill clean, repeatable holes in furniture parts, cabinetry components, and repair work. The non-slip base grips securely to most surfaces, while the built-in alignment marks and V-groove make centering on edges, dowels, and round stock fast and intuitive. Compatible with standard drill bits, the Guide Pro brings dependable accuracy to the jobsite or small shop, giving woodworkers a portable, confidence-boosting way to achieve consistent results.
KregTool.com

Portable, Cordless Pocket-Hole Power with the Kreg Rebel 20V

The **Kreg Rebel 20V Ionic Drive Pocket-Hole Joiner Kit (#KPTBRB100A)** brings cordless convenience and consistent pocket-hole performance to the jobsite or small shop. Its 20V brushless motor delivers smooth, controlled drilling, while the Ionic Drive system maintains speed under load for clean, repeatable pocket holes in hardwoods, softwoods, and sheet goods. The adjustable fence and built-in material-thickness settings make setup fast and accurate, ensuring strong joints across furniture, cabinetry, and repair work. A chip-ejection port keeps the bit clear, and the ergonomic grip improves comfort during longer sessions. With its included battery, charger, and accessories, the Rebel 20V offers a powerful, portable upgrade for anyone who wants pocket-hole joinery without being tied to a cord.
KregTool.com

KingsFleet Boiled Linseed Oil — Elevate the Natural Beauty of Wood

KingsFleet Boiled Linseed Oil is a premium wood oil pressed and produced in Canada using a traditional six-step cold-press process. No chemical solvents. No shortcuts. Unlike many commercial oils produced through chemical extraction, KingsFleet is pressed from whole seed to preserve the oil's natural integrity and performance. Our heat-treated formula penetrates deep into the grain, enriches colour, and cures faster than raw linseed oil while creating a durable, water-resistant finish. Built by makers who value traditional craftsmanship, KingsFleet delivers a rich, hand-rubbed finish that protects wood without hiding its natural character. Ideal for furniture, tool handles, and outdoor wood applications.
KingsFleet.ca

A PRODUCTIVE DOUBLE-CAR GARAGE

Photos by Mike Chrapko

Every woodworker dreams of having a large, fully operational shop on their property. Follow the evolution of one hobby woodworker's path to living the dream.

BY MIKE CHRAPKO

My shop started out as a new 24' × 24' two-car garage in 1987. Through the years of working and raising a family, it was a garage with three woodworking machines and a compressor. If there was any cutting to be done, saws were moved outside.

Ever since shop time at trade school, I longed for a real shop where I didn't have to set up equipment to work on a project and then take it all down at the end of each day. I decided that the time to make this happen would be when I retired.

Retirement

In 2015, in preparation for my dream shop, I replaced the heat source, windows, overhead door, mitre saw, shop vac and added metal toolboxes. My me-to-me retirement present was a 24' cargo trailer that I parked next to the garage. It serves as a temporary shed to store anything that didn't need to be in my future shop.

Soon after, I retired. We stopped parking in the garage and I began transforming my garage into a shop. My first machine purchases were a lunchbox planer and 1.5 HP 110V mobile dust collector.

Old machinery

Next I stumbled upon a vintage 4" jointer and so began my trip down the slippery slope of hunting down and restoring old woodworking machines. It didn't take long to figure out how much could be saved by buying good-quality used machines, cleaning them up and upgrading the bearings and belts. There's also the fun of the search, the race to the purchase, and the challenge of making a machine run as smoothly and accurately as it did when new. This type of approach isn't for everyone, though. I'll never forget the first electric motor I opened up, mostly because it sits on a shelf, never to run again.

Next, I replied to an ad for an old bandsaw and when the kind gentleman offered me a package including a matching 6" jointer and 11" wood lathe, I was most grateful and happy to oblige.

Planning and layout

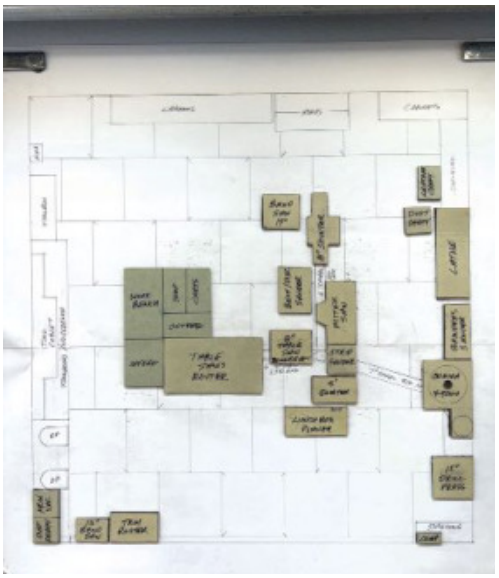
Somewhere along the line, rubber floor tiles went in. Covering the salt-damaged floor went a long way to making a bright, inviting space that could be easily vacuumed.

I decided to follow convention and place the table saws near the centre of the shop, slightly nearer the overhead door. The workbench was placed kitty-corner to the saw table to alleviate the common issue of having to clear the bench to make a cut. Outfeed and infeed tables were hinged off the bench in order to keep everything mobile. The workbench ended up in front of the toolboxes, which was great.

Dust collection

My first dust collector was a mobile 1.5 HP machine designed for use with a maximum 10' length of 5" diameter hose.

Moving that hose between my machines as I made different cuts got old very quickly, resulting in it not happening very diligently. I rationalized that switching to a mix of spiral piping, blast gates, short lengths of hose and a slew of 45° elbows would



To-Scale Drawing – Chrapko drew a to-scale floor plan, then used magnets cut to-scale to represent each machine and fixture. This allowed him to move the machines around to come up with the best layout.

Starting Point – Because dust collection needs to be planned around a lot of the machinery, it needs to be seriously considered. Chrapko determined the location of the machinery, then designed the dust collection to suit the needs of the machinery.

provide a solution. I couldn't have been more wrong. The suction suffered drastically and I learned yet another lesson in buying too small and without proper research.

During the long wait for the new 3 HP unit to make its way from New York through Ontario to Alberta, I read and researched everything I could find on dust collection setups. I found a wealth of information on the *Canadian Woodworking & Home Improvement* forum.

To really dial in the dust collection design, I needed to figure out where the dust producing machinery would go. I made a scaled floor plan based on the one-metre grid pattern the floor tiles provided and stuck it to the garage door. Magnetic cutouts depicting the machines were shuffled around until a plan started to materialize. I decided on an island layout with the major dust producers clustered together. A plywood adapter was needed to get the inlet of the collector headed in the right direction.

I needed to keep half of the shop available for vehicle servicing so I opted for a somewhat unconventional ductwork layout where there is one main riser and two branches 10" and 20" off the floor. The main duct is 7" in diameter from the collector through the large radius elbow up to the first connection. From there it transitions to 6" diameter throughout. My blast gates are shop-made as I wasn't keen on the 18% reduction in area that the commercial gates have and I wanted them to open and close vertically. Magnets hold them open rather than a screw, which means only one hand is needed to operate them.

I chose an exterior wall in the higher 10' ceiling area for the dust collector. I wanted to minimize the noise and possibility of vibration inside the house.

Secondary dust collection

The first attempt was with a cyclone/dust extractor in one corner and a 30' hose stretching around the island of machines in the centre. That didn't work well, so I placed some of the minor dust producers on the far side of the shop and introduced two Dust Deputy 2.5 extractors to take care of those machines. In addition

Secondary Dust Collection – Because Chrapko has a lot of varying needs for dust collection, he decided to add secondary extractors when needed, rather than try and tie all the machines into the main dust collection system. This approach maintains a higher level of performance for the main collection system, while also improving the collection to these secondary machines.

Ambient Air Cleaner – A shop-made air cleaner uses standard furnace filters to remove the finest dust from the air, keeping it out of Chrapko's lungs.

to general vacuuming duties, each of these two smaller extractors have a 2.5" collection network complete with blast gates for the drill presses, sanders, etc.

A repurposed furnace fan runs a shop-made ambient air cleaner. It's wired into a timer and comes into play if I forget to open a blast gate on the 3 HP main collector.

Machine ports / connections

Good dust collection is very much dependent on the diameter of the piping. With these old machines, I had to pretty much fabricate my own connections. Since my runs are relatively short, I opted to use 6" diameter pipes wherever possible. In some cases it was a significant undertaking, but for my situation, well worth it.

Space saving

All of the woodworking machines and benches in this shop are mobile. Most are on shop-built, foot operated retractable castors. Depressing the foot pedal quickly and effortlessly mobilizes or immobilizes the machine. Machines can easily be shuffled around for servicing and to accommodate varying projects.

My shop is 24' × 24' with two ceiling heights: 9' and 10'. I decided early on to conserve space wherever possible. To this end, I found other space to store anything not needed for the shop's function, such as vehicles, bikes, lawn and garden equipment, and lumber/sheet goods.

My mitre saw, planer stand and workbench all have flip-up folding wings. Shop carts are stored under other work surfaces when not in use.

Many of the woodworking machines share their floor space. The wood lathe has a small disk sander mounted at the rarely used end. One of the drill presses shares its footprint with a long shaft buffer, box joint jigs and a rolling shop stool. The second disk sander lives on the same stand as a couple of bench grinders. The 8" table saw is dedicated to box joints and downdraft sanding. The larger jointer

Foldable – Fold-down support surfaces on his mitre saw and thickness planer allow Chrapko to gain some space when these machines aren't in use. These surfaces are all at the same height, so they not only won't interfere with each other, but they could potentially support work in progress on a different machine.

Well Thought Out – There's storage for several items under the drill press's work surface. This approach is true for pretty much all of the machines in Chrapko's workshop, and is one of the reasons why he can fit so much into his space. All of the lower machines and tools are easily accessible.

Dedicated Usage – This table saw splits its time between making box joints and supporting a downdraft sanding box. These are things Chrapko uses often, so it makes sense for him to dedicate the area to them. He also has the luxury of having other table saws to use for breakout and other joinery techniques.

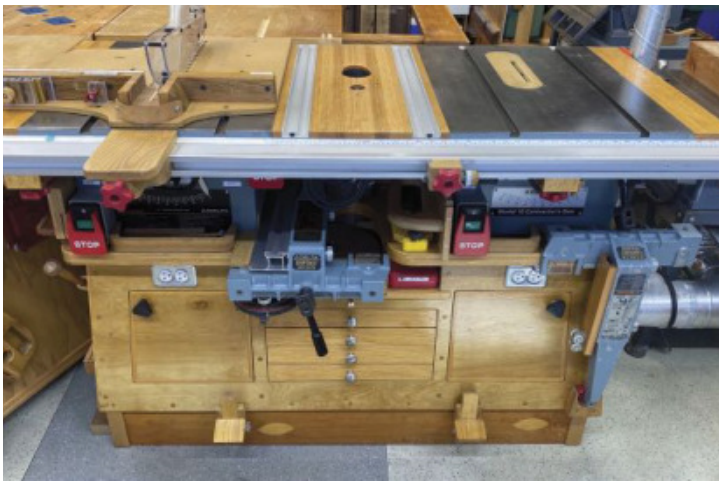


Table Saw Work Centre – By combining two contractor-style table saws with a router table in between them, Chrapko has created a larger, more stable work centre. Notice how there's a lot of dedicated, specific storage underneath the work surfaces that can be grasped within arm's reach while he's working here.

Tool Cabinet – This tool cabinet is the centre of Chrapko's hand tool collection. There are four separate cabinets, each with doors. The doors on this cabinet hinge open to reveal a wide selection of tools, all within arm's reach. It's a great way to store a lot of tools in a smaller area.

has a roller attachment for supporting resawn bandsaw material. In addition, most machines have onboard storage of some sort for accessories.

Table saws

My first table saw was purchased early on and I always regretting not equipping it with the optional Unifence. While setting up the retirement shop, I saw an opportunity to rectify this and found a used saw with the fence and extended rail. While deliberating options for the void under the right-hand extension wing, I decided to conjoin the two saws on one base with a router between. Adding mass by combining the saws on a heavy base and attaching them to the workbench full of vises and power tools has done a lot to improve performance. Depending on the project, any combination of rip, dado and combination blades are in place.

There is an end-to-end duct in the base with gates at each saw, the router and a spare. A Shark Guard added the riving knife and takes care of over-blade collection, even with the crosscut sled in use. There is a fused electrical disconnect right on the saw, which comes in handy for blade changes.

Shop-built accessories include an L-fence, crosscut sleds, micro adjuster, infeed and outfeed supports, infeed and outfeed tables, edge trimming deflectors, flip stops, router fences, overblade collection arm, and storage on board for all.

Wall-mounted tool cabinet

My wall-mounted tool cabinet is situated directly behind my workbench. It has significantly changed the way I work. Everything has its place, and for the most part is in its place when reached for. The bi-fold doors are convenient, and together with the offset pivoting interior panels, offer plenty of space.

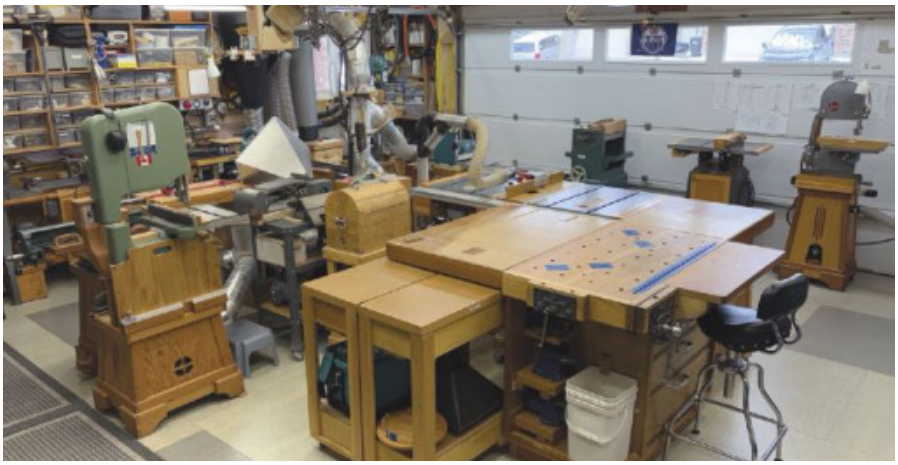
Workflow

Sheet goods can be broken down directly on the table saw, as it has a 48" rip capacity. Solid wood goes clockwise from the bench to the shop carts, to the bandsaw, the jointer, the planer and back to the table saw and bench, with stops at the mitre saw as required.

Utilities

The initial electrical installation was well above average, with four 15-amp circuits for outlets, one circuit for lighting (with three switches) and two circuits for the future. With the influx of woodworking machines, one of these became 220v for the dust collector and one became 20-amp for everything else. This worked well enough, although the routing of cords to the machines was quite a mess. That mess, and a recent thickness planer addition requiring 220v, prompted the addition of a 40-amp sub panel. A location adjacent to the main dust collection riser was chosen, enabling the machine cords to follow the ductwork. In hindsight, I should have installed the sub-panel at the beginning, which would allow for adding outlets when and where required.

The furnace is a 65,000 BTU natural gas wall-mounted unit. It's a direct-vented, sealed combustion counterflow unit and I find it ideal for my use. It's turned off when I'm not in the shop. I recently added a smart thermostat and am now able to turn it on ahead of time.



Pictorial Shop Tour – Here are four views of Chrapko's workshop. Generally speaking, there are cabinets and smaller tools / machines on the perimeter, while the larger machines are in the centre of the workshop, where they are all connected to the main dust collection system. The most often used machinery can be operated without having to move it into place, which makes for a more efficient workflow and more enjoyable experience. Everything has its place, and everything is in its place. There are a lot of small details to see in these four images.

Plenty of light is provided by 20 4' LED light fixtures.

Hot and cold water, a small television (mainly for music), a coffee pot and mini fridge round out the amenities.

The dust collection systems work very well and there is no evidence of dust migrating into the living space.

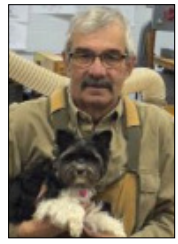
Lessons learned

In retrospect, I should have had the drywall taped and finished the day after boarding.

More research into dust collection would have saved what turned into a costly experiment.

Restoring old machines has worked well for me. At last count I've completed about 40 machines, of which 20 have moved on to new homes. Starting over, I would have made General Manufacturing Co. Ltd. of Canada machines my first choice, without exception.

Setting up this shop has been rewarding and spending time in it is very satisfying. Thankfully, it's a hobby shop so there are no schedules to meet and time is not of the essence.



Mike joined a large general contracting organization in 1977, completed an apprenticeship in carpentry and retired 40 years later as a project superintendent.

MIKE CHRAPKO
mbchrapko@gmail.com

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BUILDING A CREATIVE WORKING ENVIRONMENT

The layout of this New Westminster, B.C., shop helps create a harmonious, efficient and enjoyable environment for building high-quality fine furniture.

Photos by Matthew Thornhill

Centre of the Shop – Thornhill relies heavily on his 20" bandsaw, so he positioned it in the centre of the shop. It safely takes care of solid wood ripping and resawing.

BY MATTHEW THORNHILL

Welcome to my workshop, where I've spent most of the of past 10 years making high-quality fine furniture. I'll explain not just the tools I own, but the reasons they were chosen and how I use them. Perhaps my process might inspire you when setting up your own workshop.

I work in a double garage, and my budget is always on my mind. I'm a vintage machine enthusiast, and am constantly astonished by the atmosphere they create in my workshop.

Hand tools remain central to my workspace, providing the mind-set that inspires my furniture designs and help clarify my direction and goals. I do consider myself to be an artist though I've always been a bit reluctant to call my shop a studio. Perhaps this is partly due to my early days in the millwork industry, or maybe because furniture building feels unique with its sensitive yet industrial touch. Having had the privilege to learn on some incredible job sites, I grew accustomed to industrial equipment early on. This allowed me to begin my journey at Inside Passage School of Fine Cabinetmaking in B.C. well adapted to using machinery.

My shop is always in an everchanging state. I imagined that when I completed school, I would have my shop assembled so I would have the capabilities to produce the work I intended to create. This was an ambitious goal, but I gained far more skill and knowledge than I imagined. Careful set-up and creating an environment that's inspiring to my work is important. Most machines aren't necessary for beautiful work; small detailed cabinets can be built with a nice bench and hand tools.

There are three sections to my shop: tooling, lumber and workflow. For the space I have, I've managed to create a very industrial-sized shop with long-term wood storage and world-class accuracy.

Tooling

Machinery needs to be configured to suit our abilities and goals, meaning careful planning and a clear vision of the future is imperative.

The equipment I was going to rely on would have a great impact, affecting the efficiency and capacity of my work. I chose to collect a set of vintage iron machinery, balancing size, budget and quality. These machines have the capacity to accommodate my furniture-building requirements while avoiding the need for shop-made extensions. The natural wear and tear on the machines caused from making fine furniture is minimal, and they will permit millwork capabilities when necessary. In short, I should never need to purchase machinery again, though I do wish to paint them someday.

Rebuilding machinery demands attention and care, but if they have all their critical components and are free of cracks, this can be quite affordable and rewarding. Utilizing a good rust remover, combined with new bearings, is often enough to lift these machines back into working order.

I make all rip cuts on my bandsaw. This is undeniably safer and far more comfortable, and I have positioned my 1930s Davis & Wells 20" bandsaw in the centre of my shop. I have formed quite a bond with this machine and have spent some time balancing the cast wheels with small lead weights and repositioning the motor. The poor saw rattled like an old car with a broken motor mount, but it quickly became the most important saw in my shop, allowing me to calmly and confidently slice veneers.

The powerhouse of the shop, which is meticulously placed behind the bandsaw, is a Wadkin Bursgreen 14" table saw with

a six-horsepower motor. It's severely underused as a crosscut machine. The 36" × 55" cast-iron table provides me with an incredible amount of space to cut joinery. We can all relate to the times we've bent over a table saw, laser-focused on the most critical cuts of our projects. During moments like these this machine earns its floor space, occupying my entire field of view and freeing me of distractions. I prefer to have a task lamp stationed next to my machinery, along with a place to set a square, scribe and pencil close by. I find this creates the most immersive time at the saw, letting me concentrate and keeping the work more enjoyable and safer.

I'm very particular about the bits and blades I purchase. I have a set for fine furniture only, and a cheaper set for utility purposes, allowing my bit storage to be very contained. This practice transfers over to engineered wood products as well, which are very abrasive in nature, reserving my best cutting tools for solid wood furniture only. In the end, having cutting tools for both materials saves operating costs in the long-term.

Starting Point – Selecting the right boards for a project is a critical step. Thornhill keeps his lumber standing vertically, secured with a chain. One of his jointers is nearby, ready to flatten one face and one edge of a board.

Shop ambience

The tall trees from the park nearby inspired me to paint the walls of the shop a light green. I wanted to introduce that atmosphere for a welcoming, light-hearted environment. The various colours of the wood contrast nicely with the green walls to create a forest-like ambience.

Every opportunity to search for a plank of wood is a wonderful experience. The ceiling of my shop is just over 10' 2" at the highest point, slanting downwards to the other side. This prompted me to place the largest lumber storage next to my primary bench, enabling the purchase of 10' planks from the lumberyard warehouse and storing them without making unnecessary cuts. They lean against the wall on a slight angle to prevent tipping, creating a gap at the bottom to hide a couple 12' planks.

Wood has a remarkably long lifespan in a furniture shop. It is important to work with care towards the wood and cherish the natural resource. The planks in my storage continuously spark more curiosity as time goes on; each plank has now waited, moved and watched over the creation of several projects, slowly building a history while waiting patiently for its time. As furniture builders, we lead the woodworking world in showcasing these materials. Some woods will change colour dramatically, and others will offer a unique fragrance that adds a higher sense of connection to the piece over its lifetime.

Another Workhorse – This 14" table saw, with its large top surface, takes care of a lot of crosscutting and joinery operations in this shop.

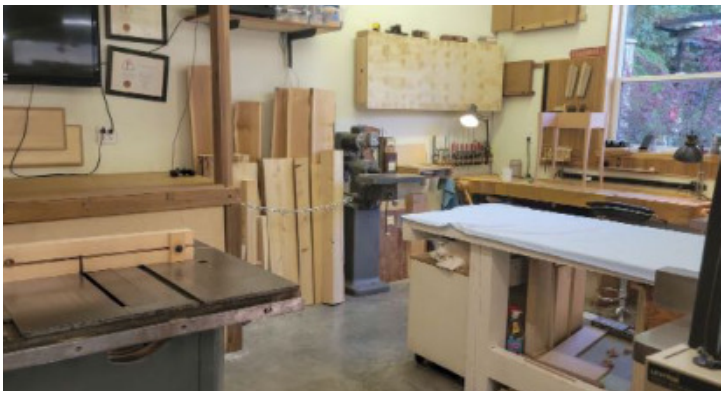
Lots of Lumber Storage – Thornhill has multiple lumber storage areas in his shop. The area surrounding his mortiser stores a lot of medium-sized lumber.

Workflow always begins at the lumber storage area. The plank you choose will determine your enjoyment, time investment, motivation and blade wear. It's our responsibility to show the full potential of the woods we purchase and enjoy the wood as it should be. Some woods are rare enough that we will never have the opportunity to work with them again. This is not always foreseeable; one day it's priced as it always has been, and the next it is three times the price or simply unavailable.

There are five storage areas for lumber around the shop, organized by utility. My primary storage holds the largest and most precious planks. The storage space on the wall above the table saw is the most difficult to access, so this contains wood intended for lumber core. Requirements for lumber core are 4/4, flatsawn wood with stable properties in various lengths that have had ample time to acclimatize to the shop's conditions. Other areas are separated by drying time required, purpose or length. All lumber is raised off the ground on plywood platforms to prevent debris and moisture rising from the concrete and contaminating the ends of the planks. Some lumber is secured, providing a safety barrier as I move throughout the shop. I have roughly 40 species of wood, ranging in size from 13' long planks to pen blanks. The small blocks are kept in containers above the press table.

The Day Planner – This chalkboard helps Thornhill plan his upcoming tasks. This area of the shop is largely dedicated to hand tool work.

Hand Tools – Although some hand tools are stored elsewhere, many are located in this wall-hung cabinet. Small drawers help create dedicated areas for many of the hand tools Thornhill uses on a daily basis.



Another Work Surface – This secondary workbench is equipped with a thin blanket that can be used to help protect pre-dressed and pre-finished surfaces of many workpieces that aren't yet assembled.

Workflow

Shop workflow revolves around my three workbenches. My primary bench is a traditional Swedish bench placed near the largest window in the shop, assisting me with my most detailed work. Convenience for honing irons is crucial, requiring the sharpening station to be positioned next to the bench. The hand-cranked grinder is kept separate to prevent metal and wheel dust from contaminating the workspace.

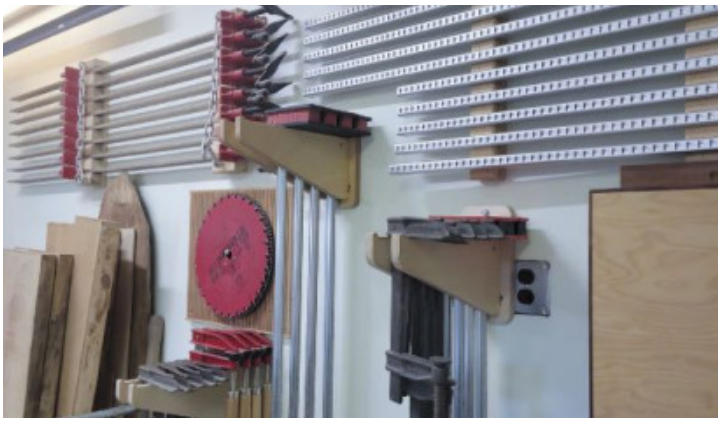
Above the sharpening station is a large chalkboard I call the Day Planner. It's the first in a series of functional pieces that work together to form a complete tool station. Made of jatoba, this workstation will provide the organization to build small exquisite cabinetry powerless with the exception of a handheld router. The primary piece of furniture in progress is stored under this bench, keeping it at the forefront of my mind despite other tasks that arise requiring urgent attention. This current piece has been in progress for a few years now, having to be stored to complete other projects to continue moving forward. It is important to note the effect each piece has on the shop space. This occurs because I permit the influence they possess throughout the building process.

The large fir bench in the centre of the room assists the entire shop. This was my first traditional bench, requiring a 9' × 3' floor space. I have sanded, painted and coated it with Varathane to give it a fresh, bright presence. I envision a full cabinet underneath the work surface one day, offering more organized capabilities for simultaneous projects. A proper enclosure to contain dust would be ideal.

Currently, this bench holds many clamping cauls and fixtures. It has one large drawer with my shaper, drill and mortising bits, along with various jars of hardware. This is where my furniture parts stay sequenced during machine operations. Full assemblies take place here, and the second tail vise offers the shop great versatility. I will often utilize both vises on the benches, back-to-back, which is perfect for fitting, testing and assembling the joinery in progress. This is the bench I use to handle machinery jobs, keeping all the oily and greasy work away from the primary bench.

My third and final bench is a large storage unit. This entire unit is built of cedar and repurposed plywood. It requires a little more work to get it looking its best, but this storage unit is important to the shop. Its main function is to be used as a veneer press table. I place the vacuum bag on the bench and connect the hose through a hole in the top. It's large enough for my requirements and sized to fit the maximum capacity of the bench. Working with hand planed and prefinished surfaces carries a risk of scratches and dents. This is partly prevented by covering the benchtop surface with a blanket. I have one end bolted to the wall to keep the blanket straight across the surface, allowing for easy folding and doubling as a dust cover when the machines run.

The overhead storage was one of the best additions I've made for the shop, creating a space for mock-up joinery, small blocks of wood, rarely used tools and seasonal decorations. These are all in lightweight containers making vacuuming easy and quick. The storage



Well Organized – Clamps, blades and other critical accessories are located on the walls near the areas where they'll be used.

Large Jointer – This large jointer is ready to flatten large boards when called upon. It can be easily moved around the shop, as needed, to accommodate different situations.

Shaper – A shaper is positioned near the corner of the shop, but if a long workpiece needs to be machined, the overhead door can be opened, allowing almost limitless lengths to be worked on.

Time for a Change – Thornhill has adjusted the layout of his shop many times. If a new machine is purchased, or a different layout is deemed more efficient, a change has to be made.

underneath was intended to be a secondary kiln for wood, and may become that one day, but for now it stores some large fixtures and spare machinery parts.

Machinery is placed around the walls and benches according to the working footprint required. The jointer is placed directly in front of the bandsaw, encouraging easy co-operation between the two machines, with the planer next to them. The shaper and planer have 4' limitations to the length of stock they can mill, which is quickly resolved by opening the bay door. The table saw and large jointer are on rolling bases, helpful for this shop. The 1,200-pound table saw can move around the floor with the push of a finger, but I still prefer them on the ground. I've done my best to keep the machinery to one half of the shop and co-ordinate the benches together, otherwise, one bench becomes forgotten and collects an abundance of coffee cups.

An ongoing process

Assembling a creative space is no easy endeavor. Plenty of frustration, failure and patience are involved while encountering setbacks from all fronts. A shop must evolve several times to approach its intended destination. Acquiring new equipment creates a ripple of new ideas to explore. Failure to pursue these possibilities can restrain some of the creative aspirations from your work. It has become quite comical how many times I have relocated these massive machines in my shop, but this process is always done to solve a problem that occurs while pushing the limits of my furniture-building capabilities. Sometimes, clearing out unnecessary tools or jigs creates enough space to fully appreciate the areas that promote the best qualities of my work.

My entire shop is calibrated to be as successful as possible, prioritizing hand tools. The goal of the machines is to get as square and flat as possible before moving towards the benches. Given that all machines work in tandem with each other, understand that the margin of error may multiply through each machine. On the most critical of machine operations (cutting dovetail boards to length, for example), I will trim one end, use a plane board to plane it square, then reference that end on the stop block to cut to final length, reducing the margin of error on the saw by half. This is an error you will find appears in the baseline of your dovetails only as all four corners relate.

Mock-up joinery is a wonderful place to spend time. It builds versatility if limited by a partially complete shop. Do mock-ups once and store them where they can be seen and they will become another solution to achieving your design. This allows insight into a collection of operations that would otherwise take many years to complete in full pieces, broadening the range of your design abilities.

The opportunity to sit and think thoroughly of the steps taken to achieve my woodworking goals feels as if it is opening a new pathway for me. I enjoy sharing what information I have to curious and inspired people. To do so in a thoughtful and appreciated way brings me great gratitude and eagerness to return for more.

Matthew is an eight-term Inside Passage School of Fine Woodworking alumni and believes in modern excellence through traditional practices

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Choosing the Right Bandsaw for your Woodworking Needs

From cutting curves to resawing thick hardwood, the bandsaw is a workshop workhorse.

Photos by Craig Kosonen

BY CARL DUGUAY

If you're looking to expand your woodworking capabilities, a bandsaw is one of the most versatile machines you can add to your shop. From slicing thick boards into bookmatched veneers to cutting smooth curves in hardwood, few tools offer as much functionality in such a compact footprint. But with so many models, sizes and price points on the market, how do you choose the right bandsaw?

Why a bandsaw belongs in your shop

A bandsaw's power lies in its versatility. Unlike table saws which excel at straight cuts, a bandsaw can handle a wider range of cuts:

- Rip and crosscuts in solid wood and sheet goods.
- Curves, arcs and intricate freehand shapes — ideal for sculptural work or templates.
- Resawing, allowing you to slice boards into thinner pieces or create your own veneers.
- Joinery, such as cutting tenons, dovetails, lap joints and more.

The open design of a bandsaw offers better blade visibility, allowing for more precise and careful cutting, especially when working with small, delicate parts. Because their blades are thinner than table saw blades, there is less waste, which can be an important consideration when working with expensive hardwoods. Bandsaws have a small footprint, taking up less space in small shops, and they're significantly quieter than table saws, making them better suited for shared spaces or basement shops. And, because the blade moves in a continuous loop downward into the table, there is virtually no risk of kickback.

Whether you're looking to purchase your first bandsaw or upgrade your current saw, here are the main features to consider.

Sizing things up – how big?

Bandsaws are typically classified by the diameter of their wheels; common sizes include 10", 14" and 18". However, the two most important specifications to consider are throat capacity and resaw capacity.

Throat capacity is the distance from the blade to the saw's frame and determines how wide a workpiece you can cut. Actual throat capacity is the distance from the blade to the fence when it's positioned furthest to the left of the blade. While the throat capacity often approximates the wheel diameter, they're not always identical; variations in frame design can affect this.

Resaw capacity refers to the maximum distance between the table and the top blade guide (or the upper blade support). This measurement dictates the tallest piece of wood you can cut vertically, such as when slicing boards into thinner slabs.

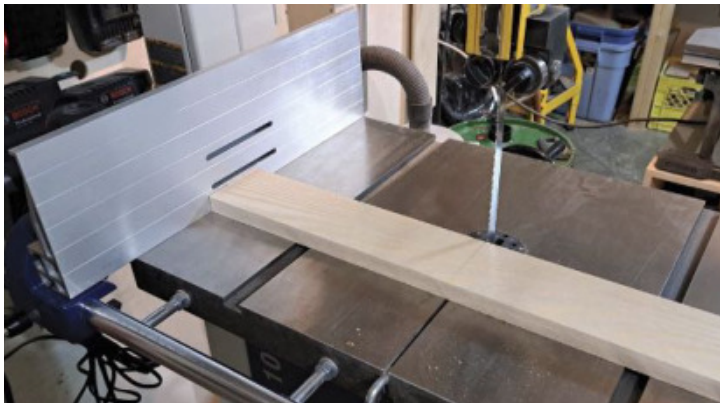
For most woodworkers, a 14" bandsaw offers an excellent balance of capacity, power and cost. If you plan to resaw 12" stock, you'll either need a riser block kit (available for many 14" models) or a larger bandsaw with a taller frame. When resawing is a priority, choose a bandsaw with at least 12" of resaw height and a motor powerful enough to handle dense hardwoods.

Frame style: cast iron or steel

Most mid-sized bandsaws use one of two main frame types: cast iron or steel. Each has its strengths, and the choice between them often comes down to budget, intended use and performance expectations.

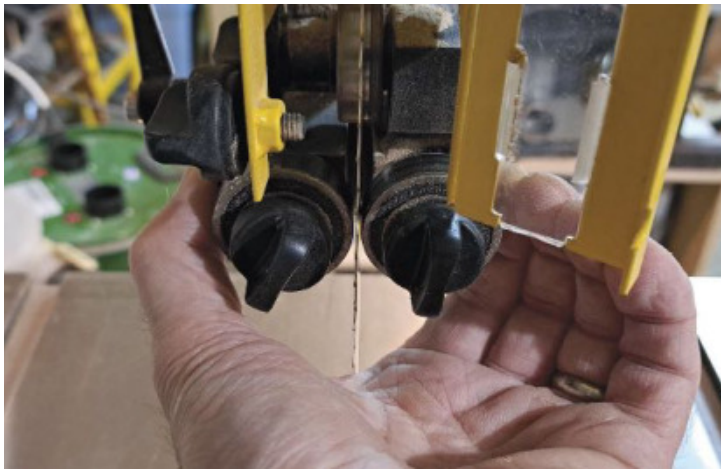
Cast iron frames are commonly found on traditional 14" bandsaws, especially in North American designs. Cast iron is heavy and dense, which helps dampen vibration during cutting, an important feature for smoother, more accurate results. These frames have a long track record of durability and reliability in home and professional shops alike. However, they typically have limited resaw capacity unless fitted with a riser block.

Steel frames, often associated with European-style bandsaws and higher-end models, offer increased strength and stiffness. This structural rigidity allows for taller frames and greater resaw height without requiring modifications. Steel-frame bandsaws can handle more demanding cuts, maintain better blade alignment

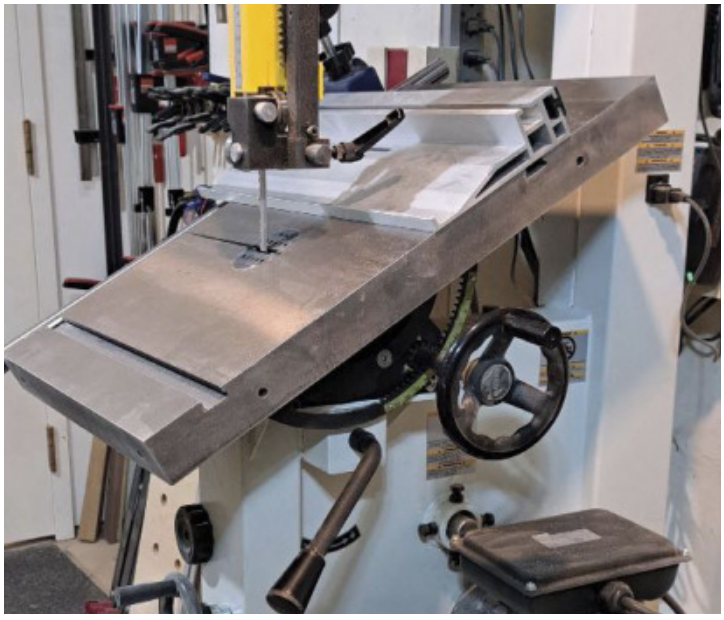


Throat Capacity – A saw's throat capacity is measured between the blade and the fence when it's in its furthest position. You can increase this distance slightly by removing the fence, though that means only freehand cutting is an option.

Resaw Capacity – Even if you're not resawing, this dimension will determine the maximum thickness of a workpiece you can machine. Most workpieces are less than 3" thick, which can be machined on any bandsaw, but if you want to resaw or machine thicker pieces, pay attention to the saw's resawing capacity.



Ball Bearing Guides – These types of guides support the sides of the blade while it's in use to help keep the blade running straight. While you can also find bandsaws with blocks for guides, bearings run cooler and quieter.



Crank It Up – A hand crank makes it easier to tilt a heavy tabletop.

under stress, and often support larger motors and wider blades. As a result, they tend to excel in heavy-duty or production settings. While steel-frame bandsaws are generally more expensive, they offer superior performance for users who plan to do a lot of resawing, cut dense hardwoods or require consistent precision in demanding tasks.

How much power do you need?

Motor power has a direct impact on a bandsaw's cutting capability, particularly when working with dense hardwoods or resawing wide stock. The more demanding the cut, the more power you'll need to maintain consistent blade speed and avoid stalling.

For light-duty work, such as cutting softwoods, making curved cuts or occasional use on thinner stock, a motor in the 1/2 to 1 horsepower (HP) range is usually sufficient. These saws are well-suited for hobbyists or users with limited space and power requirements.

For general-purpose woodworking, including basic joinery and occasional resawing of boards up to 6" thick, a 1 to 1-1/2 HP motor provides a good balance of versatility and power. This size is commonly found on many 14" bandsaws and is ideal for most small to mid-sized workshop needs.

If you plan to do frequent resawing, especially with dense hardwoods like maple, oak or walnut, or if you intend to use wider blades (typically 3/4" and up), then a 2 HP or larger motor is the better choice. These more powerful motors help maintain blade speed under heavy load and produce cleaner, more efficient cuts.

Keep in mind that bandsaws with motors over 1-1/2 HP often require 220V wiring. If your shop is currently wired for 110V, upgrading to a higher-powered saw may involve additional electrical work, such as installing a dedicated 220V circuit. This is a one-time investment that can significantly expand your shop's capabilities, but is worth planning for in advance.

Blade guides and tracking

Blade guides play a critical role in maintaining accurate cuts on a bandsaw. Their primary job is to support the blade during operation and prevent it from twisting or deflecting under pressure. Properly set guides help ensure straight cuts, reduce vibration and extend blade life. There are two common types of blade guide systems: block guides and ball-bearing guides.

Block guides are the more traditional design. These consist of small blocks made from steel, ceramic or phenolic material that sit on either side of the blade, along with a rear thrust block behind it. They're simple, inexpensive and easy to replace or adjust. Ceramic blocks, in particular, are popular for their resistance to heat and wear.

Ball-bearing guides use rotating bearings to support the sides and back of the blade. These guides tend to run cooler, quieter and are more durable under continuous use. They're especially well-suited for high-performance or professional-grade saws where prolonged cutting and blade stability are essential.

Regardless of the guide type, ease of adjustment is important. Bandsaws that feature tool-less guide adjustment save considerable time and frustration, especially if you change blades frequently or alternate between fine and aggressive cutting tasks. Being able to quickly dial in precise guide settings helps maintain accuracy and reduces downtime in the shop.

Blade tracking, which keeps the blade centred on the wheels during operation, is also critical for consistent performance. Most bandsaws include a tracking adjustment knob for the upper wheel that allows you to fine-tune the blade position. A properly tracked blade reduces wear, improves cut quality and minimizes the chance of the blade wandering off course.

A flat, sturdy table

Bandsaw tables should be made from cast iron or solid aluminum, as both materials offer the strength, stability and durability needed for accurate cutting. Cast iron is especially effective at dampening vibration, which helps produce smoother cuts and increases comfort during extended use. Aluminum tables, while generally lighter, are still rigid and often come with precision-machined surfaces.

Dust Port – This bandsaw has a single dust port at the lower end of the blade. Having a second port closer to where the cut is being made (and dust is generated) is even better.

Most tables are designed to tilt up to 45° to the right and about 10° to the left, allowing for bevelled or angled cuts. The tilt function is especially useful when cutting mitres or creating joinery.

A reliable fence

An accurate, well-designed fence system is essential for straight cuts and resawing. A quality fence should lock securely into position with a quick-release or cam-style mechanism that's easy to engage and disengage. It should also be adjustable both horizontally and vertically to support narrow workpieces as well as tall stock during resawing. One key feature to look for is the ability to adjust for blade drift, which helps you maintain straight cuts even if the blade doesn't track perfectly parallel to the mitre slot.

Some bandsaws come equipped with high-quality factory fences, particularly on mid-range and premium models. Others may include more basic or lightweight fences that lack rigidity or fine adjustment features. In these cases, you may want to invest in an aftermarket fence system, many of which offer enhanced accuracy, better adjustability and a more robust design that's better suited for serious woodworking tasks.

Dust collection: keep it clean

Dust collection is an important, but often overlooked, aspect of bandsaw performance, especially during resawing when large volumes of fine sawdust are produced quickly. Without efficient extraction, dust can accumulate around the blade, obscure your cut line, and contribute to premature wear on both the blade and the machine.

Most bandsaws come equipped with a single dust port, typically 4" in diameter, located at the lower rear of the machine. This port connects to a dust extractor or shop vac and helps remove debris from the base of the saw. While useful, this set-up often doesn't capture all the dust generated at the cut point, particularly when resawing thick stock.

For better performance, look for a bandsaw that includes a second dust port positioned directly beneath the table, closer to the blade. This second port captures dust at the source, preventing buildup around the upper guides and reducing airborne particles that can affect visibility and safety. Some premium models even

Shed Some Light – Unless your shop is very well lit, a task light on a bandsaw is a nice addition.

Don't forget the blades

Blade size plays a critical role in bandsaw performance. A bandsaw is only as good as the blade you use, and selecting the right blade depends on the type of cut you want to make. Narrow blades, typically between 1/8" and 1/4", are ideal for cutting tight curves and intricate shapes. They're commonly used for scrollwork, decorative details and small-radius turns. On the other hand, wider blades, from 3/4" to 1" offer greater rigidity and are better suited for resawing and making straight cuts. Blades in between these two sizes offer a middle ground that may suit many woodworkers well.

Tooth count, measured in teeth per inch (TPI), also affects cutting performance. Blades with a low TPI — between 2 and 4 — are designed for cutting thick stock and resawing, as they remove material quickly but leave a rougher surface. Higher TPI blades, in the range of 6 to 10, produce smoother cuts and are better suited for thinner material or work where surface finish matters.

Tooth geometry is another important factor. Skip-tooth blades, with wider spacing between teeth, are commonly used in woodworking because they clear sawdust efficiently and help reduce heat buildup. Hook-tooth blades, which have a more aggressive cutting angle, are well-suited for fast, straight cuts in thick or dense wood.

have integrated shrouds or directional hoods that further improve dust capture at the blade.

Another useful feature found on some bandsaws is a wheel brush, typically mounted on the lower wheel. This rotating brush helps clean sawdust from the lower tire, which not only reduces mess but also improves blade tracking and extends the life of the tires. If your saw doesn't come with a wheel brush, you can usually add one as an aftermarket accessory.

Benchtop vs. floor-standing models

Benchtop bandsaws are compact and portable, ideal for small spaces or light-duty work. They're generally equipped with a 9" to 12" throat capacity, and a resaw height of 3" to 6". Most run on motors under 3/4 HP, which limits their ability to cut thick hardwoods or resaw wide stock. However, they're more than capable for cutting curves, trimming parts and making light joinery cuts. Some models can be mounted on an open base.

Floor-standing bandsaws are the go-to for serious woodworkers. With greater stability, more cutting height and stronger motors, they're built to handle demanding jobs. They typically feature throat capacities of 14" to 20" with resaw heights up to 18" and motors ranging from 1 to 5 HP. If space and budget allow, go with a floor model — you won't outgrow it.

Additional features to look for

When comparing bandsaw models, it's worth paying attention to additional features that can improve usability, versatility and safety. These extras may not be essential, but they can significantly enhance your overall experience in the workshop.

A built-in work light or a dedicated light mounting point is a particularly useful feature, especially when making fine or detailed cuts. Good lighting improves visibility at the blade and helps ensure more accurate results, particularly in low-light shop environments.

If you plan to cut non-ferrous metals like aluminum or brass, consider a saw with a dual-speed pulley system or a variable-speed motor. Slowing the blade down reduces heat buildup and improves control when cutting metal, making the saw more versatile for mixed-material projects.

A safety switch, magnetic starter or keyed on/off system adds an important layer of protection. Magnetic switches prevent the saw from restarting automatically after a power outage, which can help prevent accidental injuries.

For users who frequently tilt the table for bevel cuts, precision trunnions make a big difference. High-quality trunnions allow for smooth, accurate table tilting and help maintain blade alignment even under heavy loads. This contributes to both safety and cut accuracy.

Many woodworkers keep several different blade sizes and styles on hand and swap them out depending on the task at hand. This allows for better results and greater efficiency, whether you're cutting curves, ripping lumber or resawing thick stock. Because of this, it's worth choosing a bandsaw that makes blade changes as quick and easy as possible, ideally with tool-free guide adjustments and accessible tensioning controls.

Lastly, take a close look at the warranty coverage and customer support offered by the manufacturer. A longer warranty and accessible support team can offer peace of mind and reduce downtime if you ever run into issues. In some cases, serviceability and parts' availability can be the deciding factor between two otherwise similar machines.

Final thoughts

The right bandsaw depends on your work style, project needs and budget. A 14" bandsaw is often considered the "sweet spot" for serious woodworkers — large enough to handle most tasks, but still manageable in a smaller shop. Many models also offer the option to install a riser block, increasing resaw capacity without upgrading the entire machine. However, if you plan on resawing a lot of thick hardwood or milling your own lumber, step up to a steel-frame saw with serious power.

Whatever you choose, learn how to tune your saw properly, invest in quality blades and keep it well maintained. A dialed-in bandsaw can handle everything from fine joinery to rough lumber, making it one of the most indispensable tools in any woodworking shop.

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Woodworking without a Table Saw

Just about every woodworker has a table saw, but are they really necessary? A table saw's high safety risk and large footprint keep it out of my workshop.

BY SIMON KEENE

A table saw seems to be a staple in any woodworking shop. To make straight, square cuts you need a table saw, we're told. It's thought woodworking without one would be almost impossible. Yet for about five years, I've been spending lots of time in my small hobbyist woodworking workshop without a table saw. I'll share my thoughts on why you might not need a table saw in your shop, either.

You may find it strange that I work without a table saw, but there's a good reason for it. Five years ago, I almost cut the tip of my thumb off on a table saw. I was ripping some pine, and wasn't paying attention. Suddenly the piece of wood jerked, and next thing I knew I was in the emergency room. The cut took two months to heal, and I have a permanent scar. Over that time, I seriously questioned if I should continue

Photos by Simon Keene

woodworking if I could be seriously injured so easily. When I healed, I went back to woodworking, but sold the table saw and decided to build things another way. I no longer wanted to use tools that could shoot pieces of wood towards me at 100 miles per hour, nor tools that had multiple inches of blade exposed above the workpiece. After doing some research for an alternate tool, I decided on a bandsaw, which revolutionized woodworking for me.

Suddenly, I could work wood again without risking my digits. Since then, I have been discovering new ways to make things in my shop, so I can create quality pieces, even without a table saw.

Not just safety

Injury isn't the only reason I boycotted table saws. Table saws also have a large footprint, resulting in large amounts of precious space being used by one tool. They're also known for their mediocre dust collection, slinging fine dust into the air of your small shop, not to mention into your lungs. Small jobsite table saws, which are what most small shops have, are underpowered and very loud. There is no joy in using one of these saws, only gritted teeth and clenched muscles while the saw screams as it nibbles away at the wood.

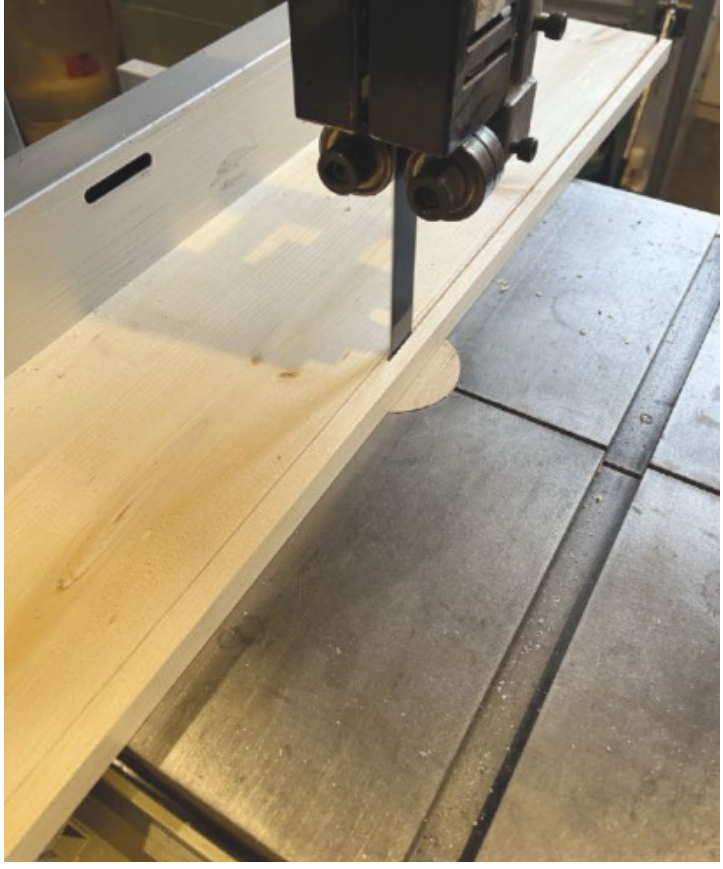
Yet a table saw fulfills many roles in a shop, including ripping, cross cutting, chamfering, cutting dadoes and rabbets, and many other tasks. No one tool will fulfill all of these roles, but a collection of tools that can be used in conjunction with each other will make your small shop efficient and even more capable than a small shop with a table saw. These tools will also be more relaxing and straightforward to use.

A bandsaw

The first tool you'll need is a good bandsaw for making straight rip cuts with zero chance of kickback. Also, by lowering the blade guide, only 1/2" of blade needs to be exposed. Another advantage with a bandsaw is that you don't need an outfeed table, as it's safe to pull the wood through the saw from behind, or to reach behind the blade, which saves precious shop space. Unless you want to snap blades every week, buy a 10" bandsaw or greater. A 14" bandsaw is very common. I've used a 10" bandsaw, equipped with a 1/2" 4 tpi blade that ripped clean, straight cuts. Now I use a 17" bandsaw, equipped with a 1" 3 tpi blade that can rip 12" thick, clean straight cuts. Try doing that with a table saw. Of course, cuts made with a bandsaw are rough, so they must be further prepared before glue-up, which leads us to our next tool, the jointer.

A jointer and planer

Wood needs to be free of any twists and have a straight reference edge before being ripped on a table saw. Having a jointer is necessary in a small shop if you work with rough lumber. Jointers are also necessary when using the bandsaw, because you need a straight reference edge against the fence to create a straight cut. A jointer can also be used to clean up edges after a cut has been made on the bandsaw. Just make your cut 1/16" wider than your final dimension, then make a pass with the jointer. If you're starting with a parallel cut from the bandsaw, a pass from the jointer is unlikely to throw off the parallelism of the board to a noticeable degree. Another benefit to this method is that your board will not be scorched, as can sometimes happen when a table saw is used.



Bandsaws Rip It Up – If your bandsaw is set up properly and equipped with a sharp, wide blade, it will work wonders when it comes to ripping material. Ripping the material so it's about 1/16" wider than it's going to finish, then truing the edge on a jointer, is often a good approach.

True the Edge – Once you've ripped the material to rough width on the bandsaw, take it to your jointer to fine-tune the edge. There's a chance the resulting two edges of the board won't be perfectly parallel, but only by a very slight margin. This is rarely a problem.

Planer Perfection – A thickness planer will leave you with a perfectly parallel edge that's ready for glue-up or further machining. The only downside is that most planers will only dress material up to 6" in height.

Mighty Mitre Saw – A mitre saw can crosscut accurately, as well as produce mitred ends. It also excels at machining angles into the ends of boards.

While jointers can cause serious injury, they're also very predictable. As long as sturdy push blocks are used and guards are in place, your fingers should be safe.

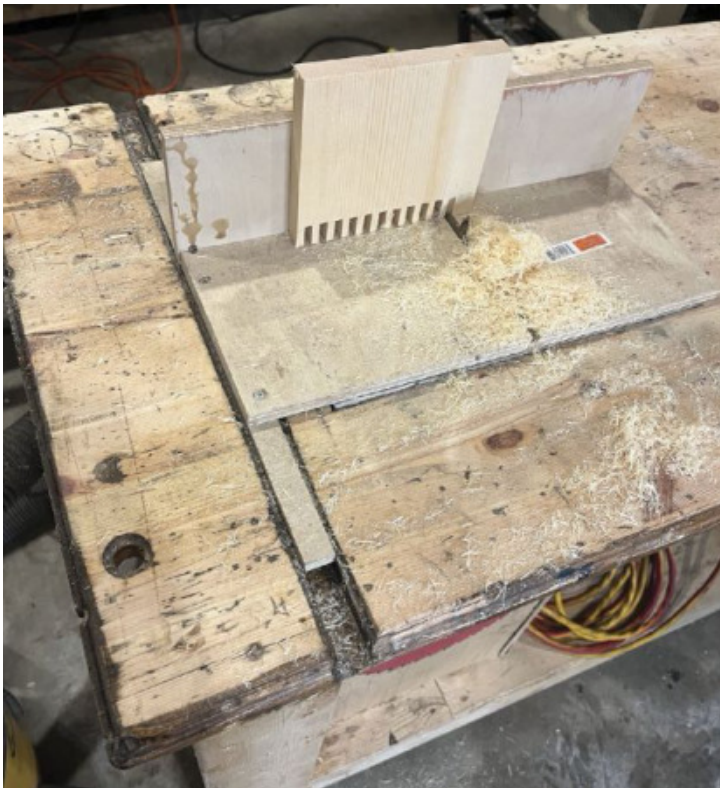
For cleaning up edges on narrow boards, a planer is even faster than a jointer, leaves a smoother edge and makes boards perfectly parallel.

Planers will limit your perfectly parallel cuts off the bandsaw to 6" wide. However, in general, 6" is plenty for hobbyists. I use a Dewalt dw735 planer, which has very minimal snipe and leaves a beautiful finish. This allows me to make precise glue-ups after ripping on the bandsaw. Planers can have kickback, but this is their only real danger. Stand to the side of the planer while it's working and you'll live to spend another day in your shop.

Therefore, to replace the ripping function of a table saw you'll need a good bandsaw, a jointer and a planer. These are all tools you would want in a small shop anyways. You might consider making a larger investment in a bandsaw. But what about the other functions of a table saw, such as cross cutting, mitring, cutting dadoes, panel cutting and joinery?

Cutting joinery

Cross cutting and mitring solid wood are easily accomplished on a sliding mitre saw. These saws were designed for cross cutting wood up to 12" wide, as well as mitring. They also have a blade guard that deploys instantly when the saw is used, making them

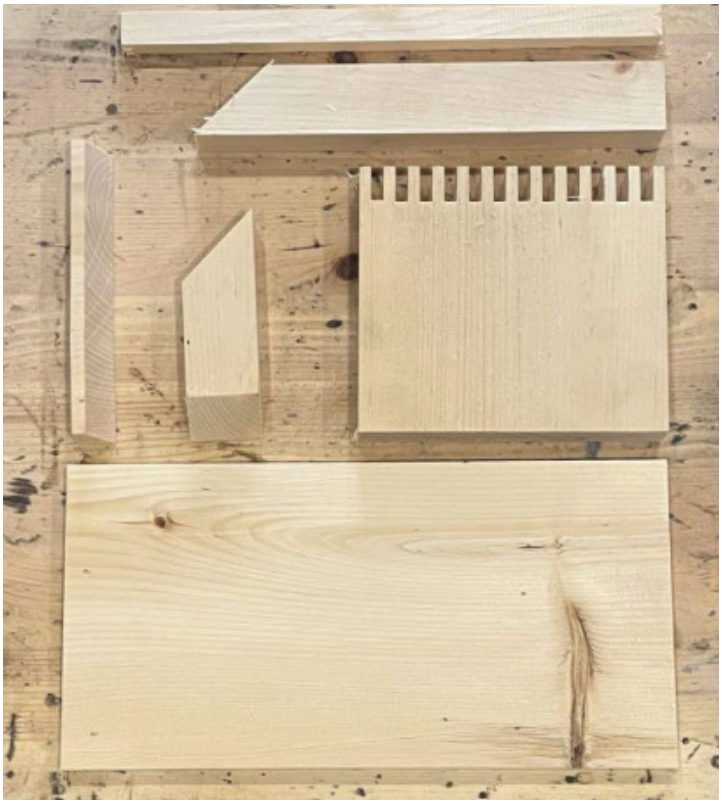


Joint Genius – A router can do so many things in a small shop setting. Here, Keene is using a router, router table and crosscut jig to machine finger joints in a workpiece, resulting in a strong, attractive joint.

Lots of Options – Not having a table saw to rely on might open you up to searching out other options. A router, along with the wide range of bits that are available, can do myriad joinery tasks.

On the Right Track – A track saw is a great tool for cutting sheet goods to size. They're accurate, easy to use and safe.

A Good Alternative – A track saw is great, but they can be pricey. If all you need to do is cut the odd sheet good to size once in a while, a circular saw, a couple of clamps and a straightedge will work well.



The Results – Here are just a few of the joints that can be cut with a bandsaw, jointer, planer, router and mitre saw.

far safer than a table saw. This is also a tool that most small shops with a table saw would have anyways, as table saws are not safe for cross cutting long boards unless equipped with a large crosscut sled or have a large sliding table. Adding a zero-clearance fence to your mitre saw will also reduce the chance of wood flying out the back of the saw. Dadoes and joinery can be covered by the next tool, the router.

A router can do incredible things. It can cut slots, chamfer edges, make dovetail and box joints, and complete any delicate task that a table saw can do. A router is slower than a table saw for cutting dadoes, but not by much, if you have a quality bit. Routers are definitely known for slinging things across the shop, especially if they're asked to remove too much material with one pass, but because of their small bit size, they're far less likely to hurt you like a table saw can.

Consider panels

Cutting panels is best done with a table saw, because of its efficiency and lack of set-up time. However, as a hobbyist, I rarely work with sheet goods, so extra set-up time doesn't bother me. There are two tools that can cut panels: the track saw and the circular saw. The track saw is foolproof, perfectly accurate and very safe. If you're on a budget, a circular saw and a straight edge work well. There are many safety features built into a track saw and circular saw. And if you never machine panels from sheet stock, you might be able to skip considering either of these machines.

Is a table saw really needed?

If you make cabinets for a living, you very likely need a table saw. But if you love making one-off projects, custom woodworking and working with rough lumber, you'll find these tools I recommend don't limit your capabilities and only slightly affect your efficiency.

In my case, I love having a large, accurate bandsaw because I can resaw lumber and mill my own boards. This saves me from buying overpriced thin stock at the lumber store and allowed me to build some creative pieces out of logs I found in the woods. It even allowed me to chop apart a huge chunk of burl for wood turning. And while sometimes I wish I still had a table saw, if I'm creative, I can still get the job done.

If you're a hobbyist, a table saw is very likely not worth it. Rather, invest in tools that operate in a predictable, consistent manner. Learn to master these tools and use them with the highest degree of safety and attention. When operated correctly and cautiously, these tools are far less likely to bite you.

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SETTING UP A BANDSAW FOR PEAK PERFORMANCE

Photos by Carl Duguay

Whether you're resawing thick hardwood, ripping lumber to width or cutting tight curves, a properly set up bandsaw will deliver smooth, accurate results.

BY CARL DUGUAY

Without proper alignment and adjustment, even the best bandsaw can produce rough cuts, drift off-line or wear out blades prematurely. This article walks you through the essential steps to set up a bandsaw for reliable, precision cutting, whether you're assembling a new machine or tuning up an older one.

Make it stable

After you've assembled the bandsaw, following the manufacturer's assembly instructions, place it on a level surface to ensure it's stable and safe. If you plan to leave the saw in the same place, consider securing it to the floor (if it's a floor-standing model) or to a worktable (if it's a benchtop model). If you'll be moving the saw around the shop, mount it on a locking mobile base.

Install and tension the blade

As always, it's best to unplug a machine before working on it. Choose a blade appropriate to the kind of work you'll be doing. Narrow blades — 1/8" to 1/4" — are great for curves and detail work. Wider blades — 3/4" to 1"— offer more rigidity for straight cuts and resawing. A blade in between those dimensions will produce a happy medium, but won't excel at either of those types of cuts. Once you've selected a blade, install it by opening the upper and lower wheel covers, releasing the tension, and carefully thread the blade around the wheels and through the guides.

Apply tension using the upper tensioning knob or lever. Most saws include a basic tension scale, though they aren't overly accurate. It's best to use a deflection method: when pressing sideways on the blade with moderate finger pressure at its midpoint, it should deflect about 1/4" to 3/8". Avoid over-tensioning, which can stress the blade and machine, or under-tensioning, which causes tracking issues.

Once the blade is under tension, slowly rotate the upper wheel by hand to check that the blade moves smoothly and stays centred on the upper wheel.

Track the blade

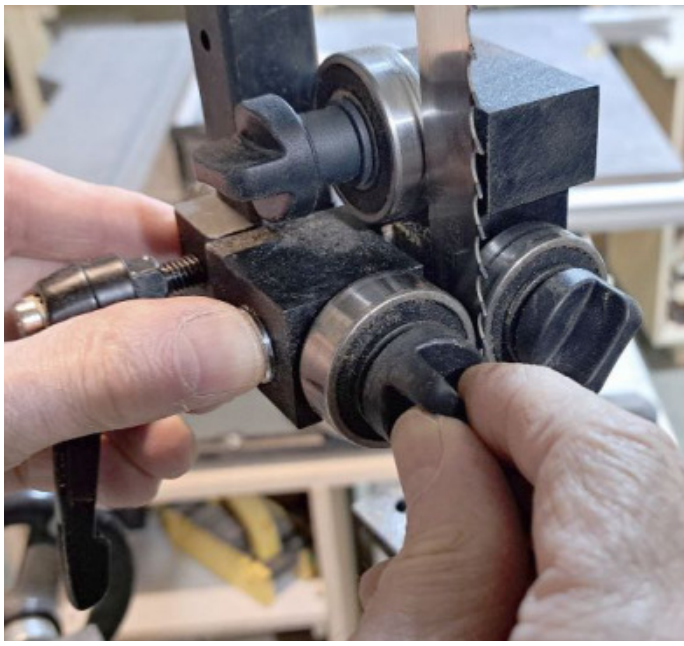
Tracking refers to the position of the blade on the upper wheel. Most bandsaws have a tracking adjustment knob behind the upper wheel housing. With the machine still unplugged, rotate the upper wheel by hand while turning the tracking knob until the blade rides evenly in the centre of the tire. You want to centre the deepest part of the gullet (the space between the teeth) on the centre of the tire.

Mobile Base – Although not always needed, it's nice to have a mobile base for your bandsaw. Bandsaws are usually heavy, and a mobile base will allow you to move the saw with ease. It will also allow you to adjust the support so the bandsaw is sitting properly on the floor and doesn't rock during use.

Tension Knob – The tension knob (a lever on some bandsaws) allows you to change the distance of the upper wheel in relation to the lower wheel. Doing this adjusts the amount of tension on the blade. Too much tension as well as too little tension are both incorrect and cause different problems.

Deflection Test – Tension scales aren't overly accurate. As long as the blade deflects between 1/4" and 3/8" you're good to go.

Tracking Correctly – If the tracking is adjusted properly, the deepest gullet will be centred on the width of the upper wheel.



Side Bearings – The side bearings in the upper blade guide should be adjusted in or out so there is a very small gap between the two bearings and blade. These bearings will help keep the blade from moving side to side during the cut. Some saws have blocks instead of bearings, which also have to be adjusted in the same way.

Correct tracking ensures smooth blade operation and minimizes lateral movement during cuts. Once you're satisfied, lock the tracking adjustment in place if your saw has a locking feature. Use this same tracking procedure regardless of the blade width. You don't need to track the blade on the lower wheel — just check that it's sitting approximately on the crowned area of the wheel and isn't rubbing up against the saw's housing.

To make sure you have the blade on in the correct direction, check that the teeth point downward toward the table, where the blade passes through the table.

Align the blade guides and thrust bearings

Blade guides prevent the blade from twisting or deflecting during a cut. Most bandsaws have two sets of guides — one above and one below the table. Each set typically includes two side guides and a rear thrust bearing at the back of the blade.

The side guides should sit just behind the blade teeth, slightly behind the gullets, and ideally as close to the blade without touching; about 1/64" to 1/32" from the blade. While you can use a thin slip of paper as a feeler gauge to set this gap, you still want to rotate the upper wheel by hand to ensure that the teeth don't touch the blade teeth or gullet at any point.

The rear thrust bearing should be positioned just behind the blade, making light contact only when the blade is under cutting pressure. It shouldn't spin while the machine is running, yet not cutting anything.

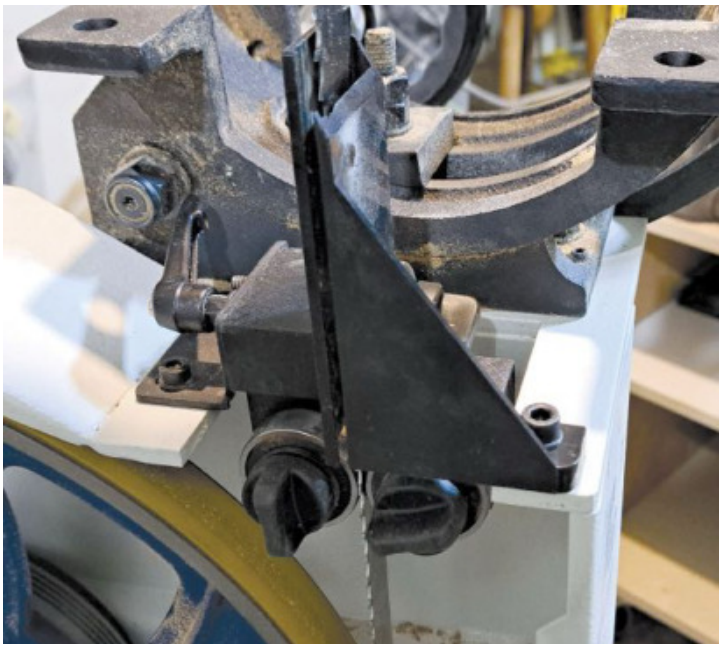
Repeat this process for the lower set of guides beneath the table. Access can be a little awkward, but this adjustment is just as important. You'll find it easier to adjust the lower bearing if you remove the tabletop, typically by removing a few bolts underneath the top.

Once everything is aligned, raise the upper guide post and lock it in place. Check to confirm that the side guides and rear thrust bearing are still correctly positioned.

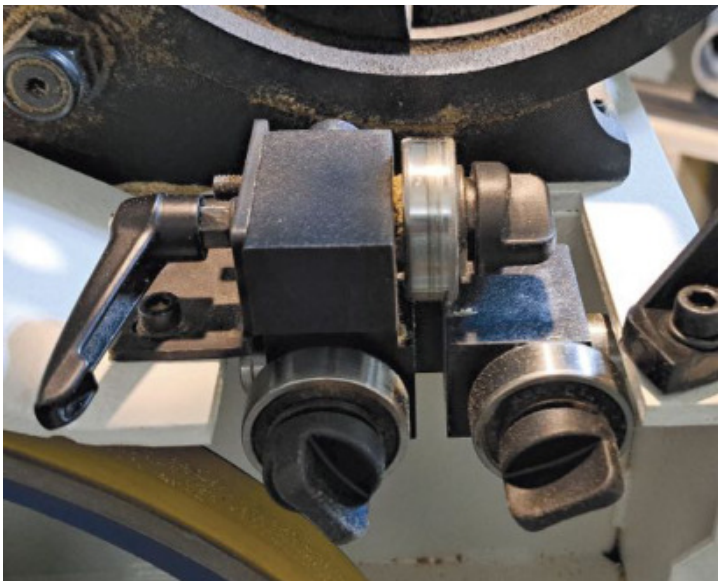
Thrust Bearings – The thrust bearing shouldn't be in contact with the back edge of the blade when the saw isn't cutting, but as soon as pressure from a workpiece is applied to the front (cutting edge) of the blade, the blade should move back slightly and be supported by the thrust bearing.

Square the table and fence

To ensure accurate cuts, the bandsaw table should be square to the blade. Use a reliable machinist's or combination square placed



Don't Let Your Guard Down – If you had to remove any guards to access the blade guides, ensure those are put back in place. If they're damaged, they should be replaced.



Lower Blade Guide – The lower blade guide, including its side and thrust bearings (or blocks), is also an important aspect when it comes to setting up a bandsaw to cut properly.

on the table and resting against the flat side of the blade (not the teeth). Adjust the tilt of the table using the trunnion controls until it forms a perfect 90° angle to the blade.

The fence should also be checked for squareness and alignment. Some fences are prone to minor drift and may require adjustment. Place a short straightedge against the blade body and compare it to the fence. If necessary, adjust the fence mounting bracket or drift compensation feature so the fence is parallel to the blade path.

When resawing, even slight misalignment can cause a blade to wander. A well-aligned fence and blade eliminates most of these issues.

Adjust the guide post height

The upper blade guides and guard are mounted to a guide post that moves up and down. Always set the guide post height to roughly 1/4" above the top of the workpiece. This minimizes exposed blade, improves cut accuracy and reduces blade deflection.

Raise or lower the guide post, then lock it securely in place. If the post isn't locked tightly, the guides may shift during a cut.

Control the dust

Bandsaws produce a surprising amount of fine sawdust, particularly during resawing. Most machines include a 4" dust port located at the lower rear of the cabinet. If your saw also includes a secondary port just below the table, even better. This second port captures dust closer to the blade where it's generated.

Connect a dust extractor or shop vacuum to both ports, if available. Good dust collection improves visibility, reduces wear on guides and tires, and keeps your shop cleaner.

Some bandsaws include a wheel brush that sweeps sawdust off the lower tire as it rotates. If your saw doesn't have one, it's a simple and worthwhile aftermarket upgrade.

The Right Depth – If the adjustments are all made correctly, the gullets should end just before the side bearings start when the blade is looked at from the side.

Preliminary check

Before making your first cut, inspect the drive belt that connects the motor to the lower wheel. Make sure it's properly tensioned and aligned. Some saws allow for dual-speed operation by repositioning the belt on a stepped pulley system, a useful feature if you plan to cut metal in addition to wood.

Check that the rubber tires on both wheels are clean and free of buildup. If they appear glazed or worn, clean them with a stiff nylon brush or replace them, if necessary.

Sitting Square – Check that the blade and table are perpendicular to each other. Any adjustments can be made to the angle the table sits at.

Tire Brush – A tire brush will keep sawdust and pitch from building up on the lower tire and, in turn, the blade.

A quick wipe of paste wax or dry lubricant on the table will reduce friction and help your workpieces glide more smoothly.

Performing a test cut

With everything aligned, tensioned and cleaned, plug in the saw and let it run for a few seconds. Listen for unusual vibrations, rattles or rubbing noises. If the saw runs smoothly, make a test cut on a piece of scrap wood. Check for square, observe how the blade behaves under load, and watch for signs of drift.

If everything cuts clean and true, you're good to go.

Ongoing maintenance tips

Bandsaws are relatively low-maintenance machines, but regular checkups are a good idea. Periodically inspect the blade guides, clean out sawdust from the lower cabinet and lubricate the trunnion pivots, if needed. Check blade tension before each use, and always use a sharp, clean blade for best results.

If you frequently switch between blade sizes or cutting tasks, invest in a saw with tool-free guide adjustments. It's a big time saver and reduces the chance of misalignment.

A bandsaw that's set up correctly will reward you with cleaner, more accurate cuts, quieter operation and fewer frustrations. Many common issues, such as blade drift, burn marks or broken blades, can usually be traced back to poor set-up or worn-out blades. By taking the time to install the blade properly, align the guides, and square the table and fence, you'll get the best out of your saw every time.

Bandsaws are incredibly versatile machines that belong in every woodworking shop. With the right set-up, they're capable of handling everything from rough lumber breakdown to delicate curve cutting. Spend a little extra time on set-up now and your saw will deliver years of dependable service.

CARL DUGUAY
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HOW MUCH GLUE IS TOO MUCH?

Photos by Rob Brown

Too little and things won't hold – too much and things get messy.

BY CARL DUGUAY

Knowing what type of glue to use for a specific application is crucial if you want your projects to hold together for the long run. Equally important is knowing how much glue to use for a given type of wood (porous, diffuse-porous or non-porous) and the type of joint (such as face, edge-to-edge, dowel, dovetail, or mortise and tenon).

Applying too little glue can starve the joint, leading to joint failure, panels coming apart or veneered surfaces delaminating. Applying too much glue can cause excess squeeze-out, contaminating the wood surface and making cleanup a burden. It can also result in hydraulic lock, where glue becomes trapped in the joint, preventing the parts from properly assembling or staying together.

What's the flummoxed woodworker to do?

Start with the wood itself

Different types of wood absorb glue differently, affecting how much glue to use and how to apply it.

Porous woods, such as oak, ash, walnut and mahogany, have large, open pores that can absorb glue unevenly, leading to glue starvation in joints. For these woods, apply a slightly heavier coat of glue to ensure good coverage. Work quickly, as the open pores can start absorbing glue before you clamp.

Diffuse-porous woods, such as maple, cherry and birch, have smaller, evenly distributed pores, so they don't absorb glue as aggressively as porous woods. For these woods, apply an even, thinner layer of glue than you would for porous woods.

Non-porous or resinous woods, such as pine, redwood and fir, contain resins and pitch, which can make gluing tricky because they resist absorption. I've always found it helpful to scuff-sand glue surfaces to remove resin buildup before applying glue. You could also wipe the joint area with acetone or denatured alcohol to remove any excess oils. Use a little extra clamping pressure to ensure good contact.

When gluing solid wood on the exposed edges of sheet goods like MDF or particleboard, you should apply two layers of glue, as the sheet good soaks up a lot of glue. Apply one layer of glue, rub it in slightly, then apply another layer, before applying the edge strips.

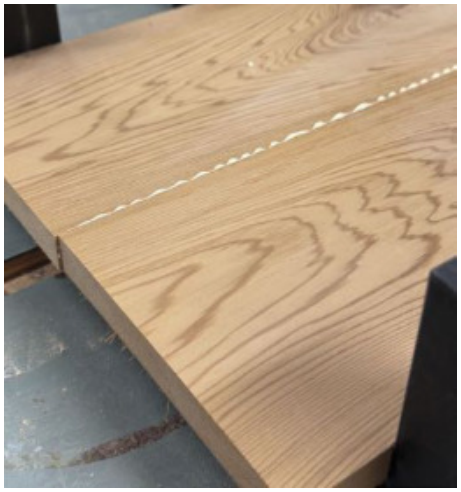
Different joints require different gluing strategies

Different woodworking joints require different gluing strategies to ensure a strong, lasting bond. Factors such as surface area, wood movement and joint strength all play a role in how glue should be applied. In principle, you want to apply enough glue to coat the surfaces but not so much that it drips everywhere. Here are my recommendations for gluing the more commonly used woodworking joints.

Edge joints (such as panel glue-ups): Apply a continuous bead of glue along the entire joint. You don't have to apply glue to both edges — one will do. However, if you have a large surface area to

Different Materials – Porous woods, like oak (top), soak up more glue than other woods. It's a good idea to add a bit of extra glue to those woods. Diffuse-porous woods like maple (centre) don't soak up as much glue as porous woods, so less glue can be applied. Resinous woods like spruce (bottom) can be wiped with acetone or denatured alcohol, then allowed to dry, before applying glue, if needed. Particleboard (right) is more porous than solid wood.

Particleboard Edges – The edges of particleboard are very porous. If you're adhering solid wood edging to the edges of particleboard, make sure the edge doesn't soak up all the glue, leaving you with a starved joint. Apply a light layer of glue on the edge, rub it in, then apply another layer of glue before adding the solid wood edges.



Nice Beads – A properly glued edge joint should have a fair bit of small glue beads on both surfaces. If no glue has squeezed out from between the mating boards there's no way of telling if there's enough glue on the edge. The main downside of too much glue in an edge joint is that it can get messy.

Glue the Mortise – Applying glue to the inside of the mortise is always a good idea, though too much glue can cause problems.

Glue the Tenon, Too – A light coat of glue on the tenon is the other half of the equation. This should ensure enough glue is on the joint.

glue, apply glue to both edges to prevent the glue from skinning over before you clamp. When clamped, you should see a small amount of squeeze-out but not excessive dripping. If the edges are large, or you have many to glue at the same time, you could use a narrow paint roller to apply the glue to speed up the process and to ensure proper glue coverage.

Mortise and tenon joints: Apply a thin, even layer on both the tenon and inside the mortise to ensure good coverage. Too much glue in the mortise may cause the joint to not fully seat if the tenon fit is snug and there is no gap at the end of the tenon and the base of the mortise. If too much glue on the tenon is used, it will get pressed into the area between the two parts and cause a big mess. Too much glue can also create hydraulic pressure inside the joint, making assembly difficult.

Dovetails and box joints: Brush a thin layer over both mating surfaces to ensure complete adhesion without excess buildup. A piece of carefully applied masking tape on the inside of the joint may keep glue squeeze-out off the inner corner of the joint.

Biscuit, dowel and Domino joints: Apply glue in the slot or hole and on the biscuit, dowel or Domino itself. When clamping, use moderate pressure to ensure good contact without squeezing out too much glue. Failing to apply glue to both the slot or hole and the biscuit, dowel or Domino can lead to a weak joint.

Mitre joints: Glue both mating surfaces, but don't rely on glue alone. The small surface area, as well as partial end grain that naturally makes up a mitre, makes these joints weak, so reinforce them with splines, biscuits or even brads. Use band clamps or specialized mitre clamps to apply even pressure.

How to avoid glue squeeze-out

Glue squeeze-out happens when excess glue is forced out of a joint during clamping. This usually occurs because the glue spreads as pressure is applied, filling the pores and pushing out any extra glue. While a little squeeze-out is a good sign that the

Check the Amount – Too much glue on a mortise can cause squeeze-out when the joint closes. This is typically where it's least wanted.

Tape It Off – A piece of tape across the inside edge of a dovetail joint will help keep glue off the inner corner of the assembled joint.

Glue Grooves

If you want to have the best of both worlds (ensure ample glue coverage and avoid squeeze-out) there's a simple trick you can use. A glue groove can be added to the hidden area just before where the glue squeeze-out will happen. The glue groove will accept some excess glue before it squeezes out onto the visible portion of the project. How much glue will be trapped is directly affected by how wide and deep the glue groove is, so create it accordingly.

It's possible to create a glue groove in many ways, but here are three of the most common approaches. You can use a parting tool or standard carving gouge to create either a V-groove or round-bottom trough. Another approach is to use a scratch stock and scratch a shallow groove into the joint parallel with the visible edge. A third option is to use either a table saw or router table to create a narrow groove. This last option is the only one I'd use if I needed to create either a very long glue groove or a lot of glue grooves in many pieces. Hand tools usually work best for creating glue grooves.

Glue Grooves – If there's a joint that you don't want to have any glue squeeze-out occur, carve glue grooves into the hidden portion of the joint. They will act as troughs to hold some of the excess glue. The deeper they are, the more glue they'll hold.

Glue the Fasteners – Dowels, biscuits and Dominos need to have glue applied directly to them to work properly. Rubbing it in with a brush or your hand is a good way to ensure even, proper coverage.

joint has enough glue coverage, too much can create a mess and require cleanup.

When applying glue, don't overdo it — use just enough to ensure good adhesion without overloading the joint. A thin, even layer is usually sufficient. Have a damp rag, chisel or scraper ready to remove excess glue before it dries hard. Sometimes, it's easier to wait until the glue becomes rubbery before scraping it off rather than wiping it while wet, as you can easily smear wet glue into the pores of the wood, causing unsightly marks once the finish has been applied. For critical areas, such as tight corners or visible joints, masking tape can help prevent glue from seeping onto finished surfaces. If glue dries on the wood, you'll want to carefully scrape or sand it off to avoid affecting the final finish. Using a sharp chisel or plane iron will also help get into corners and remove any partially or fully hardened glue. Again, this is easier and tidier when the glue isn't overly soft.

The starved glue joint

A starved glue joint happens when there isn't enough glue left in the joint to create a strong bond. This can lead to a weak joint that may eventually fail. The most common cause of a starved joint is the maker didn't apply enough glue to the mating surfaces. Another risk is over-tightening clamps, which can force too much glue out of the joint, leaving too little behind for a proper bond. Also, if glue starts to dry before clamping, it may not bond properly. This can

Strengthen Mitres – Splines and pegs are just some of the ways mitre joints can be strengthened. Contrasting colours often offer a chance for adding some artistic flare.

happen in dry environments, when gluing end grain or when you have many surfaces to clamp together at one time.

To avoid a starved glue joint, apply a thin but full coverage layer on one edge (or both sides if using porous wood). Use clamps to hold the joint firmly, but don't crank them down so much that all the glue is forced out. And pay attention to squeeze-out — a small bead of glue along the joint is a good sign. No squeeze-out might mean you didn't use enough, though there's a slight chance that it means you used the perfect amount, which makes this conversation more complex. And work quickly — apply glue and clamp within the glue's open time to ensure a strong bond. A joint like a mortise and tenon, dowel, Domino or biscuit doesn't necessarily need to have any squeeze-out, though some joints, like an edge or face joint, should have a small amount of squeeze-out.

Cut It Away – Once the glue has partially hardened over, use a sharp knife or blade to cut any squeeze-out from the joint. Wiping it when it's wet can smudge the glue into the wood, where it's sometimes hard to remove.

A little bit of practice

Finding the right amount of glue to apply takes practice. Here's a general guideline: Do a dry run with scrap wood. Apply glue, clamp the joint and observe the squeeze-out. If there's none, you may not have used enough glue. If it's running everywhere, you likely used too much.

With time and experience, you'll develop a feel for the right amount of glue for different woods and joints, ensuring your projects hold together properly for years to come.

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Get the Lead Out

Looks can be deceiving. Those beautiful layers of old paint that add so much patina and character might also be dangerous to your health.

BY JAMES JACKSON

Last summer I was at my favourite architectural salvage store in Waterloo, Ontario, and I came across some beautiful tongue-and-groove flooring that was almost 2" thick and about the right length for a coffee table. When I got home, I didn't have the time to work on it right away so the boards just sat in the corner of my shop for months.

Finally, this past winter I had the time. They were lovely reclaimed pine and still had layers of brown and white paint on them. Combined with a set of black steel coffee table legs I had also picked up on sale earlier last year, it was going to be a terrific project.

I got to work gluing three of the 8" wide boards together to form the tabletop before cutting them to length. Then I spent a few hours sanding the top smooth, stopping every few minutes to run my fingers over century-old wood.

Any longtime reader of this column probably knows I have a love for old barnboard, beams, flooring, joists and basically anything from the early 1900s or older. The patina of the wood, the old saw marks, the square nails and the nail holes all add up to a one-of-a-kind project.

And boards that still have some of their old paint can help deliver on that historic, old-world charm, but it can also come with a toxic surprise. For centuries, lead was used in paint for a variety of reasons – to add pigment or colour, to speed up drying, to increase durability, maintain a fresh appearance, and to resist moisture. Yet it wasn't until the late 19th and early 20th centuries that the dangers of lead paint became apparent.

According to the Centre for Disease Control, long-term exposure to lead can cause nervous system damage, decreased memory and attention, anemia (low iron in the blood), kidney damage, and severe brain damage. Canada banned lead paint in 1960, and leaded gasoline has been prohibited since 1990.

In my zeal to get my table project going I had forgotten about the possibility of lead lurking in paint, but as I ran my fingers over the wood it suddenly came rushing back to me. A wave of panic washed over me. These boards were definitely older than 1960, so I stopped working and went online to order some lead testing strips. They arrived a few days later and when I checked the wood the strips turned bright orange, showing lead was likely present.

My panic from a few days earlier returned. I googled the symptoms of lead poisoning and the damage it can cause. I emailed the salvage company to ask if they tested for lead in their material before selling it. (They suggested always wearing protective equipment when working with salvaged material.) I worried I may have carried lead-contaminated sawdust into the house on my clothes and boots, inadvertently putting my family at risk. I remembered all the times I ran my bare hands against the dusty wood grain to check how smooth it was after sanding. Finally, I phoned poison control and told them what I'd done (while also mentioning I had been wearing a respirator for most of the work, and my sander had a vacuum attachment).

The nurse on the other end of the line didn't seem too concerned, but she also said I could get a blood test if it would make me feel better. A few worrisome days later (I had the test on a Thursday and had to wait the entire weekend) the results came in well below anything close to what is considered elevated. During a follow-up visit with my doctor he said the results could be interpreted as basically zero. I breathed a sigh of relief.

This scare was not only a good reminder to always be aware of the materials you're working with and the risk they might pose to my health, but it's also a good example of why you should always wear your personal protective equipment and ensure your safety equipment, such as your dust extractor, is in good working order, especially in smaller shops with less ventilation or air flow.

That tabletop is still sitting unfinished in the corner of my workshop and I get a bit of the heebie-jeebies whenever I look at it.

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Adrian Heim

Harold Chair

It was challenging to get the ergonomics just right on this chair design Heim recently finished. The position and angle of the backrest gave him the most trouble. Every change he made required almost every other joint and angle to be slightly tweaked. (Photo by Adrian Heim)

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