



61

HOT PRODUCTS



KNOW YOUR TOOLS:
BELT SANDERS

ISSUE #117
DEC/JAN 2019

CANADIAN Woodworking & HOME IMPROVEMENT

Build a Floor Lamp

+3 MORE LIGHTING PROJECTS

▶ **Simple Tea Light Holder w/Copper Shade** p.64

▶ **Curved Floor Lamp** p.26

▶ **Traditional Japanese-Style Lantern** p.44

TOP 10
Turning Accessories
p.10

Great Canadian Lighting p.14

Under-Cabinet Kitchen Lighting p.40

Light Your Workshop p.18

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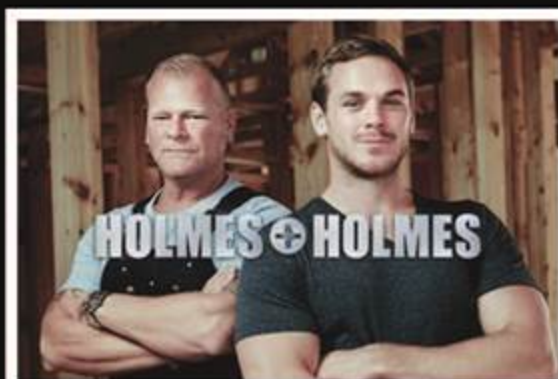


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Check out the Holmes+Holmes and
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Check out King Canada on



FEATURES

18 Shop & Jobsite LED Lighting

BY CARL DUGUAY

Our web editor looks at five styles of lighting to make working in your workshop bright and easy.

26 Build a Curved Floor Lamp

BY STEVE DER-GARABEDIAN

This lamp is great for reading, or just adding a bit of light to an area of your living room. Building it is also a great introduction to bent lamination work.

40 Under-Cabinet Lighting

BY CARL DUGUAY

Your kitchen is arguably the most used room in your home. Light it properly with great task lighting.

44 Build a Traditonal Japanese Lantern

BY JAMES DOBSON

With hand-cut joinery, and lots of intricate details, this lantern will be the focal point of a room.

DEPARTMENTS

- | | |
|---|---|
| 2 Editor's Letter | 12 Canadian Quotes: Kathryn Miller |
| 4 Letters | 14 Community: Great Canadian Lighting |
| 6 Web Shavings | 52 Hot Products of 2018 |
| 8 Know Your Tools:
Belt Sanders | 64 Weekend Project: Tea Light Holder |
| 10 Top 10:
Turning Accessories | 72 Beginner's Journey: Illuminating Experience |
| | Back Cover: Kathryn Miller, Sweater Lamp |

COVER STORY

Cover photo by Rob Brown

32 Build a Modern Floor Lamp

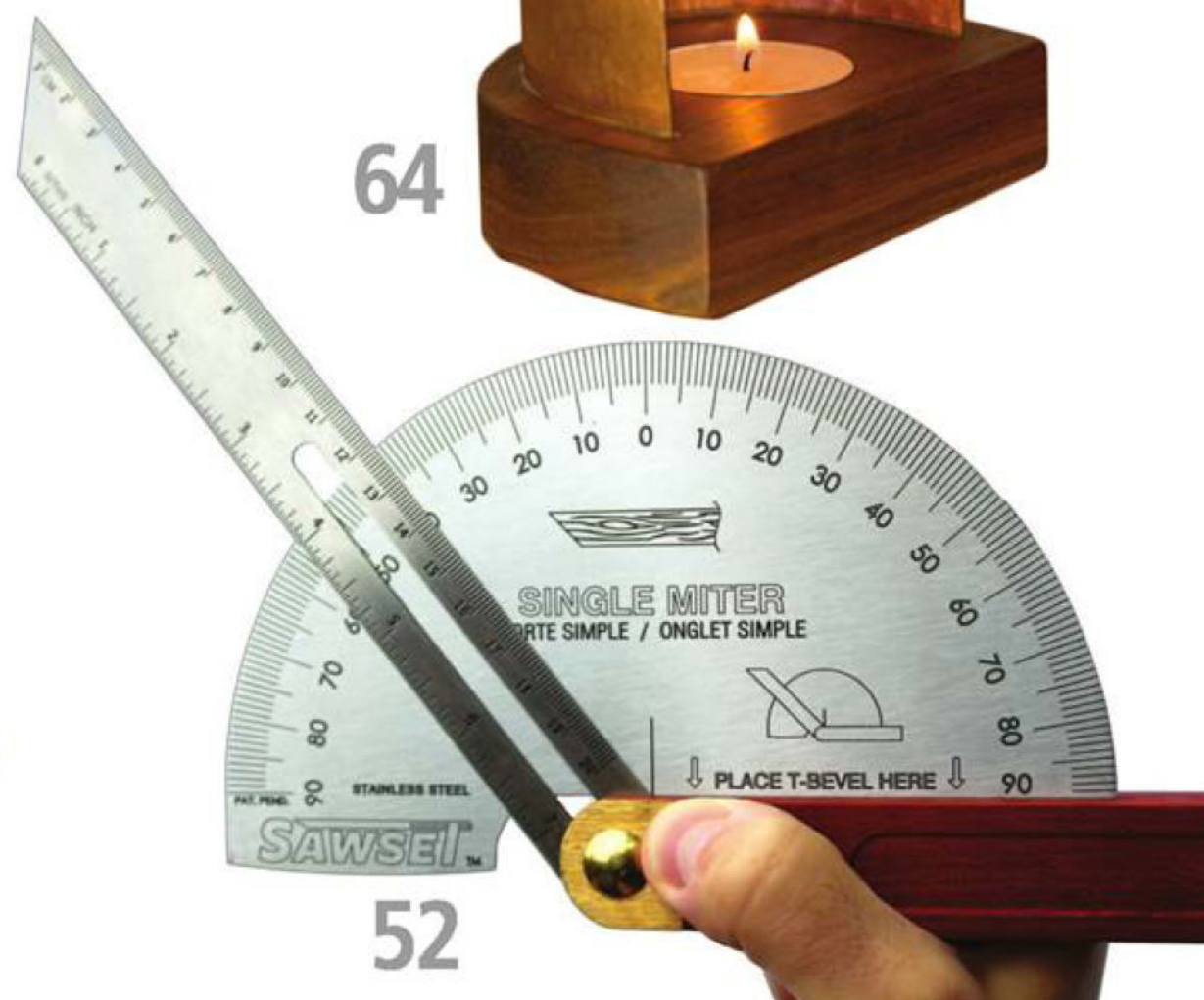
This easy-to-build floor lamp will leave your friends very impressed with your woodworking skills, while brightening up your living area. BY ROB BROWN



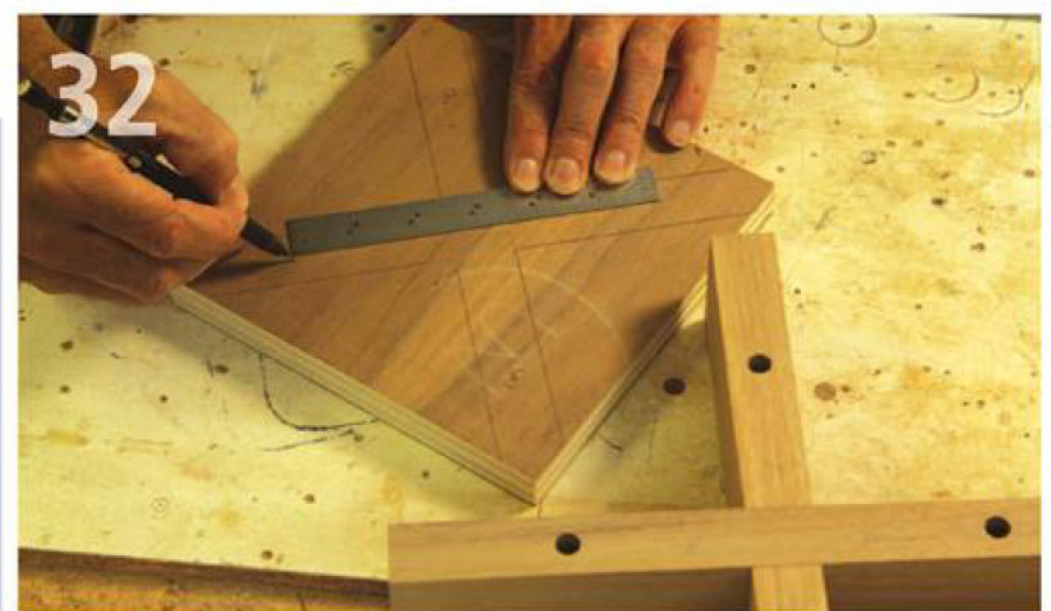
12



64



52



32

editor's letter

Lighting Issue

Canadians enjoy a bright, warm summer season, but the colder, darker days always seem to come too early for me. As a nation there's not much we can do about it, but as woodworkers we can get into our workshops and build a lighting project that will light up the inside of our homes. Unlike larger pieces of furniture, lights are generally much simpler to make – sometimes a weekend is all that's needed to create a nice little accent light. This important fact also comes in handy the week before Christmas when you need to make a few gifts, and quick.

We have four project articles in this issue. The two floor lanterns bring a unique feel to a room and also provide enough light to read by. I'd also love to see some of you take one of these general designs and riff on it to create your own version. When you do, please send me a photo of your finished piece. The floor lantern I detail is one of those projects that will impress your friends and family, as it looks like it might be hard to make, but it's actually quite easy. These projects are my favourites. Steve Der-Garabedian's floor lamp is a bit harder to build, as it involves some bent lamination work, but if this is a new technique for you, it's a great project to practice these techniques.

The third project, a Japanese-style table lantern, is on the intricate side. The somewhat complex joinery needs to fit together accurately, but if you enjoy a challenge you'll love making this lantern. If short and sweet is what you're after, you'll like the tea light holder. It has a planished copper shade, but it could also be made with a laminated wood shade.

Still on the subject of shedding some light on the situation, Carl Duguay takes us into the shop to help us see our work-in-progress a bit better, and into the kitchen to help us with our under-cabinet task lighting. And if you want some inspiration, take a look at our Community column for a great collection of hand-made Canadian lamps, lights, lanterns, chandeliers and more. It may be dark outside, but there's no reason your next workshop project can't make the interior of your home lighter and brighter.

61 Hot Products

While not under our theme of lighting, our annual Hot Products are included in this issue. We all love new tools, and this collection of workshop items will help you with everything from sanding and joinery to assembly and finishing. It will also serve as a starting point for your holiday wish list. Enjoy.

— Rob Brown



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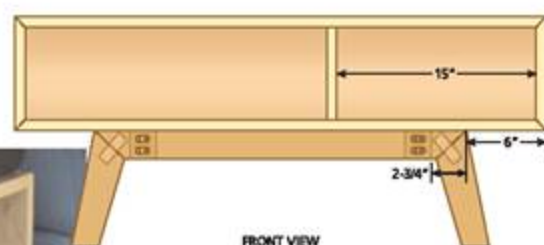
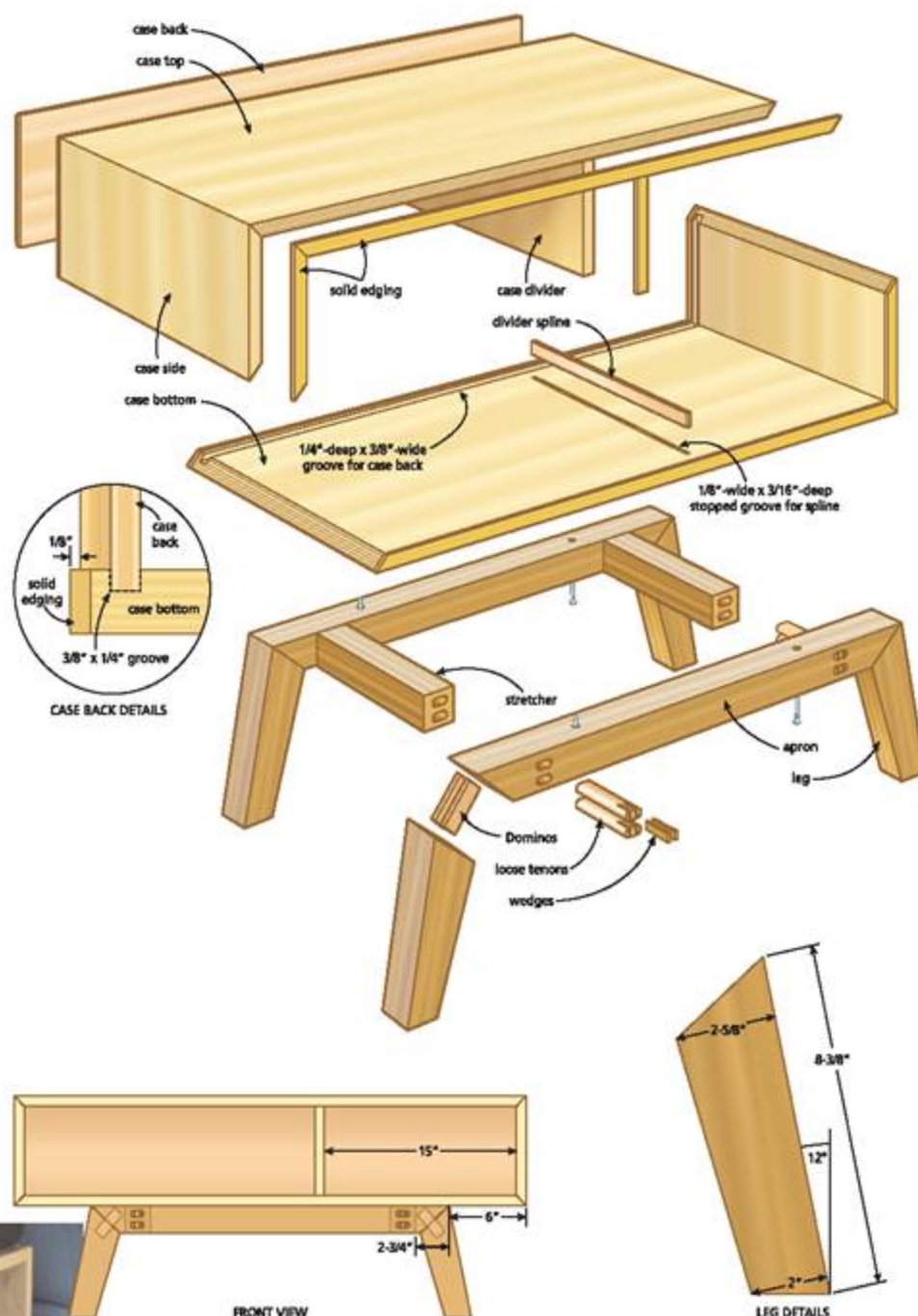
Enjoying the Illustrations

I have been a subscriber for a few years now. Though I enjoy many of the articles (especially the projects-based ones) in each issue I really enjoy looking at the exploded 3D illustrations that accompany most of the projects. I'm a very visual person, and though the text is crucial, I find the illustrations bring all the text-based descriptions into a clearer light. To be honest, I'd be lost without the illustrations and photos.

I'm going to be starting the modern coffee table featured in issue #110 (OctNov 2017) soon, and the illustrations and photos are going to play a big role in allowing me to 'see' how it should be constructed.

Keep up the great work on the visuals!

Jeff F.
Halifax, N.S.



Incredibly Informative!

I recently took up woodworking as a hobby, so thought why not subscribe to your magazine and support a Canadian publication. My first two issues were great! A friend mentioned that as a subscriber I have access to all your "Woodworking Basics" videos, so I checked them out. Wow! There are so many things I didn't even know I didn't know! I found "6 Common Adhesives for Woodworking" to be especially helpful. It's not until I get a good overview of a topic that I can really start to learn about a subject, and how it relates to the work I do. This video did a great job of answering many of my questions and pointing me in the right direction.

A big thanks for all the work you do bringing woodworking to beginners like me!

Leslie M.
Winnipeg, MB



productnews

Bosch 12V Palm Router

Trim routers have always been great power tools to have around the workshop, but now that Bosch has offered a brushless battery-powered version, it's even easier to use. For adding smaller edge profiles to a piece, trimming plastic laminate, machining small dadoes and groove and many other functions, their GKF12V-25N is a game-changer. The bare tool is light at 2.2 lb, includes an easy-change spindle lock, fast macro depth adjustment and handy fine depth adjustment, making it not only functional, but enjoyable to use. Powered by a 12V battery, it offers a surprising amount of run-time with the smaller bits it's designed for. Its ergonomic offset design allows it to be grasped naturally, making it comfortable for extended use. Visit boschtools.com for more information.

—Rob Brown



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- Spindle travel: 3/4"
- Speeds: (12) 140, 260, 320, 380, 480, 540, 980, 1160, 1510, 1650, 2180, 3050 RPM
- Collar size: 2.040"
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- Table swing: 360°
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- Amps: 20A at 110V, 10A at 220V
- Precision-ground cast-iron table size: 17" x 17" x 1 1/2"
- Table tilt: 10° left, 45° right
- Cutting capacity/throat: 16 1/4" L of blade
- Max. cutting height: 12 1/4" • Blade size: 131 1/2" long
- Blade width range: 1/8"-1" wide
- Blade speeds: 1700 and 3500 FPM
- Fully-balanced cast aluminum wheels
- Overall size: 32" W x 73" H x 32" D
- Footprint: 27" W x 17 3/4" D • Power transfer: belt drive
- Floor-to-table height: 37 1/2"
- Approx. shipping weight: 342 lbs.

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- Table height: 34" • Arbor: 5/8"
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- Max. cutting height: 6"
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- Table tilt: 10° left, 45° right • Floor-to-table height: 37 1/2"
- Cutting capacity/throat: 16 1/4" L of blade
- Max. cutting height: 12 1/4" • Blade size: 131 1/2" long
- Blade width range: 1/8"-1" wide
- Blade speeds: 1700 and 3500 FPM
- Fully-balanced cast aluminum wheels
- Overall size: 32" W x 73" H x 32" D
- Footprint: 27" W x 17 3/4" D
- Approx. shipping weight: 342 lbs.

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10" 3 HP CABINET LEFT-TILTING TABLE SAW

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- Maximum depth of cut @ 90°: 3"
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Woodworking Basics – Introduction to Clamps
(for CW&HI magazine subscribers only)

Canadian Quotes:
Kathryn Miller



Forum Thread

Check out these home improvement threads and many
others at forum.canadianwoodworking.com

- **Do I need rebar for a small slab?** – The size of
a concrete slab, and the details surrounding it, effect
whether rebar is needed. Read about how some
forum members use rebar and concrete to create a
strong, lasting slab.
- **Kitchen Cabinet Materials** – If you're consider-
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about the pros and cons of some of the common
building materials.

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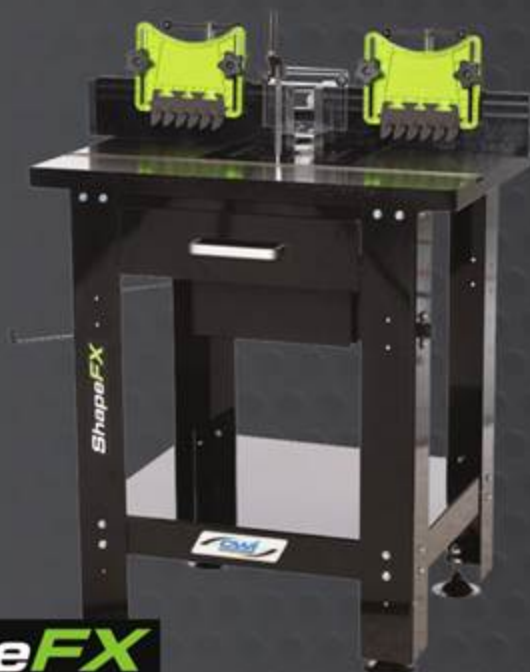
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Belt Sanders



A belt sander takes a bit of time to get to know well, but once you've mastered its use it will make quick work of much of your rough sanding tasks around the workshop. Belts, ranging from 36 grit to 150 grit, can be easily removed and added, giving the user a wide range of uses. If you're using a belt sander quite often a

light yet powerful model, that feels comfortable in your hands, is what you want. Some battery-powered models are now available, though corded models are still the norm. Small units, called palm sanders, are essentially small belt sanders that can be used single-handed.

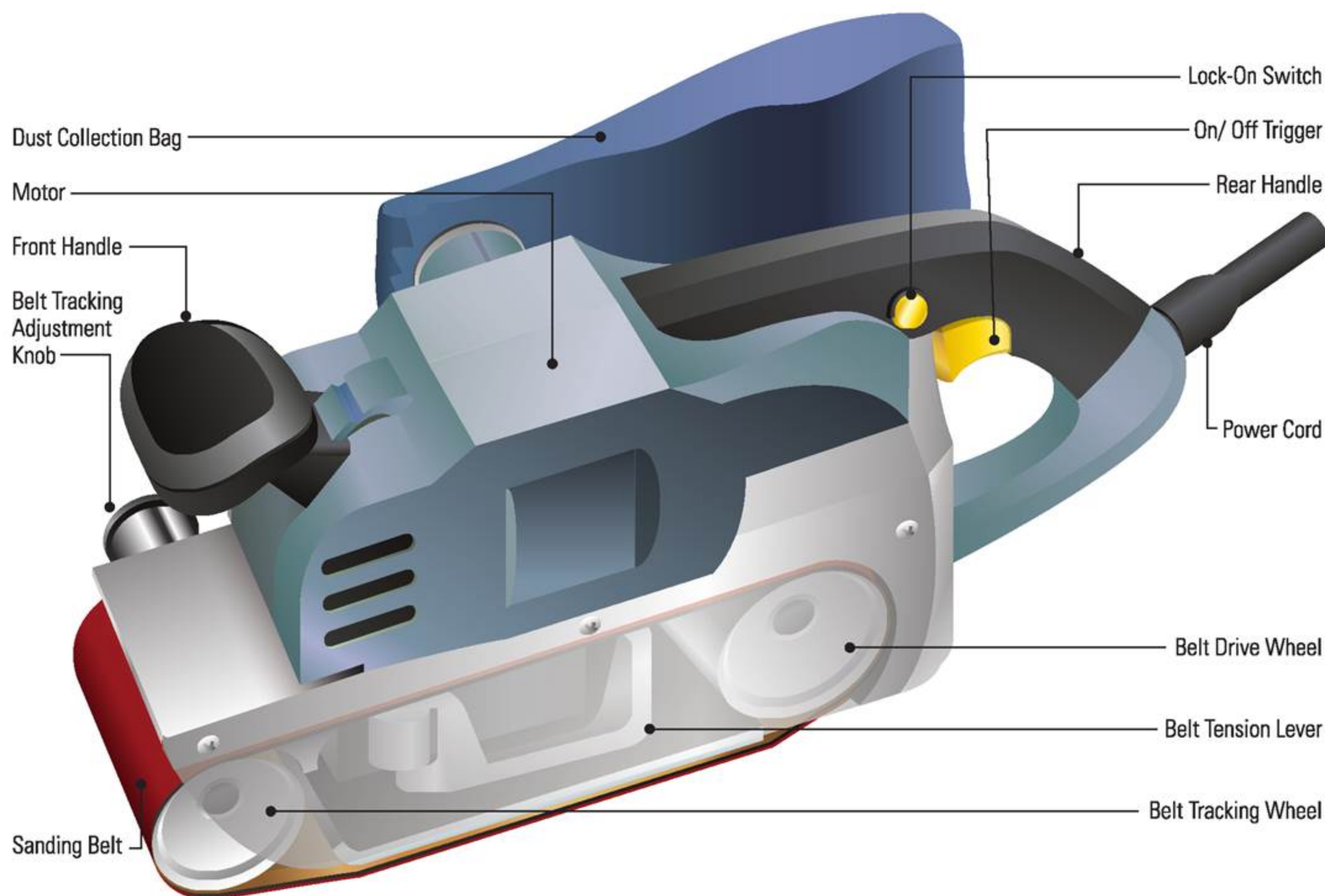
Price: \$80 - \$300

Amps: 10

Common Belt Widths: 3" and 4"

Common Belt Lengths: 18", 21" and 24"

Weight: 15 lb



Get the Most Out of Your Belt Sander

Select the Right Grit

Low-grit sanding belts are very aggressive, while higher-grit belts can produce a fairly fine and smooth surface. A high-grit, that's asked to remove too much material, will clog quickly and may cause burning.

Extra Care On Veneer

Belt sanders can eat through a layer of veneer in seconds, if not used with care. A light touch and putting the unit down gently before pulling the trigger is a good start.

Get Dedicated

Setting up a specific area in your shop where you can sand panels and longer lengths of material can help greatly. A stop to keep the workpiece in place is very helpful.

Know When to Stop

Know when to use a belt sander, and when a lighter sander is the best tool for the job. Belt sanders are typically one of the first to be used, while finer sanders provide a surface worthy of a great finish.

Dust Protection

Sanding dust accumulates quickly, so empty the attached dust collection bag often. To keep the ambient dust down a fan, an open door / window and dust mask / respirator can go a long way to keeping your lungs happy.

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Top 10 Turning Accessories

Thinking about buying a lathe? Or maybe you're new to woodturning. These ten accessories will help you get the most out of this great craft.

BY CARL DUGUAY



1 Drive Center — Most lathes come with a fixed drive center (which inserts into the headstock spindle) that has two or four flat spurs and a fixed center point. You'll get better holding power while turning with a toothed drive center that has a spring-loaded center point. A good choice is the Sorby Stebcentre.

2 Spindle Washer — Place a simple plastic washer over the head stock spindle up against the housing. It prevents the chuck or faceplate from getting stuck in place. Get it from your local supplier or make one yourself.

3 Caliper and Dividers — Calipers and dividers are extremely useful and reasonably inexpensive. Use them as a reliable and straightforward way of comparing and transferring dimensions, especially when turning duplicate pieces. Look for tools with quick-adjust mechanisms that hold settings reliably yet enable precise adjustments, and carbon steel tips for long life.

4 Drill Chuck — A drill chuck, which is inserted into the headstock or tailstock spindle by means of a Morse Taper adapter, is used for drilling applications. It can also be used to hold very small work pieces (by turning a spigot on one end of the work piece and then inserting spigot into the chuck).

5 12" Tool Rest — Small lathes typically come with narrow tool rests that work well for bowl turning but are too narrow for spindle turning. With a longer tool rest you have more sliding surface, so you won't be adjusting the tool rest as often.

6 Grinding Jig — While you can sharpen turning tools without one, a grinding jig speeds up the process, gives you sharper tools at more consistent bevel angles, and prolongs tool life. A good choice is the Wolverine Grinding Jig.

7 Double-Sided Turning Tape — If you do much face-plate turning, particularly with smaller-diameter stock, use double-sided tape instead of screws to hold the turning blank in place. It's quick, easy, and holds incredibly well — but make sure you use a tape designed for lathe work.

8 Micro-Mesh — These flexible foam-backed sanding pads are ideal for smoothing and polishing. The foam backing cushions surface irregularities, making it easier to remove scratches. They're available in grits up to about 12,000x.

9 Faceshield — Dust, splinters, stock coming loose and flying off the lathe — it all gets directed in the vicinity of your noggin. Even if the probability of a bowl or spindle taking flight is remote, but when it does happen the results can be catastrophic. Wear a faceshield. If you don't like wearing a face shield, at least wear impact-resistant goggles.

10 Taunton's Complete Illustrated Guide to Turning — You won't regret getting a good reference book, and this guide by Richard Raffan is one of the very best. It covers every aspect of turning for the novice and hobbyist turner.



CARL DUGUAY

cduguay@canadianwoodworking.com



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Kathryn Miller

...on CNC routers, digital modeling and the importance of maker spaces.

BY ROB BROWN



Halo Chair – This chair pushed Miller's skill level in many ways. Modeling the piece in 3D was complicated; the ovular chair body swivels on a circular pedestal and is capped by a multi-angled, multi-radius arm rest.

How long have you been building furniture?

The first furniture piece I remember building was a futon frame for my apartment: I was probably 20 at the time. I couldn't afford to buy one. Since then my apartments and houses have been filled with furniture I have made or altered in some way.

What sort of furniture do you specialize in?

Functional art pieces.

Tell us a couple interesting things about your personal life.

Last fall, my partner and I decided to put all of our belongings in storage, bought a motorhome and hit the road. Our journey has taken us to 30 states and continues across Canada.

If you were not a furniture maker what would you be?

I think I would be a house flipper. I love to see transformation from rough to refined.

In order, what are the three most important items in your shop apron?

Metaphorically, my number one is YouTube. Google and YouTube have absolutely transformed how we learn. Number two is persistence; I almost never give up. The third item is patience; if you have to try as hard as I do, you need a lot of patience.

Do you prefer hand tools or power tools?

I respect all tools and use both hand and power tools in every piece that I make.

Solid wood or veneer?

Both.

Figured wood or straight grain?

Again I say yes to both. Straight grain offers a calming contrast to figured woods. And figured woods add interest where straight grains would be boring.

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

I'm going new with this one, Veritas just does it right.

Flowing curves or geometric shapes?

I could never choose between flowing curves or geometric shapes. My work always includes both.

Favourite wood?

English walnut is my favourite wood at the moment; the colours can be absolutely stunning.

Least favourite wood?

I risk being unpopular here but I have never liked the look of oak.

Kathryn Miller, age 48

Company name – millermodern

www.miller-modern.com

Location & size of studio – My last workshop was in East Vancouver in a maker space. My studio was 150 sq. ft. but I had access to a large wood shop, which was shared by all the members.

Education – Fine Furniture/Joinery program at Camosun College in Victoria.

quotes

Until recently I was a member of MakerLabs, a shared maker space in Vancouver. The building was filled with creative people churning out projects. I had 150 sq. ft. of private studio space and access to all of the tools in the large woodshop.

My work routine had been to go to my paying job in the morning and then take a bus to my studio for the afternoon. Once there I would quickly look in the wood shop to see which tools were being used, and this would determine how I would start my work.

My favourite tool by far is the CNC router, but I also hate it. It is so noisy, big, heavy and expensive. The flip side is that it is perfect and fast. My mid-sized plunge router is my favourite handheld power tool.

Inspiration is everywhere, but often we become blind to our daily situation, missing amazing beauty in so many things.

If my furniture could talk it would literally say “She tried,” or “She sure doesn’t know how to take the easy route, does she?”

The Pacific Northwest and Vancouver itself have a huge influence on my design aesthetic. I like modern design, simple and sleek.

Sometimes my designs start as a napkin sketch or a small clay model but often I jump straight to designing on the computer.

Learn to model digitally in 3D.

My designs don’t usually fall short of my expectations, but sometimes my execution does. I think it comes from being a perfectionist and a relative novice.

Most mass-produced furniture looks tired to me no matter what style. But we can do better. We just have to use our imaginations and take risks.

I’m not really a fan of exposed joinery and don’t usually use it in my work.



Where the Jewelled Things Are – The inspiration for this wall hung jewelry cabinet was the tangled mess of necklaces found in Miller’s partner’s drawer. It is a place for precious things, and everything has a spot.

I have only ever done speculative work, but could be open to commissioned artistic work. Usually when people commission a piece of furniture they have a pretty good idea of what they want; building something like that doesn’t interest me.

I was once a woodworking hack with a jigsaw, a drill and some screws. Using these simple tools, I built many pieces of furniture for my home over the years.

If we want to bring young people into woodworking we need to create shared community-based public workspaces. Young people want to make, but owning decent tools and finding available space are huge barriers to entry. I believe maker spaces are as important as a hockey rink and a library. Maker spaces foster cross-generational relationships within a community in a way that other spaces do not. Young people are technology savvy and can teach older people how to use 3D printers, CNC routers and laser cutters; older folks are often highly skilled craftspeople who can teach young people proper joinery techniques, tool maintenance and much more.

Wharton Esherick’s library ladder is a really cool piece.

ROB BROWN
rbrown@
canadianwoodworking.com



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SLIDESHOW: Visit our website to view a slideshow of Miller’s work.

Shed Some Light: Great Canadian-Made Lighting

Canadians endure dark, cold winters. Adding the warm glow of a beautiful light to your home will help you enjoy the sun setting. Here's a selection of lighting made by Canadian artisans.

BY ROB BROWN

Jason Klager
Lantern Table
Eastern maple, imbuya, becote
L:38" x W:14" x H:29"
Photos: focalpointstudios.ca



Stephen Dalrymple
Tusk Lamp
White oak, linen
8" x 19"h
Photo by Ryan Nangreaves

Pierre Rousseau
Shoji Lantern
Fir, paper, LED light
17" x 9" sq.
Photo by Intersections Studio



Jeff Trigg
Pendant with Stand
 Spruce, black walnut
 18" wide × 40" deep × 92" high
 Photo by Trevor Brucki



Christopher Solar
Stitch Floor Lamp
 Walnut, birch, linen shade
 62" high × 19" diameter
 Photo by Christopher Solar



Kathryn Miller
Pillar Lamp
 Concrete, wool, wooden
 stem, LED lights
 5' tall × 10" diameter
 Photo by Jenn
 Co-McMillen / Red Alchemy
 Photographic Arts



Peter Pierobon
Serpentine Plumb
 Yellow cedar and
 mahogany
 24" × 58"
 Photo by
 Goran Basaric





Mike Kammerer
Eros ii
 Birch plywood, walnut,
 fiberglass, rice paper, light
 fixture
 5' high
 Photo by Wendy D Photography



Stefan Marinov
Illuminatus
 Cherry, shoji paper, glass
 without glass top: 17-1/2" x 17-1/2" x 24-1/2"
 Photo by Stefan Marinov



John Lavoie
Fossil Lamp
 Reclaimed maple, copper,
 mica, various ammonites
 6'h, 24" diameter
 Photo by Judy Peacock



Mike Randall (Kurva Design)
S-Light
 Ash / LEDs
 8' long x 2.5' wide (space occupies) 1.25" high. Also comes in 6' and 10'
 Photo by Dale Roth of Roth and Ramberg



Brothers Dressler
Branches Chandelier
 47" diameter x 18" tall
 White oak, hardware
 Photo by Lars Dressler



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is paramount to obtain
maximum performance.

Shop and Jobsite LED Lighting

mirknig.su

To do good work you need good lighting. We look at 5 different options.

BY CARL DUGUAY

In order to work safely and accurately, good workshop and jobsite lighting is important. Whether you're laying out cut lines, chopping mortises, sanding and applying a finish, installing crown moulding or trimming a door, you need to clearly see what you're doing to do the job well.

In the workshop you need properly spaced overhead area lighting as well as focused task lighting at the workbench. Depending on how your overhead lighting is laid out, and the availability of natural lighting from windows, you may also

need task lighting positioned adjacent to some of your shop machinery.

Similarly, when working at a jobsite you may need a combination of both area and task lighting that can be easily and quickly repositioned and repurposed for the tasks at hand. The style and number of lighting appliances you need, along with the amount of light (measured in lumens) will, of course, depend on the type of jobsite work you do.

As lithium-ion batteries have largely displaced NiCad batteries in the cordless tool market, LED (light-emitting diode) lamps are replacing incandescent, halogen and fluorescent lamps. One of the major

advantages of LED lamps is their considerably longer life span – upwards of 50,000 hours. They're also much more energy efficient, generate less heat and are mercury free (though some may contain lead and arsenic). And, compared to some fluorescents, they attain full brightness instantly and don't hum or flicker. They are more expensive to purchase than other types of lamps, though prices have been dropping steadily as they become more pervasive in the market.

In this article we look at five styles of LED lights for use in the shop and on a jobsite, and list some of our favourite models.

Photos by Manufacturers

Ceiling fixtures

Fluorescent tubular lighting is the de facto lighting appliance in most workshops. TLED (Tubular LED) replacement tubes in T12 (1-1/2" diameter), T8 (1") and T5 (5/8") formats are available as an upgrade for existing fluorescent fixtures. There are several types of TLED tubes. For Type B TLEDs you need to remove the ballast from the fixture before installing the new tubes. However, Type A TLEDs are generally a better choice, as they have an integrated driver, so can be installed directly into your existing fluorescent fixture. The Philips InstantFit LED 15W (Watts) 48" T8 tube (\$12), is rated for 50,000 hours and is available in colour temperatures from 3000K (Kelvin) to 5000K.

You can also purchase TLED fixtures (most come with an installed TLED tube) at just about any home improvement center or lighting retailer.

Sources: HomeHardware.ca, Lighting.philips.ca, Sylvania.com

Bench mounted

The ubiquitous swing-arm and flexible neck clamp-on lamps are popular because they're inexpensive, can be easily attached to most work surfaces and the light can be positioned to focus right where it's needed.

Magnetic-Mount Work Light, 15J7701

\$39.50

LeeValley.com

As either an alternative or supplement to a flexible clamp-on lamp this light has an 18" flexible neck with a rare-earth magnet base enabling you to attach it to any metal surface. There are optional 3/4" (#15J7704) and 20-mm (#15J7705) dog hole posts (\$4 each) so you can mount the light on a workbench. It uses three AA batteries for up to 5 hours of continuous operation.

Lithonia Chrome Diamond Plate Linkable Fixture

\$59.99

Available from Home Hardware, this fixture enables you to connect up to 10 fixtures using a single power cord. The tube has a 4000K colour temperature with a CRI (colour rendering index) of 80 and consumes 40W.

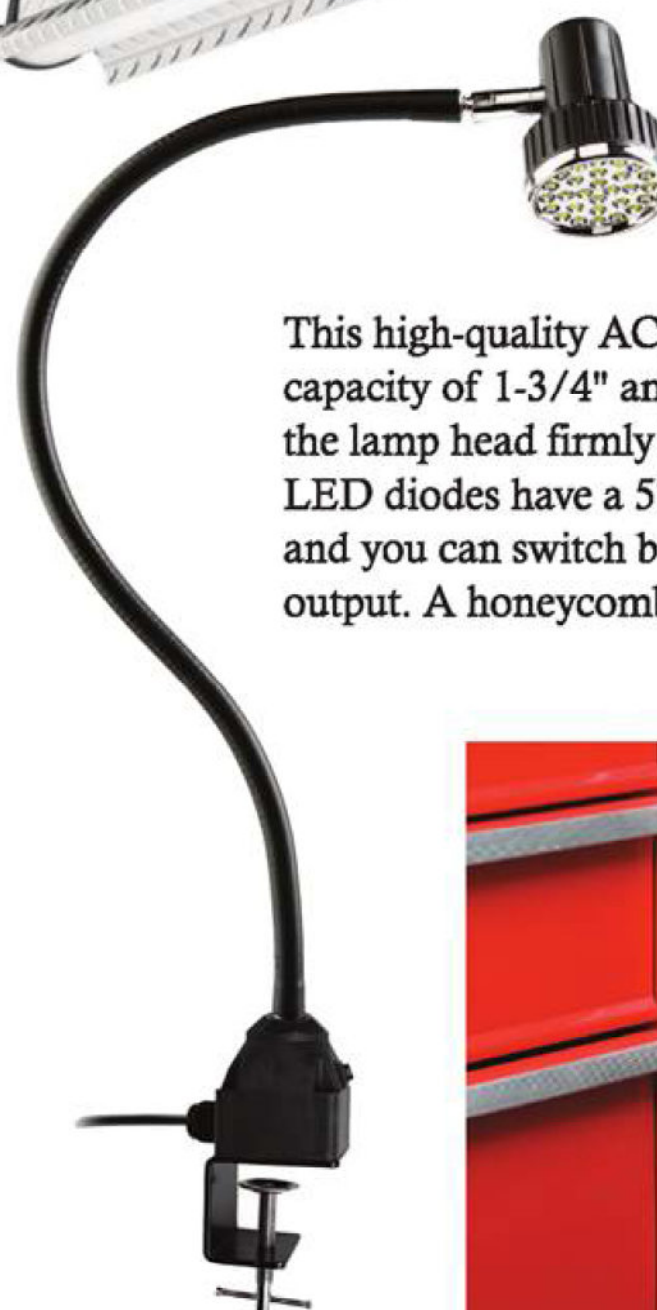


UberLight < 3000TL

\$102.70

Reliablecorporation.ca

This high-quality AC-powered fixture has a clamping capacity of 1-3/4" and its 26" flexible metal arm keeps the lamp head firmly in place. The 28 surface mounted LED diodes have a 5700 to 6500K colour temperature and you can switch between 200 or 500 lumens of light output. A honeycomb lens cover reduces glare.



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New King Canada Multi-tool w/ Quick Release

Sponsored: The new 8349QR Performance Plus 30 pc. variable-speed oscillating multi-tool from King Canada is the most useful and versatile power tool you will ever own. The oscillating action allows for use as a detail sander, plunge saw, drywall cut-out tool, scraper, grout removal tool and more. Now with a quick-release blade changing system allowing you to quickly and easily switch between applications. The kit, which retails for under \$60, includes sanding pad, 24 assorted pieces of sandpaper, scraper blade, 35 mm Tru-Cut offset saw blade, high-speed steel segment saw blade and case. Visit KingCanada.com for more details.



Stick lights

Small and lightweight, they can usually be stood upright, hung (typically by a lanyard or hook on the top of the fixture) or used hand-held (similar to a flashlight), which makes them popular with tradespeople and renovators. Some have belt hooks, integrated magnets for attaching to metal surfaces, or rotating heads for better light positioning. The four options below are powered by their manufacturer's 18V batteries, but are sold as 'bare' tools without a battery or charger. Runtime will depend on the Ah rating for the battery you install, and the lighting (lumen) level you select (this applies to area and tower lights as well).

Bosch GLI18V-300N

\$67.90

BoschTools.com

300 lumens. 160° articulating head and hanging hook. 1-year warranty. Also available as a 12V model (GLI12V-300N).



DeWALT DCL050

\$69.00

DeWalt.ca

250 and 500 lumens. 140° articulating head, 360° rotating hanging hook, and belt hook. Also available is a 110-lumen model (DCL040). 3-year warranty.



Milwaukee 2735-20

\$82.95

MilwaukeeTool.ca

160 lumens. Aluminum head rotates 135°. Hanging hook. Seven other 12V and 18V styles available. 5-year warranty.



Ridgid R8694220B

\$109

Ridgid.com

Up to 2,500 lumens. Lumen output adjustable over 18 levels. 180° articulating head, 1/4"-20 thread mount, belt clip, and 12' 12V vehicle adapter with integrated cord retainer. 5-year warranty.



Ryobi P727

\$69.98

RyobiTools.com

950 lumens. 2 banks of LED diodes, one bank rotates 270°. Mounting hook. Also available is an AC/DC model (P790). 3-year warranty.



Area lights

Various referred to as area, flood or site lights, these either have articulating or fixed heads (typically at an angle), or stationary heads that provide 360° lighting. Some are sized for shop use, others for jobsites. Models can be AC, DC or AC/DC powered. Not all come with batteries or chargers, and only a few have an IP (ingress protection) rating for moisture and dust.

Bosch GLI18V-1900N

\$99 (bare tool)
BoschTools.com

1,900 lumens. Single LED diode. 120° articulating aluminum head, 5/8"- 11 thread mount. Also available is a 420-lumen model (GLI18V-420B) and 12V light (FL12). 1-year warranty.

Festool (2 models)

FestoolCanada.com

Both of these lights have a 5,000K colour temperature.

Model	DUO-Plus	KAL II
Price	\$425	\$280
Lumens	8,000	310 and 769
Other	AC, 180° light diffusion, IP55 rating	Internal 7.2V 2.9Ah battery, 4.8 hrs on low setting, 2 hrs on high setting, 3.3-hr recharge time, Hanging hook Available with bench stand (KAL II SET, \$355)



Festool Inspection Light

The Festool STL 450 (\$450) is a bit of an odd-man-out. It's an AC-powered 1,500-lumen 5,000K hand-held tube-style light, specifically designed to help you pinpoint flaws on wood or other surfaces before applying a finish. 16' power cord. IP55 rating. Also available as STL 450 set (\$720) with a tripod. (Photo by Festool)



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Steel City Router Tables

Sponsored: Working on a router table provides better control for increased safety and accuracy. The wide choice of bits available, as well as many accessories, makes a router table an essential tool that every DIYer should have. Steel City offers a complete selection of router tables and accessories that allow each user to adapt the tool to the type of work being done. Engineered with precision, they are available in four different packages to better suit your budget and needs. Visit SteelCityMachines.ca for more information.



Milwaukee Rover and Radius (7 models)

The Rover line includes small units that are better suited for small areas. All come without batteries or chargers. Radius lights offer much brighter, 360° lighting for larger jobsites, high-impact polycarbonate lenses, carry handles and hanging hooks. Both Rover and Radius are sold as bare tools. 5-year warranty.

Rover				
Model	2360	2361	2364	2365
Price	\$199	\$129	\$119.99	\$139
Lumens	650 – 3,000	1,300	200 – 1,500	350 – 1500
Other	18V or AC, 240° rotating head, Roll cage design, Handle, Vertical/horizontal mounting	18V, 4 hanging modes	12V, Magnetic base, Hanging hook	18V, Folding & rotating head, Magnetic base, Hanging hook, IP54 rating

Radius			
Model	2145/2146	2150/2151	2155
Price	\$398/\$449	\$729/\$599	\$279
Lumens	1,000 – 4,400	2,500 – 9,000	7,700
Other	18V, IP54 rating, ONE-KEY (2146)	Single or double 18V, Two-bay sequential charger, Connect up to 6 units (2150) or 12 units (2151), IP54 rating (2150) ONE-KEY (2150)	AC 120 – 277V, 3,900K, Multiple lights can be wired together, Integrated hanging cable



DeWALT (2 models)

DeWalt.ca

The DCL060 are smaller format lights with articulating heads. The DCL070 is a 360° lighting for larger jobsites similar to the Milwaukee Rover. 3-year warranty.

Model	DCL060/DCL061	DCL070/DCL070T1
Price	\$119/\$124 (bare tools)	\$479 (bare tool)/\$629 (6Ah battery/fast charger)
Lumens	1,000 – 5,000	500 – 7,000 (3,000 on battery power)
Other	18V, DCL061 is AC powered (cord not included), 6,100K colour temperature	18V or AC, 120V AC outlet and AC plug, Built-in charger, Bluetooth enabled

KC-2202LED-C

\$69.99

KingCanada.com

Has 2,200 lumens with high/low settings. Comes with integrated 4.40Ah rechargeable (5-hour) battery and AC adapter. Magnetic base. 2-year warranty.



Ridgid R8694221B

\$129 (tool only)

Ridgid.com

Variable brightness up to 2,500 lumens. Two folding panels and a center panel. Optional AC extension available. 1/4"-20 thread mount. Also available in a 1,200-lumen model (R8694620B). 3-year warranty.



Tower lights

These are heavyweight lighting appliances that provide temporary, repositionable lighting for medium to large spaces. Most can be extended up to about 7', allowing you to direct the light more efficiently than area lights. All are light enough for one person to deploy and manage. Not all are IP rated.

DeWALT DCL079R1

\$469

DeWalt.ca

Three light settings from 1,000 to 5,000 lumens. Includes 20V 6Ah battery and charger. 39" collapsed, 84" extended. Carry handle. Shroud protects light head. 3-year warranty. Also available as a bare tool (DCL079B) for \$299.



Festool DUO-Set

\$615

FestoolCanada.com

The DUO-Set includes the DUO-Plus light (see above) and a tripod. 59" closed, 79" extended.



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R&D Bandsaws 3/4" Woodslicer Swift Blade

Sponsored: R&D Bandsaws is a Canadian company located in Brampton, Ontario who have a mail-order company retail store. With a 3-4 variable pitch, this blade has the aggressiveness of a 3 tooth and a surface finish of a 4 tooth. It creates a quick, quiet and clean cut, time after time. The bright finish reduces friction. The Woodslicer Swift blade is not for green wood. The Woodslicer Swift is a must try! Priced between \$25 and \$36 for blades up to 150" long. Learn more by visiting TuffTooth.com.



Milwaukee Rocket (3 models)

MilwaukeeTool.ca

There are 3 models in the Rocket line. All feature a 4000K colour temperature and a CRI of 85. Sold as bare tools. 5-year warranty.

Model	2120	2130	2135
Price	\$999	\$329	\$498
Lumens	1,600 – 5,400	850 – 2,000	900 – 3,000
Other	Single or double 18V, 22" collapsed, 65" extended, Rotating head, IP54 ONE-KEY	Single or double 18V, 40" collapsed, 84" extended, Rotating & pivoting head, Low battery indicator	18V or AC 41.5" collapsed, 84" extended, 3 independently pivoting light heads, Built-in charger

Ridgid R9937B

\$69.98

Ridgid.com

This tripod stand is sold without a light. You can mount up to 3 lights that have a 1/4"-20 thread. 30" collapsed, 84" extended. Carry handle. 3-year warranty.

Lighting Lingo

It's helpful to know the terms companies use to describe their lighting products, which can be somewhat different (and more confusing) than the terms we normally use.

Colour Rendering Index (CRI) – A measure of how well a light shows the colour of whatever it illuminates. The scale is from 0 to 100, with anything in the 80 CRI range offering good colour accuracy.

Foot-candles – The amount of light that reaches a surface. 75 to 80 foot-candles is a good target to aim for when installing ceiling lights in your workshop. For task lighting you'll want more light. However, most companies use 'lumens' to describe available light.

Kelvin (K) – A measure of the color of light, referred to as the correlated colour temperature (CCT) and measured in degrees Kelvin. While the scale runs from 1,000 to 10,000, residential lighting generally falls between 2,000K, which gives a warm yellowish glow, to 6,500K, a cooler, bluish glow. Lighting in the 3,100 to 4,500K range, referred to as 'cool white', is a good compromise, as it matches most home lighting.

Lumens – A measure of how much light a lamp can produce. The higher the lumen rating, the brighter the light will be. That light can be focused in a narrow area, or spread over a wide area. A standard 8-watt LED bulb produces about 800 lumens, the same amount of light as a 60-watt incandescent bulb.

Lux – A measure of the amount of light output in a given area. One lux is equal to one lumen per square meter. Two lights with the same lumen rating can have different lux ratings, depending on the focus of the light beam. The narrower the beam, the more concentrated the light will be.



CARL DUGUAY

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www.DiabloTools.com

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Build a CURVED FLOOR LAMP

Dark winter evenings can be lit up nicely with this bent floor lamp. Great for reading and adding ambiance to a room, this project will also teach you a lot about bent laminating.

BY STEVEN DER-GARABEDIAN

If you were looking for a project that would let you justify buying more clamps to add to your collection, this bent floor lamp is it. During my formal education there were two main areas that really opened my eyes. One was sharpening, and the other was the ability to bend wood. Straight-lined projects are good, but at some point you're going to want to go against the grain.

As with any project that requires hardware, in this case wiring, I made sure to have it on hand before starting. Wiring for this project is not hard to find. A quick Google search came up with lots of options for fabric cord sets. I like how pau amarello complements black walnut, so I chose a cord that was sunshine yellow. This set was less than \$40.00 and came with 15' of fabric-encased wire, a socket, a switch and a three-pronged plug. Although wiring a lamp is pretty straight forward, if you're unsure at all about it, make sure to consult an electrician.

Forming a bend

My favourite method of bending wood is by bent lamination. Essentially, you take a solid plank, slice it into thin pieces, and then apply glue and bend it around a form. I made the form knowing that I wanted the body of the lamp to be 3" wide and stand just over 5' high. I calculated the spot where the cord would enter and exit

the body of the lamp at 10" from either end. I made a curve that wasn't quite a section of a circle but rather had a little more of a tight radius near the base and smoothed out as it got to the top. I like to use MDF for bending forms.

Make the bend look natural

I started off with an 11' piece of black walnut that was just over 4" wide and 1-1/2" thick. I took 8' of it and milled it clean and true. Using the carpenter's triangle to help me keep the slices in the correct order, I set the bandsaw for a cut that was just thicker than 1/4". Keeping the order in which the laminations came off the plank allows for a seamless look when gluing the pieces back together.

I would first cut one slice on the bandsaw, put that piece aside, then use the thickness planer to smooth the remaining thick piece. Going back and forth between the two machines, I ended up with four slices. I ran these through the planer until each piece was 1/4" thick. When bending wood this way, the thickness will determine how easily you can bend wood around a form. The more radical the curve, the thinner each slice should be. As the bend for this floor lamp is gentle, 1/4" thickness is plenty.

Invisible wiring

Although the wire could be run on the outside of the lamp, running it through the body will make it look refined while also making it an interesting topic of discussion. We will need to drill a hole near the top of the bending form to let the cord pass through and not hinder the clamping process.

First, center the laminations on the form, and pick a spot near what will become the top of the lamp. Drill a 1/2" hole through the bending form at this point and center it across its width. Transfer this point to the inner lamination and drill a hole slightly larger than the diameter of the cord in order not to pinch it. Pick a spot near the base of the lamp and using the same drill bit make a hole in the outermost lamination. Using either a chamfer bit or a round file, smooth the edges of these holes on both the inside and outside to make sure they don't fray the cord.

Now that we have our entry and exit points for the wiring we need to create a groove in the middle two sections. The grooves



Slice It Up – A well-tuned bandsaw makes quick work of resawing the laminations from a single board. A cabinetmaker's triangle ensures the laminations get glued back together in the order they were cut, to ensure grain and colour match.

Making a Bending Form

Any time I need to make a form I start with a hardboard pattern, then transfer that to the material for the form, typically MDF. For the pattern I like to use 1/4" hardboard, as it's a little more robust, as well as being thicker to catch the bearing on a router pattern bit. To make the pattern for the lamp, I started with a 9' piece of moulding. There are many options for tracing curves, but a thin piece of wood from your scrap pile at a suitable length will work fine. Using two nails on the ends, I played with the curve until I was happy, then traced the line onto the hardboard. Using the bandsaw and sandpaper, I refine the shape until it is smooth, with no valleys, lumps or bumps. Making the pattern smooth is key, as any imperfections will get transferred to the form.

Next, I attached it to a piece of MDF and, using Veritas offset wheel gauges, I created an outline approximately 1/8" away from the actual curve. Going back to the bandsaw, I cut this line, making sure to stay away from the hardboard pattern. Mounting a template cutting router bit in the router table, I adjusted the height to allow the bearing to ride against the hardboard pattern and cut the MDF to the exact shape. After removing the pattern and attaching another piece of MDF to the original, I repeated the process of tracing, cutting and routing the new piece. This process can be repeated as many times as necessary to achieve the width required.

While the curve is the important face, the opposite face will need some attention, in order to make sure that clamps can be used without them slipping and sliding. You'll need to make the overall thickness small enough to accommodate the different sizes of clamps you have. A very important point is to make sure that you cover the surface of the bending form with a glue resist such as packing tape and/or wax before use.

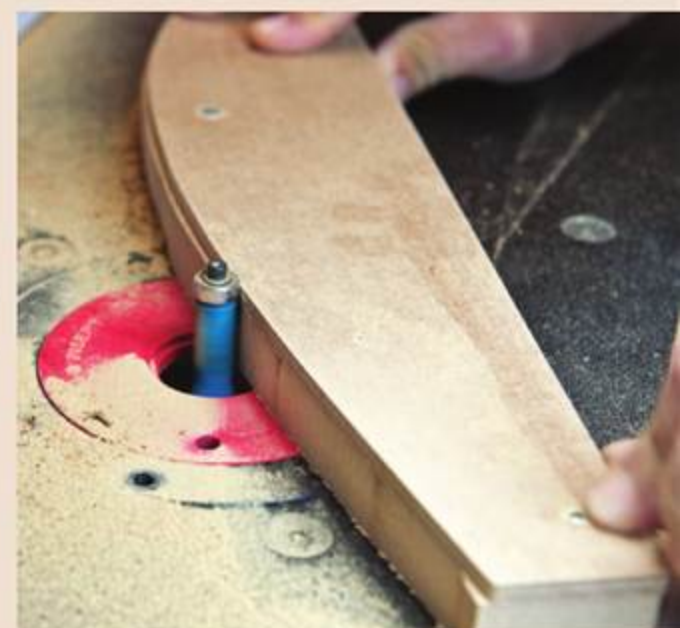
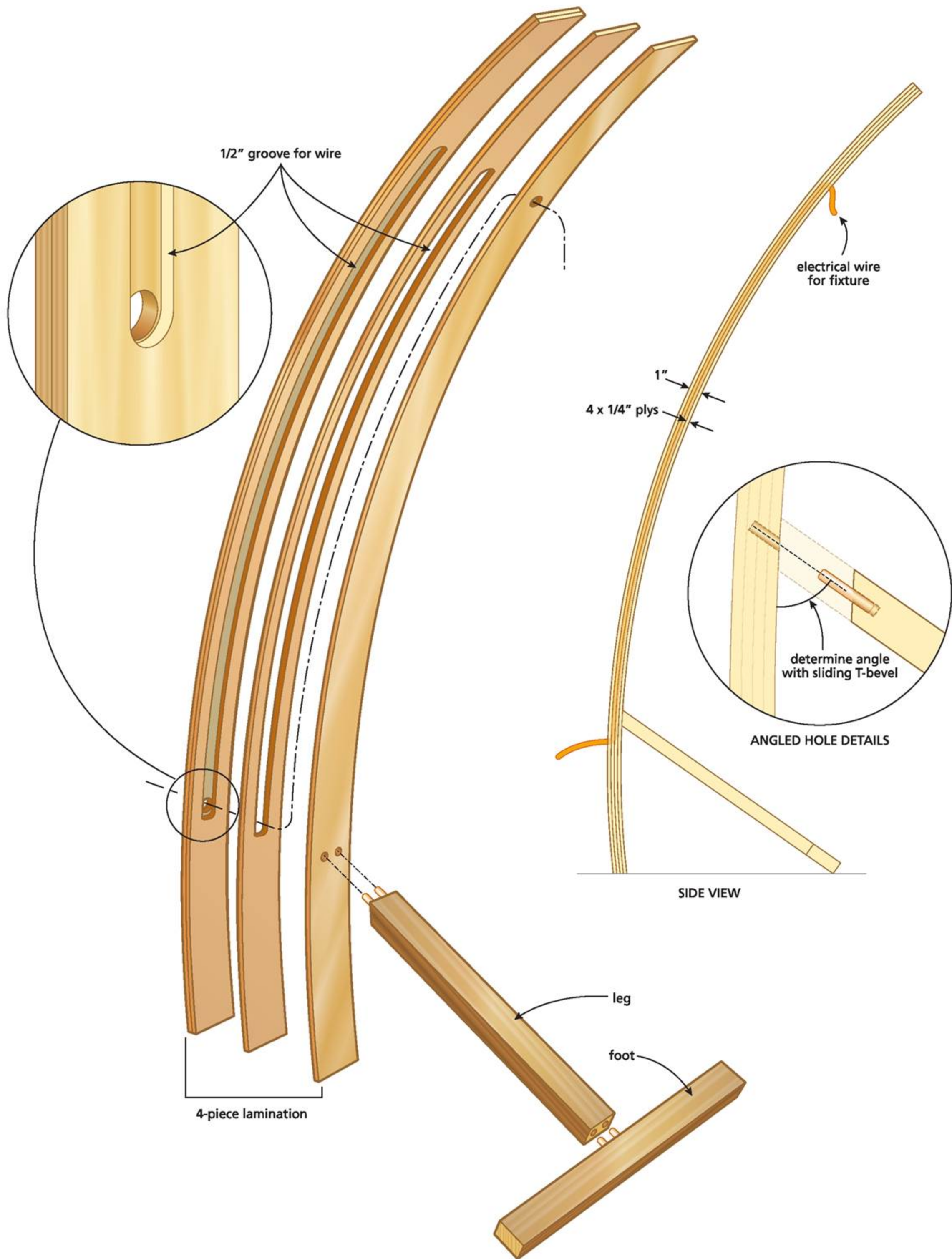


Photo: Steve Der-Garabedian

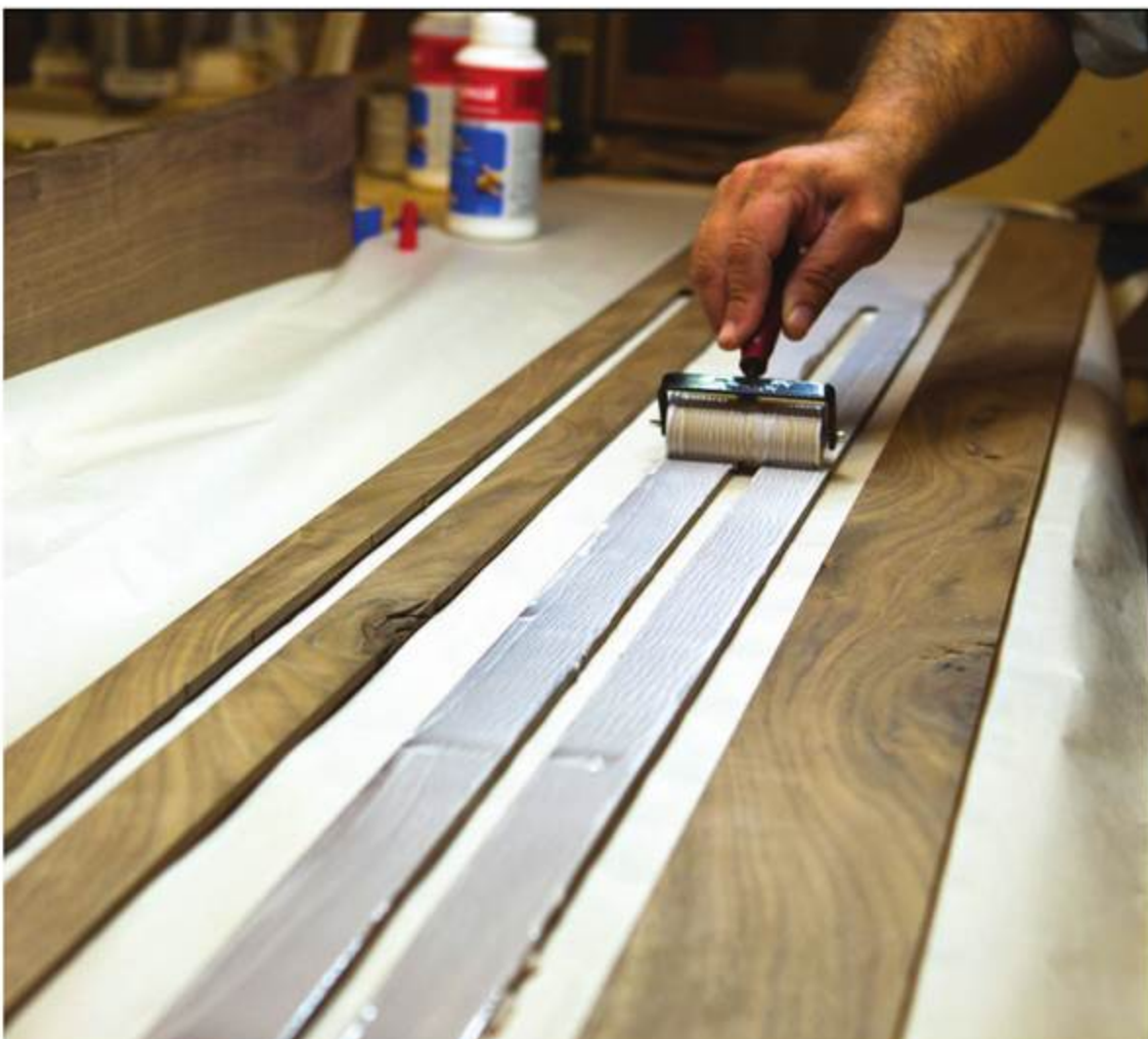




Ease Sharp Edges – A countersink bit or a round file will help ease the sharp edges around the cord hole and ensure the cord doesn't fray.



Rout Two Grooves – A router table makes quick work of creating a groove in the middle two laminations. The cord will run in this cavity.



Glue 'Em Up – A roller helps apply an even amount of glue to the laminations to speed up the process.



Even Pressure – Lots of clamps, and a few layers of 1/8" thick hardboard, ensure even pressure across the lamination.

are cut slightly past the holes where the cord enters and exits the body of the lamp. As the laminations were 1/4" thick, using a 1/2" straight bit gives us a groove of 1/2" by 1/2". Center the groove across the width of the laminations.

Bring it together

In order to spread the clamping pressure evenly we need clamping cauls. In this instance 1/8" hardboard is perfect as it will bend nicely around our gentle curve. I cut four pieces that were just over 3" wide and approximately 6' long. Next I laid out the laminations on the bending form and placed the hardboard cauls on top to mark the spot where the cord exits the lamp near the base. I took all four cauls and drilled a 1/2" hole through them at this spot, again so that the cord would not hinder the clamping process.

Anytime I clamp I like to do a dry run. This allows me to see how many clamps to use, as well as setting their initial opening to fit over the assembly. In the case of bent forms this gives the added bonus of pre-bending the pieces. To keep the cord free of dirt, dust and glue I wrapped any portion sticking out the bottom with both masking tape and plastic packaging. I rubbed the remainder of the cord with wax so that glue would not adhere to it. Although stated in the sidebar, it is well worth mentioning again to put packing tape and/or wax over the bending form to stop it from permanently becoming part of the lamp. Use wax or packing tape on the first clamping caul as well, for the same reason. I removed the socket from the assembly and ran the cord through the cauls, the body of the lamp and down and out of the bending form leaving about 2' of length. I used all the clamps necessary to make sure that the laminations were pressed tight to each other. I let that sit for about 2 hours to let everything settle into the curve.

After covering my bench with paper, and laying out the laminations, I spread glue on both sides of the inner pieces and brought everything together on the bending form. I had pre-threaded the



Joint One Edge – Der-Garabedian joints one edge of the lamination, while keeping the cord out of harm's way.

cord through the cauls and outer lamination to make sure things flowed smoothly during the glue-up. Using all the clamps I had previous used during the dry run, I clamped and made sure the stack was as lined up as possible. Inevitably there will be some slipping and sliding, however everything will be made flush soon enough.

Flushing it up

After the glue has cured, remove the clamps and inspect your work. Depending on the type of adhesive you used you might notice some spring back. This should be minimal and will not affect your design or any of the upcoming processes. I scraped glue off both edges of the assembly getting it ready for the jointer. As the laminations were longer than the bending form, I had small areas at the top and bottom where there was no clamping pressure and therefore the layers did not stick to each other. Using a bandsaw I trimmed these areas off.

Moving to the jointer I took a practice run to see if the cord would get in the way. Next, taking my time and using support



Trim the Opposite Edge – With the bandsaw fence set about 1/16" wider than where Der-Garabedian wants the lamination to finish, he rips the length to rough width, then finishes the edge on a jointer.



Simple and Strong – A pair of fluted dowels keep the leg-to-foot joint tight. You can use a jig or dowel centers to drill the holes.



Dealing with Angles – Der-Garabedian rested the end of the bent lamination on the floor and clamped the middle of the lamination to his workbench, at a pleasing angle. He then positioned the leg-to-foot assembly next to the bent lamination at an appropriate angle, clamped it in place, and marked the angle on the leg.



Angled Holes – With the joint angle cut, Der-Garabedian sets his sliding T-bevel to the angle between the bent lamination and the leg. This will give him a guide to angle his drill when he's boring the dowel holes.

rollers set at the bed height, I ran one edge over the blades several times creating a clean and flush edge. Measuring the distance from the center of the wire to the clean edge, I doubled the measurement and added a 1/16" to set the width of cut on the bandsaw. I then ran the piece through making sure to not cut the cord. One final pass on the jointer set for 1/16" cleaned up that freshly sawn edge.

A leg and foot

Taking what was left of the original 11' plank, I created a foot and leg to keep the lamp body from falling over. The leg I sized to 3/4" x 2-1/2" x 20", while the foot I milled to 1" x 1-1/2" x 20". I rounded over the edge of the foot that does not join the leg allowing it to sit flush against the floor and also give it a pleasant profile. Using two expansive dowels, 3/8" x 1-1/2", I found the center of both pieces and drilled, glued and attached them to each other.

Adding angles

The tricky parts of this project come next. Placing the body of the lamp against my bench, I found a stature that was pleasing to the eye and clamped it. Next I clamped the leg and foot assembly to the body to mark the angle and position from the floor to attach everything together. I then cut the angle on the leg on the bandsaw and cleaned it up with a block plane. On a piece as thin as the leg, and a body with such a gentle curve, the attachment point on the end of the leg does not need to be curved as well.

Once the angle is cut on the leg, I used a square to line it up then copied the angle with a sliding bevel. Next, I drilled two holes in the leg that were 7/16" in from each edge and centered across its width, 3/8". Using a 3/8" brad point bit, I started the hole 90° to the angle, then as the bit started to cut I raised the drill to cut straight into the leg. These holes need to be approximately 1" deep. I then carefully transferred these spots to the body of the lamp. As the leg is 2-1/2" wide and the body is 3" wide, the holes are 1-5/8" apart and 3/8" down from the top of the leg. This leaves plenty of room around the groove where the cord is housed. I marked these spots with an awl, and starting the drill at



Clamping Contraption – Der-Garabedian uses some dedicated clamping cauls for clamping angles for this glue-up. He first clamps the cauls to the workpieces, then he adds the glue and applies pressure with the clamps.

90° to the body, and gradually shifted to the angle set on the sliding bevel. Use a depth stop collar on the drill bit so as not to bore through the body of the lamp.

Test fit the joint using two expansive dowels. Before proceeding with the final glue-up, plane and/or sand all the pieces and soften the edges. You'll need to get creative with clamping this joint. Making your own fixtures, or buying angle clamping jigs, glue and clamp the assembly as shown in the picture. An alternative method would be to position the leg and foot assembly and attach it with screws from the far side of the body. Countersinking the screws will then allow you to plug the holes with matching wood. The final touch is to round the bottom of the lamp body where it touches the floor using either a block plane or sandpaper.

Finishing up

While I previously sanded and planed the pieces, some areas needed a touch-up due to bumps and clamping scratches. I chose to go with a clear Danish oil finish, but any finish from shellac to polyurethane will work well. Once the oil had cured I added a fine furniture wax as a topcoat and rubbed it out with 0000 steel wool to give it a satin finish that doesn't show finger prints as readily as a glossy finish. I re-attached the socket, screwed in an Edison-style light bulb, and attached a black-caged light cover.

While overall this project is not very difficult, there are some tricky areas. With some patience and lots of double checking of measurements, completing this floor lamp can be accomplished quite easily. You'll have also justified the extra clamps.

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INFO: DIFFICULTY – 3/5,
LENGTH/TIME – 3/5, COST – 3/5

Build a MODERN FLOOR LANTERN

This fun to build floor lamp will create a beautiful atmosphere in virtually any room of your house. Customize the wood species and paper shade to your liking, as this lamp will get a lot of use for years to come.

BY ROB BROWN

I get a lot of compliments on this floor lamp, but I don't tell anyone the whole truth; it's a lot easier to make than it looks. Accent lighting is a great way to light a room without bringing in the often-overpowering feeling of harsh, overhead lighting. This lamp sits beside a chair that my wife often reads in. As the days get shorter, I'm sure she's going to be spending more and more time tucked under a blanket, next to this lamp. Knowing I built this lamp will only bring more satisfaction to seeing it get used so often.

Some people don't like the idea of using hand-made Japanese paper for the shade, as it's easily damaged, but they are always surprised when I tell them how durable it can be. It can get damaged, obviously, but even if it does it's fairly easy to replace. The Japanese have many household objects with hand-made paper incorporated into them. I've heard it's a fairly common practice for them to replace the paper on their shoji screens every New Year's Day so they can start the year with a clean, new look.

Design time

As easy as this floor lamp was to build, truth be told, it could be simplified a bit. Leaving out the tapered sides and front of the legs would simplify things, though you'd lose a bit of refinement in the overall look. When it comes to joinery, if you don't have a Domino machine you could opt for a mortise and tenon joint, or you could use a dowel jig to bore three 3/8" diameter dowel holes in each joint, to secure the legs to the rails.

Removing the textured bands near the tops of each leg would only have saved me about 10 minutes' time during the build, but if sharpening curved carving gouges isn't your strong suit, this is a step you might want to skip. The texture does add a great hand-made element to the lamp, though.

Long, shapely legs

The legs are the only area of the lamp where I brought in a bit of style to the project. Their lower halves are straight, but the upper halves are tapered on one face and both sides.

After breaking them out and machining them to final dimension, you need to consider joinery. If you taper the legs too soon it may be difficult to machine straight, right-angle joints. I set up



Quick Mortises – The Domino DF 700 makes quick work of mortises. Brown ganged together three legs to offer a larger surface for his machine's fence to reference from.

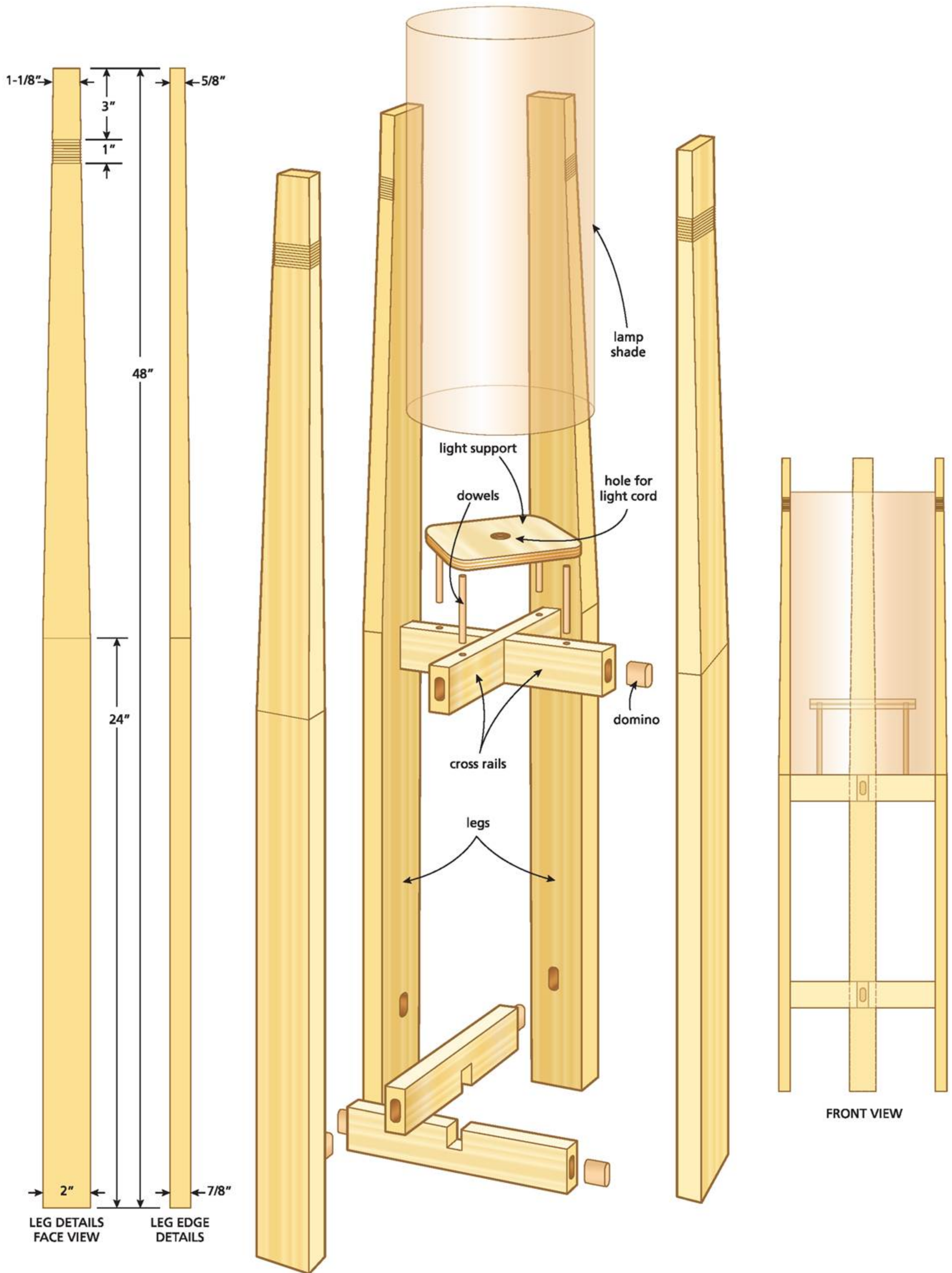


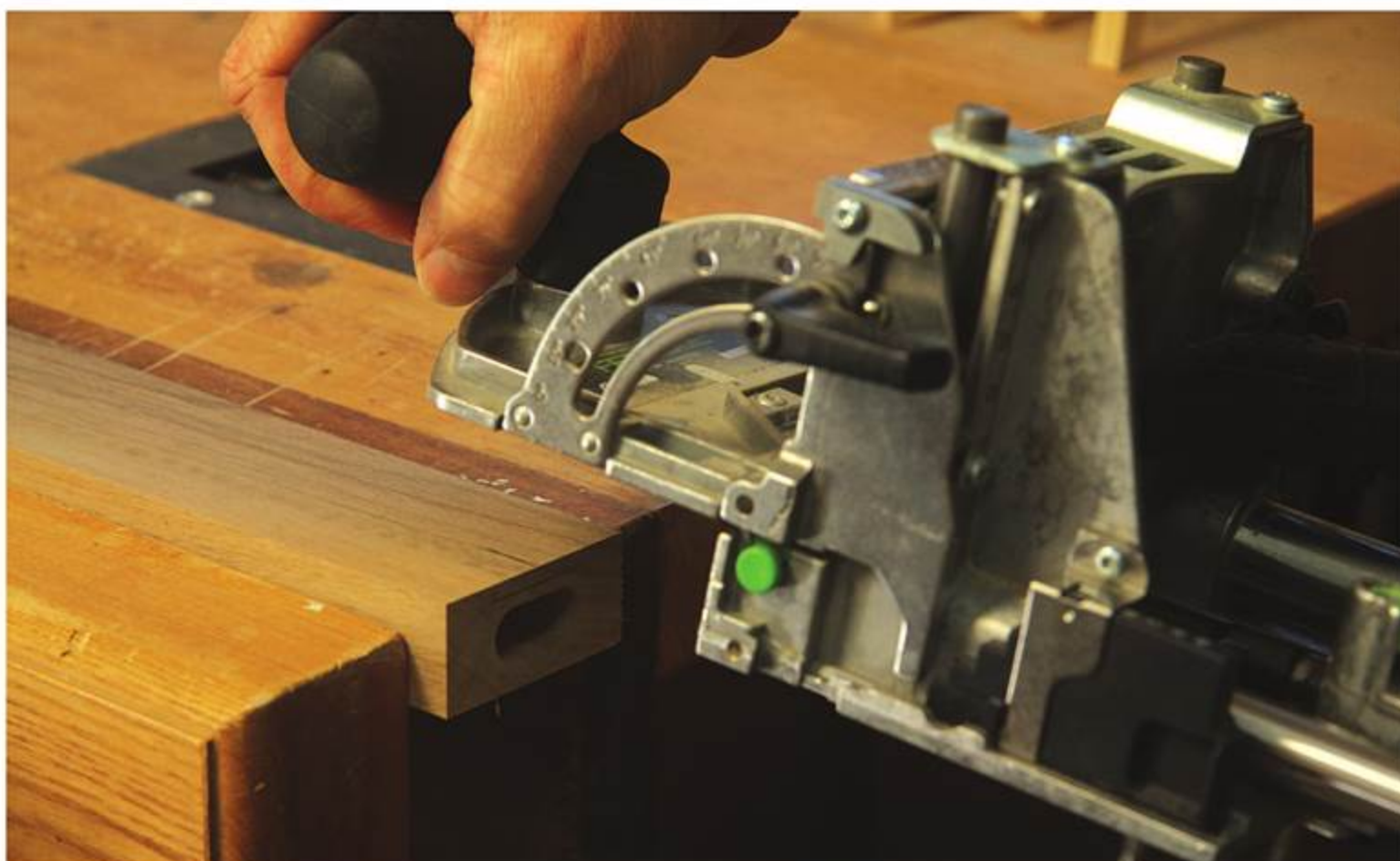
A Small Trim – Each leg is clamped to the jig on a slight angle, so when the jig runs against the bandsaw's rip fence, a taper is cut into the face of each leg.



Taper the Sides – Though this operation could also be completed with a bandsaw, Brown chose the table saw to cut the tapers on both sides of each leg.

my Domino DF 700 with a 12mm cutter, marked the locations of the upper and lower joints, then cut a total of eight Domino slots in the backs of the legs. I ganged three legs together and put them in my vise while cutting the slots, as the extra thickness gave the Domino's fence something to reference from. Be very careful not to cut right through the outer face of the leg. I went within about 3mm of doing so, as I wanted to create a deep mortise in the leg





More Mortises – Mortise slots in both ends of the cross rails will help fix the legs to the cross rail assemblies.

for a secure joint. I wouldn't go any closer though, unless I had an extra black walnut board on my shelf that was just wasting space.

Now it was time to taper the two sides and one face of each leg. I started with the faces and made a simple jig to run on my bandsaw. First of all, the jig positioned the workpiece on its side, so its upper half overhung the edge of the jig by the amount I wanted to remove. The jig also secured the workpiece with hold-down clamps so it wouldn't move during the operation. By adjusting the bandsaw's rip fence so the blade cut directly beside the edge of the jig, then running the jig and leg through the saw, the waste was removed from the face of the leg. The resulting face was smoothed with a hand plane.

The other tapers were cut on my table saw, with essentially the same jig. The jig was adjusted such that the stops positioned

each leg so the proper amount of waste was removed, and so the leg would be run with its rear face clamped downward. The first side of each leg was cut, then the jig had to be readjusted, before running the final four sides through.

Cross rails

The four cross rails are identical, short of the four holes to accept the light support dowels. I cut them to final size, then cut the mortises with my Domino DF 700, making sure the mortises were centered on the width and thickness of the rails. I cut some 100mm long Dominos in half for these joints. I set these joints up to protruded 20mm into the legs and 30mm into the cross rails.

Simple half lap joints secure the rails to each other. I cut those on a table saw with a mitre gauge. I set up my fence as a stop, adjusted the blade height to cut close to

Materials List

Part	Qty	T	W	L	Material
Legs	4	7/8	2	48	Black Walnut
Cross Rails	4	7/8	2	11	Black Walnut
Dowels	4	3/8	3/8	5	Black Walnut
Light Support	1	3/4	7	7	Plywood

Hardware List

Name Qty	Size	Details	Supplier
Light Cord	1	To Fit	ColorCord.com
Hand-Made Paper	1	To Fit	Japanese Paper Place

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Half Lap – Brown uses his rip fence as a stop to determine the width of the half lap joints in the cross rails.

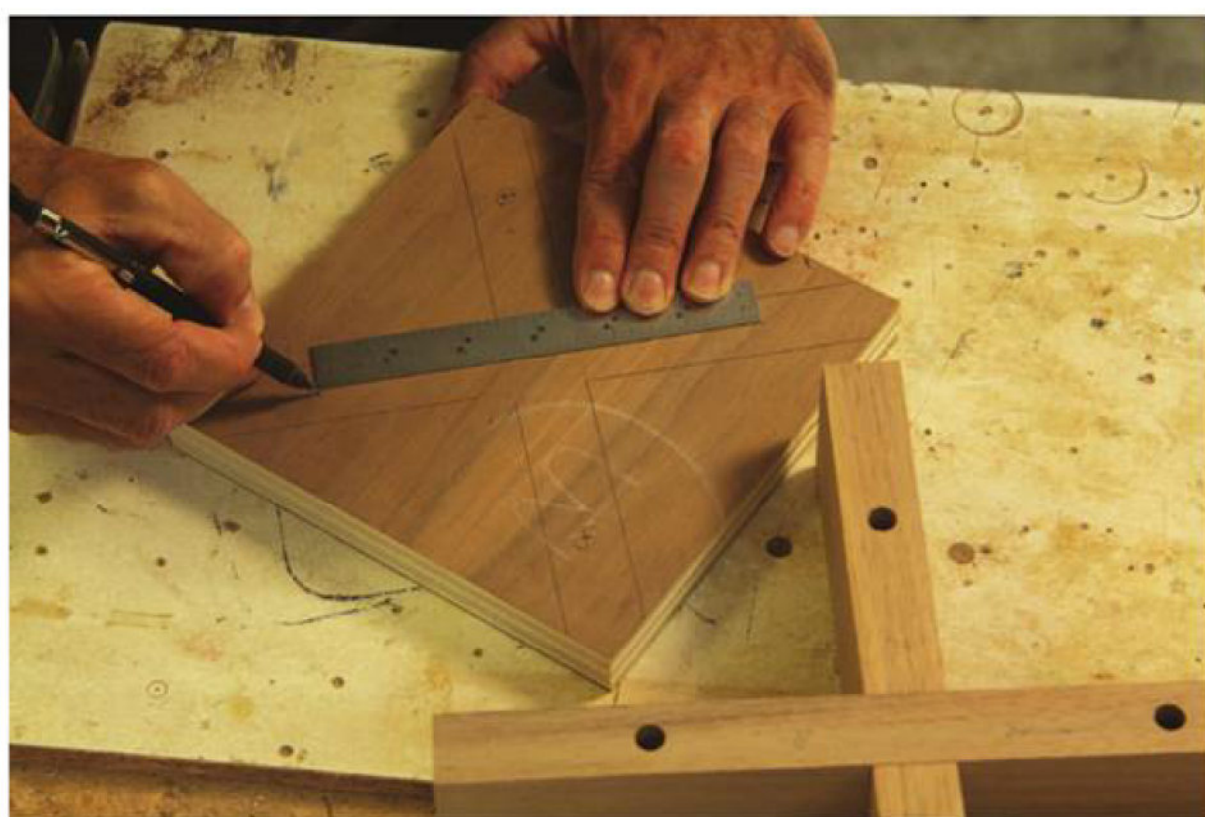
half the width of the part, then made a few test cuts. Before making the cuts, I made sure the resulting half lap wouldn't be too wide or too deep. After a few adjustments I was ready to make the cuts in all four cross rails. I aimed for a joint that was very much on the tight side, as once the parts were sanded they would fit together nicely.

After sanding the rails, and ensuring a perfect fit, I applied glue to the joints and brought the two halves together with clamps.

Light support structure mirknig.su

I drilled the 1/2"-deep dowel holes in the upper cross rail assembly, then transferred their locations to the plywood light support and drilled them. With the light cord on hand I was able to drill a properly sized hole in the light support.

I made the dowels with a dowel former, though you could purchase a length of dowel if you wanted to. I wanted to match the walnut wood of the rest of the lamp. The dowels are each 5" long, so I made one length 25" long and cut it into four pieces.



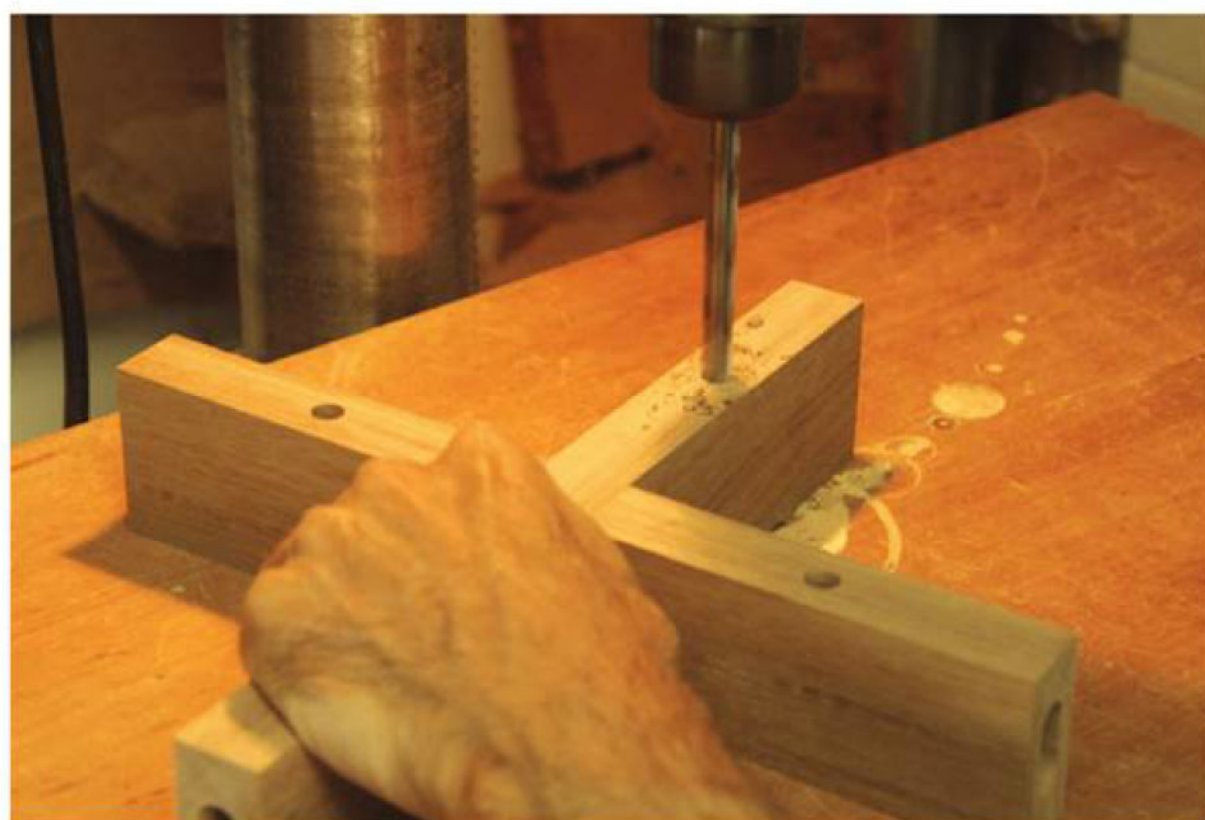
Transfer Hole Locations – With the cross rail assembly to guide you, mark the location of the dowel holes in the plywood light support and drill the holes.



Cross Rail Assemblies – Once the cross rails are sanded, apply glue to the face grain in the joint and bring the mating parts together with a clamp.

Texture on the legs

I love the look and feel of textured wood. Not wanting to go overboard, I used a small gouge to add horizontal grooves in the outer face and both sides of each leg. The grooved band was 1" wide and started 3" below the top of the leg. Walnut is fairly easy to carve, but even all but the densest woods aren't too hard to work with when it comes to this type of texture.



Dowel Holes – 1/2"-deep x 3/8"-diameter dowel holes are marked and drilled in the upper cross rail assembly.



Form a Dowel – Although it's covered by the wood shavings in this image, a dowel former is a great way to obtain dowel rods of almost any length, in almost any species.



An Easy Sand – Chuck a 5"-long section of dowel into your cordless drill, pull the trigger and sand the dowel. Notice the final shape of the plywood light support in the background.

Assembling the lamp

Rather than try to assemble all eight Domino connectors in the same assembly, I glued the connectors into the mortises in the backs of the legs first, then let everything dry. I made sure not to get any glue on the portion of the connector that wasn't buried in the leg mortise.

When dry, I made sure there was no squeeze-out, applied glue to the mortises on one leg, then applied glue to the mating connectors and assembled that leg. I repeated the same process for the other three legs and clamped everything together. To ease the process,



Add Texture – A small, sharp carving gouge makes quick work of adding texture near the tops of the legs.

I clamped a long caul to the outer face of each leg before starting.

Glue the dowels to the upper rail assembly, then add some glue to the dowel holes in the light support and bring it into position.

Apply a finish

A project like this, with a bunch of smaller parts and a lot of inside corners, isn't easy to finish with a brush. An aerosol spray can is great for situations like this. I used Varathane Professional Clear Finish in matte, spraying on three coats, sanding between each coat.

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Glue Dominos In – To make final assembly a bit easier, Brown applies glue to part of the Domino connector, as well as the mortise slot in the leg, then taps the connector in and lets it dry.

Time for some shade

Hand-made Japanese paper is amazing, especially when it's backlit. Some Japanese papers are very thin and fragile, while others are almost as thick and durable as cloth. They're also available in a wide range of colours and styles. I live not too far from one of the largest selections of hand-made Japanese papers in the world (www.JapanesePaperPlace.com), so that's where I bought my paper. I went with a creamy-coloured paper with a medium amount of bark inclusions.

I designed this lamp with a 24" x 36" paper in mind. I knew I could trim the paper slightly to fit the lamp how I wanted it. I was aiming for the lower edge of the paper to sit directly on the upper cross rail assembly, and the top edge of the paper to finish between the top band of texture on the legs and the top of the legs. I cut the paper to width, rolled it into a large tube, and placed it between the upper portion of the legs to check it for fit. I marked it for length, added small marks to the paper to locate it on the legs, then removed it from the lamp and trimmed it to length.

I used rice paste, which is just smashed up sticky rice, to adhere the first edge of the paper to the inside face of one of the legs. You can get rice glue from The Japanese Paper Place, or make it yourself. You can also use Mod Podge, or a different adhesive from a craft store.

I added a bit of paste to the next leg, pressed the paper onto the leg, and repeated the process until I was done. The paste doesn't harden right away, and I had enough time to shift the paper slightly so it fit nicely. If the paper does dry, and you don't like the look, apply a bit of water to the paper directly over where the rice paste is, wait a few minutes for the paste to soften, then remove the paper. You can also replace the paper pretty easily if it gets damaged. With the final edge of the paper, I waited until the paste dried to trim off any excess. I made sure both edges of the paper were hidden behind one of the legs, so they weren't visible when the light was on.

This floor lamp is positioned right beside my wife's favourite reading chair, and it gets a lot of use. Not surprisingly, my kids



Final Assembly – Bringing the four legs together with the two cross rail assemblies completes the assembly process. Notice the wood cauls clamped to the outside of the each leg. This was done before assembly began, and it eases the process even more.

enjoy using it too, but they find it makes a great corner joint for their forts, as it's strong and will cast light inside their fort. I'm trying to look on the bright side; losing your project the moment you put it in place in your home is a sign that everyone likes it. I think I'll put in an order for a spare piece of hand-made paper. Judging by how much action this lamp is seeing, I think I'll need to replace the paper before next New Year's Day.

Sources: www.JapanesePaperPlace.com,
www.ColorCord.com



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Dark Walnut	286786	0-20066-29395-6	302978	0-20066-32730-9
Provincial	286779	0-20066-29389-5	302972	0-20066-32736-1
Traditional Cherry	286780	0-20066-29390-1	302973	0-20066-29390-1
Black Cherry	286782	0-20066-29392-5	302975	0-20066-32733-0
Kona	286788	0-20066-29397-0	302980	0-20066-32728-6
Sun Bleached	286777	0-20066-29387-1	302970	0-20066-32738-5
American Walnut	286783	0-20066-29393-2	302976	0-20066-32732-3
Espresso	286787	0-20066-29396-3	302979	0-20066-32729-3
Chocolate	286789	0-20066-29398-7	302981	0-20066-32727-9
Cabernet	286781	0-20066-29391-8	302974	0-20066-32734-7
Weathered Grey	286776	0-20066-29386-4	302969	0-20066-32739-2
Ebony	316671	0-20066-34894-6	316666	0-20066-34889-2
Antique Aqua	316669	0-20066-34892-2	316664	0-20066-34887-8
Bleached Blue	316670	0-20066-34893-9	316665	0-20066-34888-5
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LED Kitchen Cabinet Lighting

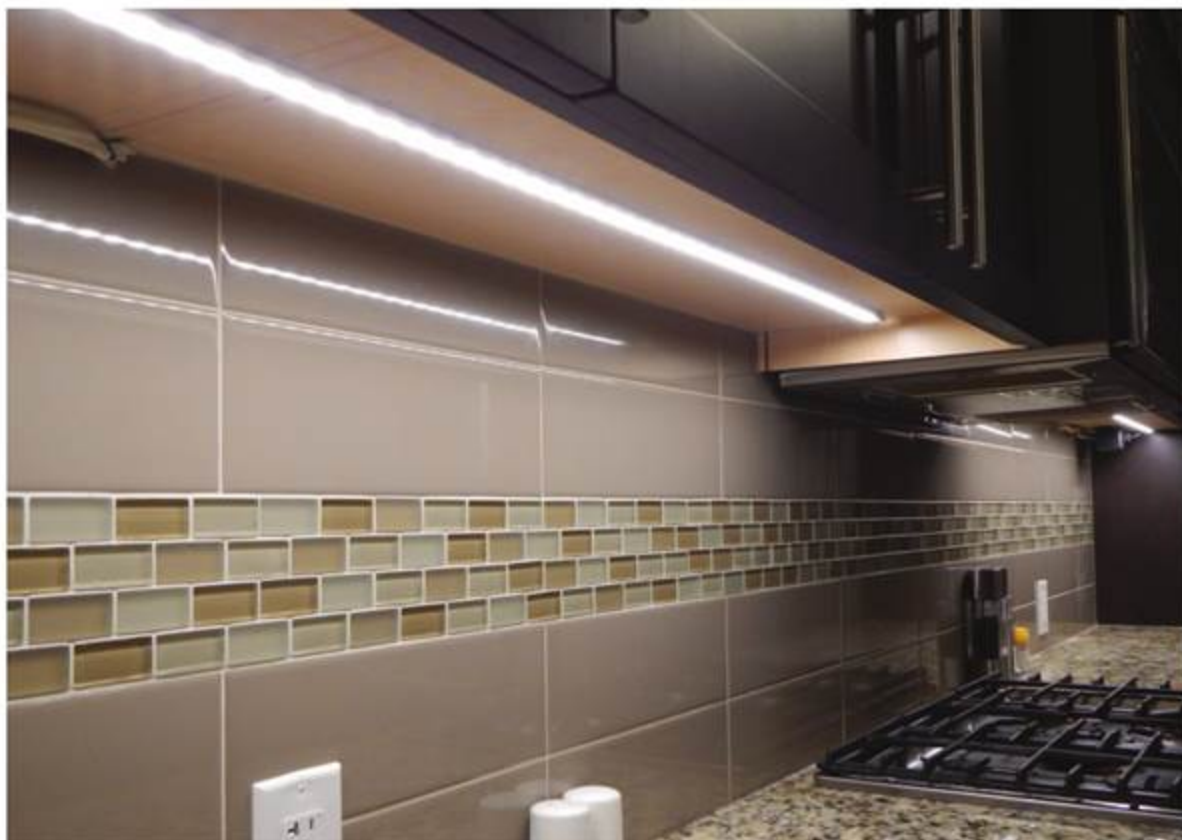
In, Over or Under

LED lights are an easy-to-install, cost-effective way to improve the functionality and enhance the atmosphere in your kitchen.

BY CARL DUGUAY

The main source of lighting in just about all kitchens is ambient lighting – the combination of natural light from kitchen windows and overhead ceiling lights in one form or another. It's the kind of lighting that we've been using for generations. However, it's not necessarily the most effective way of illuminating our kitchens.

Interior designers and lighting consultants are fairly unanimous that the optimal approach is 'layered lighting.' Essentially this means using lights at different locations for different purposes. They suggest the use of 'task' and 'accent' lighting to supplement ambient lighting. Together these create a more balanced, functional, and visually compelling environment suited to the varied tasks that take place in our kitchens.



Bar LED Lights – Bar lights are a thin, one-piece that comes in various lengths. They are usually installed along the width of a cabinet, on its underside. (Photo by LedWorld.ca)



Strip LED Lights – Strip lights are very compact in size, and are flexible. Available in various wattages and densities – the number of LED lights per meter of tape varies from about 20 to 120.

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Apart from incandescent lighting, which we are all familiar with, there are halogen, compact fluorescent (CFL), xenon and LED (light-emitting diode) lighting options. When you want to incorporate task or accent lighting in, over or under kitchen cabinets, LED lights offer a range of advantages.

Why LED

LED lights are the most cost-effective and versatile lighting options around. Features include:

- A very long life span (up to 50,000 hours, compared to 10,000 hours for fluorescents and 4,000 hours for halogens)
- Low power consumption per unit of light generated (using about 10 watts to produce 700 lumens, compared to CFLs at 12 watts and halogen lights at around 40 watts)
- Low heat emission (compared to halogens and CFLs)
- Available in single colour (warm and cool) and coloured (RGB) lights
- Can be dimmed (with compatible dimmer switches)
- Life span not affected by frequent on and off cycling (as it is for CFLs)
- Not susceptible to vibration (as are halogens)
- Available in a range of discrete sizes and styles.

While the initial purchase price of LEDs is higher than other lighting options, the long-term return on investment is also higher, as they consume less power and have a considerably longer service life than “traditional” bulbs.

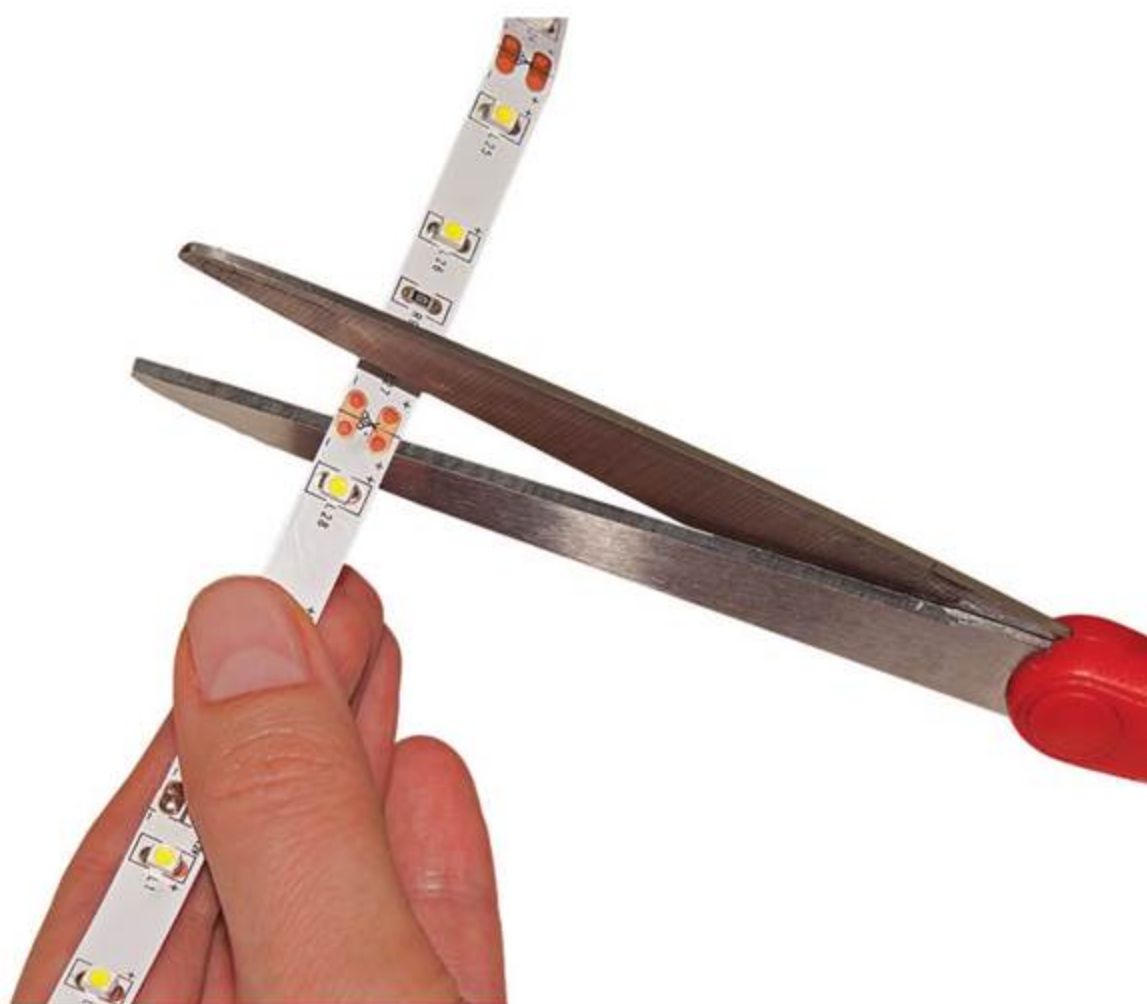
Pucks, bars and strips

LED lights suitable for use in cabinetry come in three basic types, and can be surface mounted or recessed. They’re generally available in a warm white colour (about 3000K), a cool white light colour (up to about 5500K), and in an RGB format to produce a near-endless array of colors.

Puck lights come as individual units or in strings of multiple pucks pre-wired together with a plug for easy installation. They’re best used for task lighting as their light is much more narrowly focused. Follow the manufacturer’s recommendation for the distance that puck lights should be installed, or else you’ll end up with dark shadows in between the focused light.

Bar lights consist of solid one-piece fixtures (similar to under-counter fluorescent lights) and come in various lengths that can usually be linked together. Unlike fluorescents, they are quite thin. Typically you’ll install a bar light along the entire width of the cabinet. Some are screwed in place, while others use PSA tape. As with puck lights, they work well for task lighting.

Strip (or tape) lights are the most compact in size, making them ideal for accent lighting. As the name implies, these are flexible lengths of thin LED lights. Because of their size they can be almost invisible when installed. You’ll see them referred to as SMD LEDs – small LED lights are surface mounted on flexible strips of printed circuit board. These strip lights come in various wattages to provide different light output levels and in different densities – the number of LED lights per meter of tape – which can vary from a low of around 20 to about 120. More lights per meter will provide greater brightness (a higher lumen level). A typical 1-meter strip with 30 LED lights would produce about 430 lumens, whereas a 1-meter strip with 120 LED lights would generate close to 1,000 lumens.



Easy to Cut – Strip LED lighting can be cut to length with scissors and often include a sticky tape on the back for easy installation.

Where to use LEDs

Because they’re so compact, and have such low heat emission, you can use LED lights just about anywhere in your kitchen (and other rooms, for that matter). While these lights are most often mounted to the bottom surface of upper wall cabinets, you can also install them on top of cabinets, inside cabinets (underneath shelves), at the base of lower cabinets (just above the toe kick), and even under valances or along cove moulding. Mounting options really depend on the layout of your kitchen and the lighting effect you’re looking to achieve.

If your cabinets don’t have a recessed bottom, you can install a length of trim to hide the LED lights from view. For new cabinets, the lights can be installed in a channel routed into the cabinet base. Likewise, puck lights can be flush mounted into cabinet bottoms. If installing lights inside cabinets, you can add narrow trim to the bottom of shelves; if installing on top of cabinets, add a narrow decorative moulding atop the cabinets.

Power considerations

The easiest LED lights to install are those powered by batteries. They’re an option where a receptacle isn’t close at hand, and you don’t want to tap into an electrical circuit. However, batteries are a more costly source of power, and replacing those batteries can be awkward if the lights are hard to reach.

All flexible LED strip lights and virtually all LED puck and bar lights use low-voltage power and have to be connected to a transformer that converts 110V to 12V or 24V (depending on the requirement of the LED light being used). The transformer plugs directly into a receptacle. If you don’t want to use one of the wall receptacles in your kitchen, you’ll have to install a new receptacle or a junction box to which you can connect your LED lighting. You can install the junction box and receptacle in one of the bottom cabinets or on top of an upper cabinet.



In a Groove – Bar lights can be recessed into a groove for a sleek, no-see appearance.

It's often a good idea to have task and accent lighting controlled by separate power switches so that you can use the lights independently. It's also worth considering the installation of one or more motion sensors that automatically turn lighting on and off as you enter the kitchen. Some LED lights come with these built-in sensors. If you plan on installing a dimmer switch to use with your LED lights, ensure that the dimmer is specifically designed to work with the lights.

Installation

Installing LED lighting is fairly straight-forward. For flexible strip lighting, all you may need are scissors and a tape measure. Sticky

PSA tape on the back of the strip lights make them very easy to install. Typically you'll place them at the front edge of cabinets. The strip is clearly marked where it can be cut, and ends are easily connected together with solder-less connectors. Bar and puck lights can either be screwed or taped in place. In all cases, read and follow manufacturers' guidelines.

Most lighting and fixture retailers will have LED lighting options available, along with an installation service. If you choose to install your own lighting, then a wide range of LED strip, puck, tape and rope lighting, as well as diffusers, dimmer switches, channels, controllers and mounting hardware are available from **LeeValley.com** and **LedWorld.ca**. If you're looking for LED bulbs, then head to **HomeHardware.ca**.

Give it a try. You'll find that LED lights are surprisingly easy to install, and they make a huge difference in the character and atmosphere of your kitchen.



CARL DUGUAY

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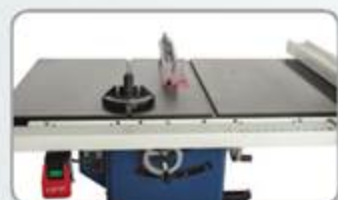
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Build a

TABLE LANTERN

Add some Asian flare to your décor with this stylish table lantern.

BY JAMES DOBSON

The fusion of paper and intricate joinery is one of the hallmarks of traditional Japanese design. Shoji panels highlight the most intricate and refined usage of this technique, but their scale may not suit everyone. This lantern, known as an *ariake andon*, is a great project for anyone wishing to add a little Japanese refinement to their home or office. The joinery looks complicated but it's really quite straightforward. Anyone with intermediate skills should be able to build this lantern with relative ease.

The build

Begin with stock selection. You do not need a lot of wood for this project, so you can afford to be picky. I look for straight-grained wood with nice colour. I feel figured grain will distract from the pattern of the shade. The actual species does not matter that much; here I'm using oak.

We begin with the outer frame. Surface your stock to an exact thickness of 5/8" and cut it to a width of 5/8" before cutting to length. It is important that your stock is perfectly square and exactly the right size. The joinery in this project relies upon interlocking shapes, and these pieces need to fit into each other without gaps. Take your time now for best results later.

Leg joinery layout

Begin by laying out the joinery on the legs. There are five individual joints on each leg. Three of these are puzzle joints, and there are two mortises. It does not matter where you start, but I find it best to focus on one joint before moving to the next. To lay out the puzzle joint, measure up from the bottom of the leg 5/8" and mark a line with your square. Make another line 5/16" above. Continue that line around the face of the leg, and then mark another line 5/16" above that line. Set your marking gauge to 5/16", and



Careful Marking – Dobson carefully and accurately marks each joint before proceeding to cut them.



Complete Leg Joint – Here's what the completed joint in the leg looks like.

establish the bottoms of the grooves, then use your square to connect all the marks you've made.

Using a fine saw, cut the joinery. You should be left with a dado on one face that intersects with a dado on the face beside it. You could also do this with your table saw, but I try to do most of my joinery with hand tools and leave the power tools to the rough work.

Chisel out the waste, being careful not to go past your baseline. This needs to be repeated for the two other joints on each leg. Be careful to keep the joinery on the same two faces. It will not assemble properly if the joints are not all aligned perfectly. On the subsequent legs, mark directly from your first cut leg rather than using your ruler. This will help prevent measuring errors.



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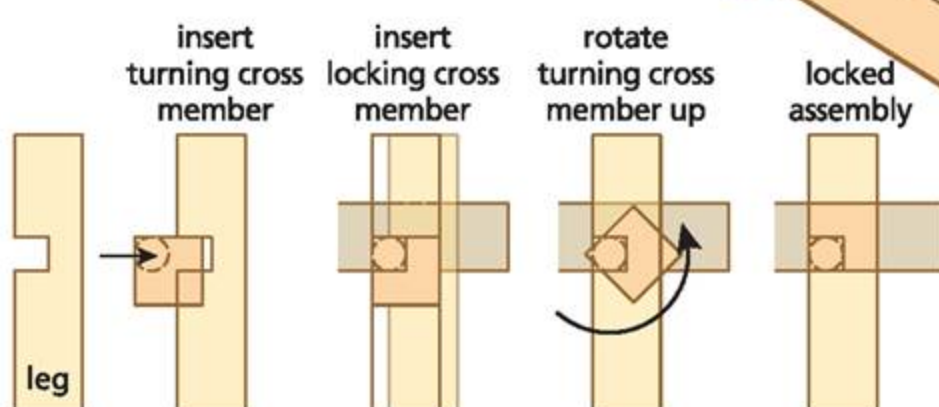
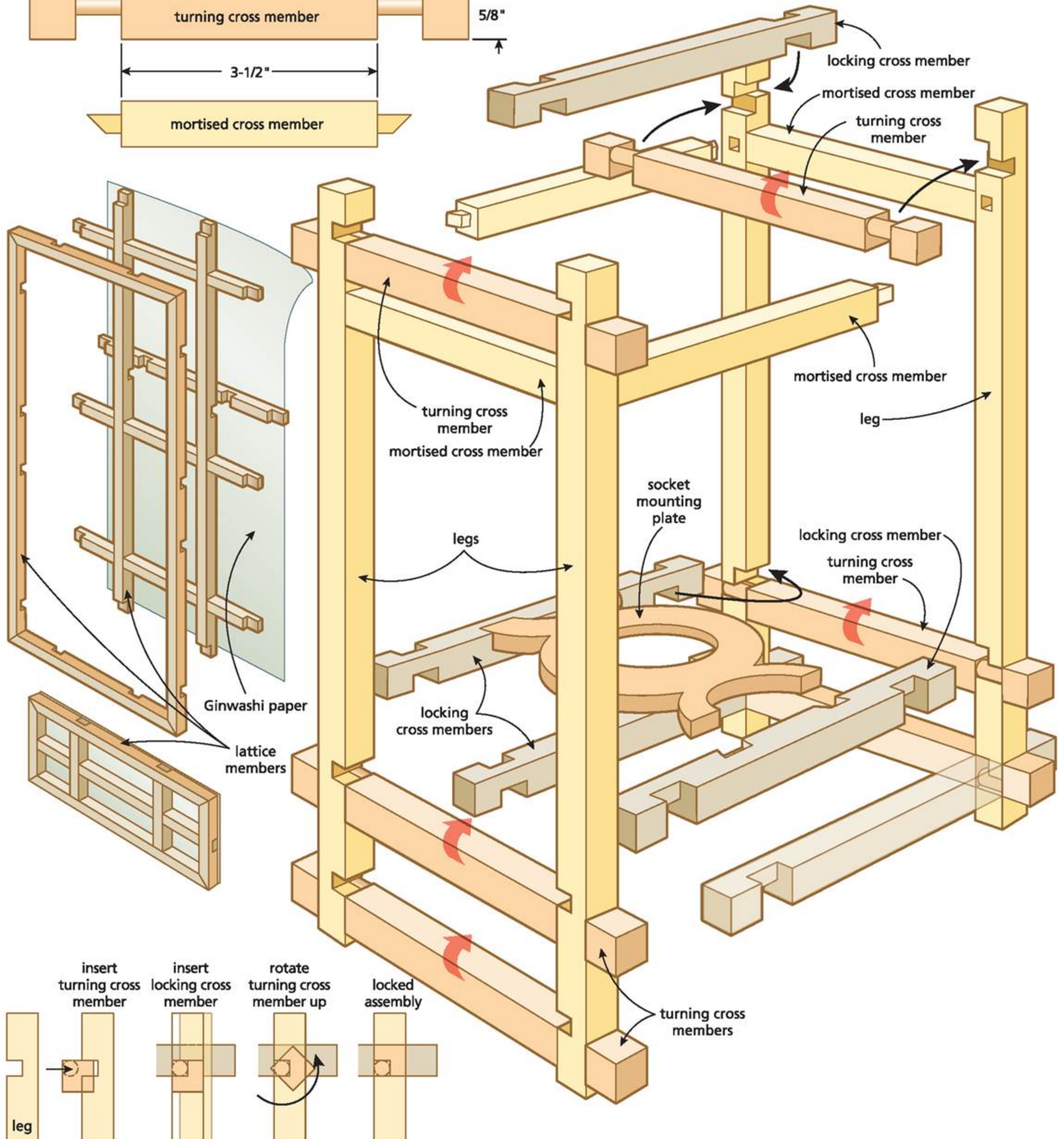
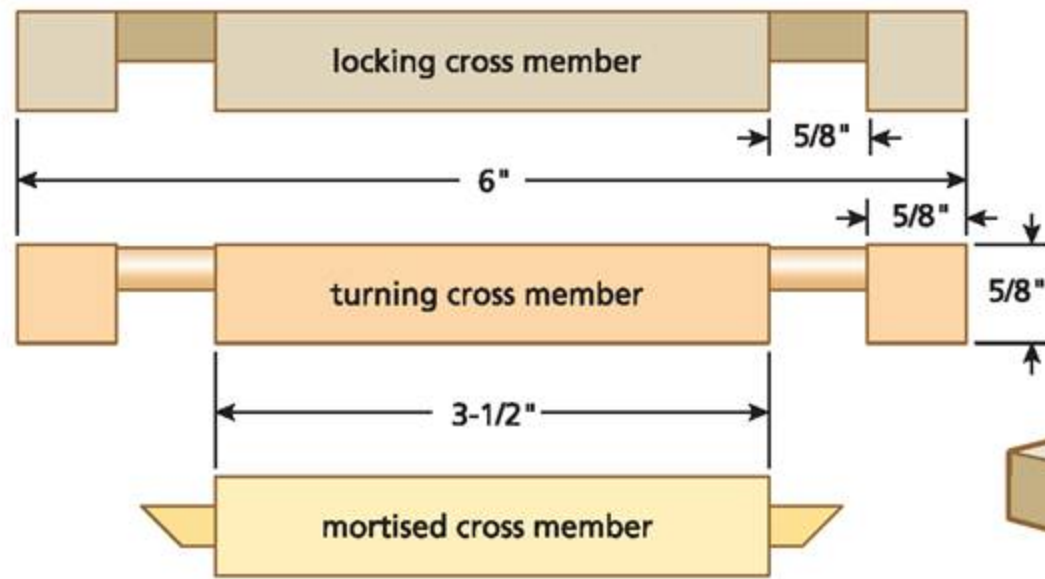


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Once you have cut all 12 puzzle joints for the legs, move on to the mortises. These are laid out so the cross piece sits 1-7/8" from the top of the leg. The size of this mortise is not that important, as it is not load bearing and has no structural importance. I made the mortise 1/4" x 1/4" and 5/16" deep. When cutting the first mortise, only go 3/16" deep and then turn the leg and cut the other mortise to full depth. This will keep you from blowing out the bottom when cutting into air. There are several ways to cut the mortise, but I would recommend drilling it out and then using a chisel to square up the hole.

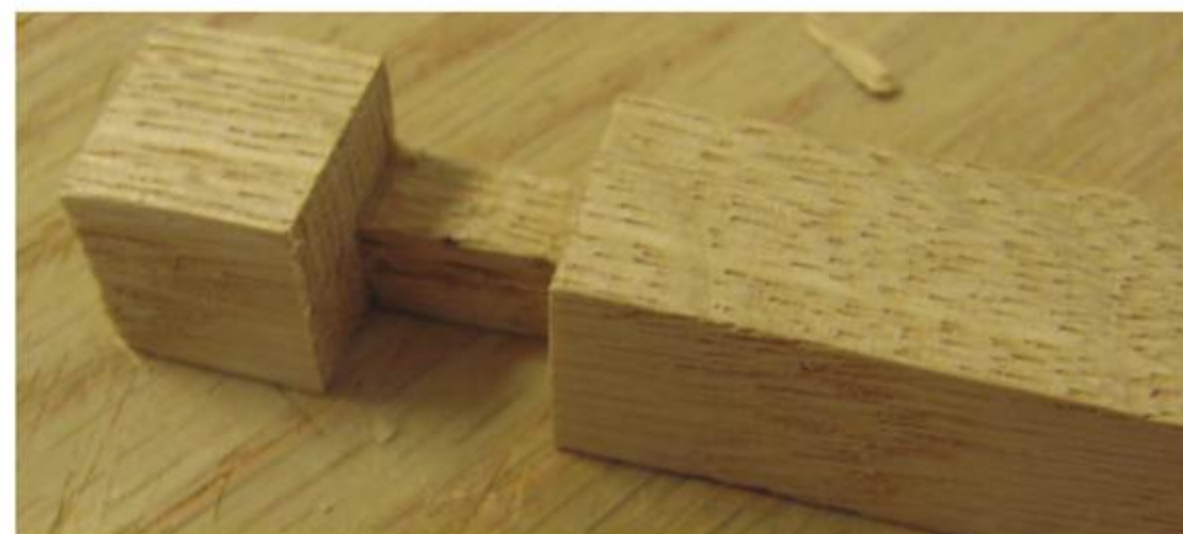
Cross piece joinery

Now that the legs are finished set them aside and begin work on the cross pieces. The pieces on the x-axis need to be shaped differently than those on the y-axis. Divide the stock pieces into two piles so you do not confuse them. It's a really good idea to mark each piece to its corresponding joint on the legs. On these pieces, you're going to cut away three-quarters of the wood from the joint.

Measure in 5/8", and mark a line all the way around the stock. Use your leg stock to define the other side of the joint by laying it tight to your line and marking the other side with a marking knife. Using your gauge, mark a line 5/16" between the two lines on two faces. Cut everything away except for a remaining 5/16" x 5/16" section of wood. This remaining section of wood then needs to be rounded over, as this piece needs to rotate inside the groove cut in the leg. To do this, use a fine saw and make cuts into each of the corners. Then use a chisel, bevel down, to pare away the corners. Work slowly to your marked



Drill the Chisel – Use a slightly undersized bit to bore a hole in the square mortise before chiselling out the waste to form a square cavity.



Cross Piece Joinery – The first step in creating the mating joint in the cross pieces leaves a square section of material that's half the width and half the depth of the workpiece.

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No Mistakes – When marking the next leg joint out Dobson places the legs side-by-side, and aligns their tops, before using a marking knife to transfer the exact location.

line, as you do not want to push past your shoulder and mar the visible wood beyond the joint. Remove just enough to create a cylinder. If you remove too much the cross piece will wiggle in the joint. If you remove too little it will not spin.

Now cut the remaining cross pieces. They are cut the exact same way as the other pieces, other than the fact that the center sections are not rounded. You are aiming for a precise fit that is aligned with the surface of the upright.

Cut the tenons on the shorter cross pieces by cutting away 3/16" from each side, 1/4" back from the end. The two tenons will run into each other in the mortises, so the tenons will need to be cut at 45° to fit inside the mortise.

Assembly

Assemble the mortised and tenoned pieces as two sub-assemblies. Start with the mortise and tenoned piece, and then insert the rounded cross pieces into the puzzle joints and rotate them downwards to expose the grooves for the two remaining sides. If the joints do not fit right off the saw, carefully pare the edges of the

cross pieces so they fit without gaps but can still rotate in the joint. Complete the assembly by inserting the next two tenoned cross pieces and the squared cross members. Rotate the rounded pieces downwards to lock them in place. This is a finicky assembly that requires test fitting and precision paring to get the perfect fit. Take your time. If you happen to break a cross member do not despair. Gluing it back together can often repair it. If you need to, you can always cut a new piece.

Consider electricity

Now is the time to add the support for the electrical components. The first lamp I built used scavenged parts from a lamp. The pieces used here were purchased at a lighting store. To make the support you will need a 1/4"-thick piece of wood about 1/2" wider than your socket and long enough to reach the two static sides of your frame. I would recommend using solid wood here, as I used a piece of plywood and, to be honest, it came out looking pretty awful. Fortunately it is covered by the lamp's socket and is behind the shade.

Begin by laying out two 1/4"-long dovetails on either side of the lantern. Use the socket to trace a circle in the center and bore it out. Lay the support on top of the second layer of the static sides, and mark the location for the dovetail. You will now need to disassemble this layer of the lamp to cut the dovetails. This will be covered by the shade, so they can be cut quickly. Drill and chisel out the waste. Once the socket support is in place, you will no longer be able to disassemble the frame, so if you wish to pre-finish, it should be done now.

Finish

How you'd like to finish this piece is up to your individual tastes. I've built other lamps that were finished with a simple coat of shellac, while this particular one is getting a more intensive treatment. I'm following a modified version of Bob Flexner's Arts and Crafts finish. Start by sanding to 150.

There's a lot of exposed end grain on this project. If you want it to match in colour, you will need to sand the end grain to a higher grit. For the end grain I continue with 220, 320, and finish with 600. This leaves the end grain burnished enough to take the stain



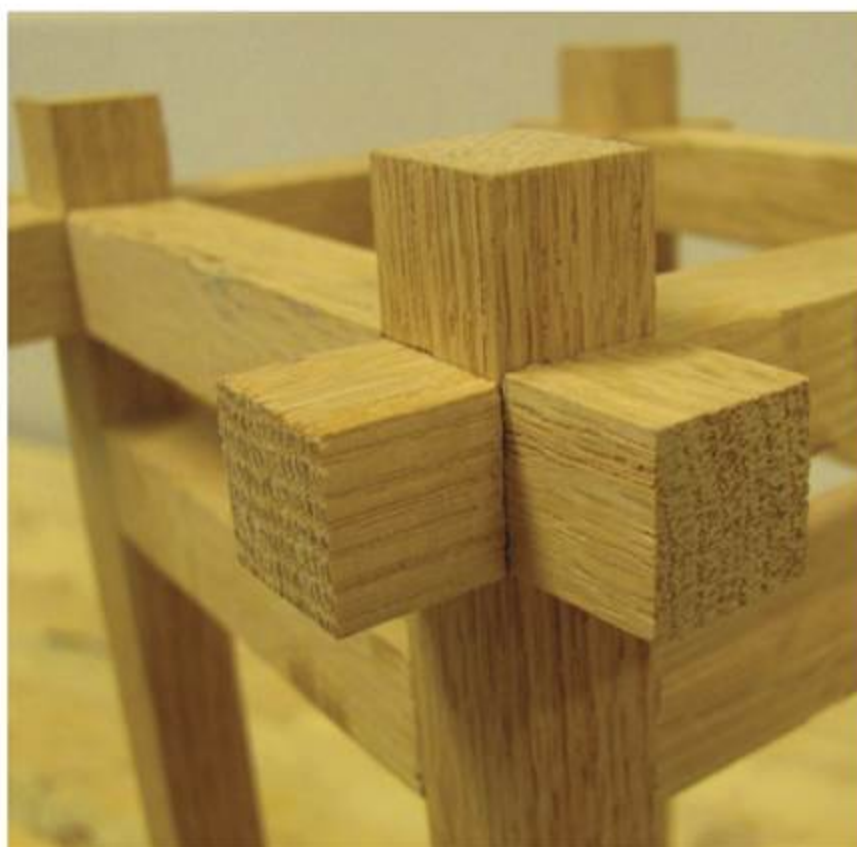
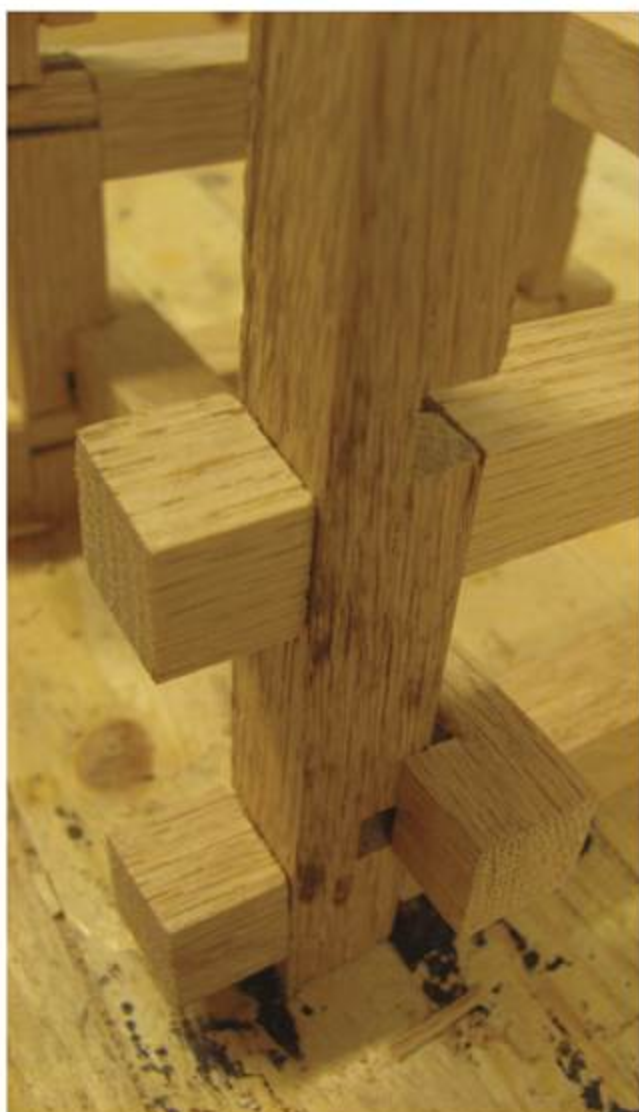
Rounding the Joint – A chisel, used bevel down, is perfect for rounding the material left at the joint.



Mitred Ends – The short tenons that fix some of the cross rails to the legs need to be mitred in order to fit into the leg at the same time.



Partially Done – One side assembly is now ready to have the mating cross rails joined to it. Some of the cross rails will need to be rotated when the other cross rails come together with this assembly.



Locked in Place – Once all the cross rails are in place, they seem to all travel directly through the mating workpieces.



Light Fixture Support – A piece is dovetailed to two of the lower cross rails, then bored to house the light fixture.

Almost There – With the lantern almost assembled you can see how the different parts relate to one another.

at the same tone as the long grain. I applied one coat of Minwax Special Walnut stain, waited 10 minutes, and wiped down the lamp with a clean cloth. Twenty-four hours later I applied one

coat of Watco Dark Walnut Danish oil. Again, I waited 10 minutes and wiped down the lamp with a clean cloth. After 24 hours I applied a coat of shellac, followed by wax an additional 24 hours later. I like to mix a little of the stain in with the wax before applying. This helps to keep the light-coloured wax from being noticeable in the pores and corners.

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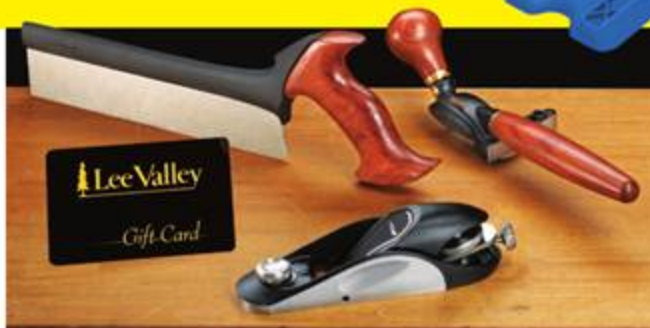
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Add a Finish – Staining a piece like this lantern is intricate work. You could just opt for a clear coat to enhance and protect the wood.

Small Half-Laps – The grid work that decorates the open areas of the framework can be designed any way you would like. Cutting the tiny half-lap joints can be a challenge.



The shade

This is where you can let your imagination run wild. I've provided a simple pattern, but you can make it as simple or as complicated as you wish. Look at Asian design books, watch *Kung-Fu Panda*, or Google "shoji panels" for inspiration and make a few sketches. Once you have decided on the right pattern, start construction by ripping 1/8" strips. Mark a 1/8" line all around the board, and use an X-ACTO knife to slice the board into 1/8" strips. I've seen 1/8" x 1/8" strips of wood at hobby shops. The pieces are meant for building model airplanes and railways, but they also work great on lanterns.



Glue the Half-Laps – Once the grid members are cut to size and joined you can apply glue to the joints and bring the pieces together. A heavy book placed on top of the assembly will hold it together until it dries.

For the outside frame, mark the lengths directly from the lamp framework so they fit precisely. These panels do not get glued into place, instead they rely on a friction fit. This allows for easy repair in case of an accident.

Mark the half-laps for the intersecting pieces, and cut the sides with a fine saw. I use a flush cut saw for this, and it works great. Because this cuts on the pull stroke, I was unable to use my bench hook to make the cuts. Instead I held the wood behind a small engineer's square and made the cut with the saw perpendicular to the square. You could very easily make a dedicated bench hook for your Japanese saw.

With the two edges of the half-lap defined by saw cuts, use a 1/8" chisel to remove the waste. Mark and cut the intersecting piece and label. Once the entire screen is cut, glue it together and press it under a stack of heavy books to clamp. Make sure to put a layer of

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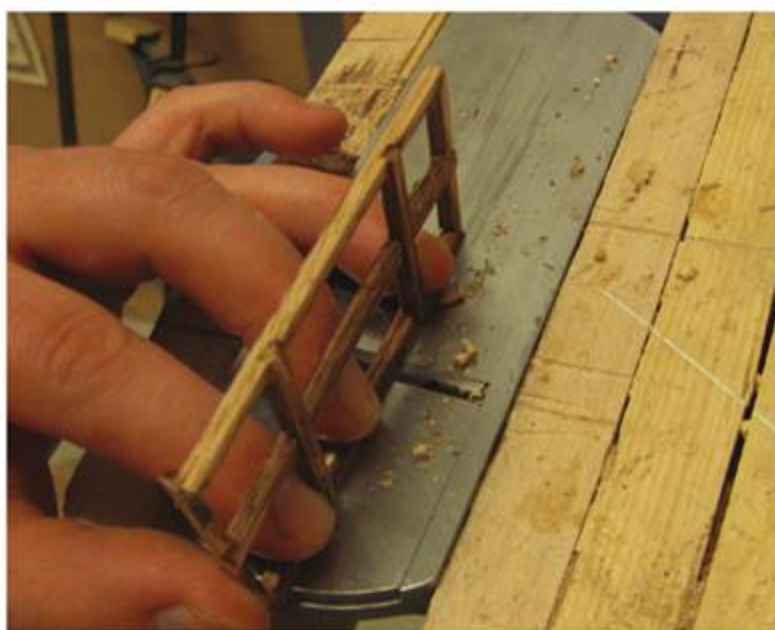
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Trim Them to Fit
– The grid assemblies can now be trimmed to fit into the openings of the lantern. A block plane, clamped upside down in a vise, makes quick work of this.

paper between the book and the screen, and make sure the surface you're working on is flat. This will ensure your screen dries without warping. Fit the screens to their openings before gluing the paper. Running the assembly over an upside-down block plane works well. Trim off an even amount from either side until you have a nice fit.

For the paper, I used a Japanese printmaking paper called *Ginwashi*. Many people will refer to this as a rice paper, but it's actually made from hemp and mulberry fibres. The fibres are very visible in the paper. To attach the paper I cut it oversized and use a small paintbrush to spread an even layer of Mod Podge glue to the back side of the screen. Place the paper face up on a smooth,



Apply the Paper – Now that the grid sections fit in place, you can apply adhesive to their backs and place them on the paper.



Trim and Install – Once the paper is adhered to the grid sections, trim the waste paper and install them with a friction fit.

clean surface and set the screen on top, glue-face down. The paper is quite stiff, so there is no need to stretch it. Repeat the clamping operation with the heavy book to hold it in place. Once the glue has dried, trim the paper with a sharp knife and press fit the screen into the frame.

Let there be light

You've now completed the woodworking portion of this lamp and are left with the electrical. Please remember that electricity is dangerous. If you have any doubt about your ability to do this safely, please consult an electrician. A threaded socket can be attached to a cord with an inline switch and then fit into place on the support with the included nuts. Add an LED bulb – they give off less heat than an incandescent – and plug it in. The shade should provide a warm light perfect for a bedroom or other intimate space.



JAMES DOBSON
grailwoodworks@gmail.com



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KMSTools.com



Industrial Turbo Air Scrubber with HEPA Filter

The **Magnum MI-11650 Turbo Air Scrubber** with HEPA filter features the same space-saving design as the MI-11600, yet it's equipped with a two-stage electrostatic HEPA filtration system that captures particles and allergens as small as 0.3 microns for superior protection from the smallest dust particles. Its powerful induction motor operates at three speeds, topping out at 850 CFM.

KMSTools.com



Industrial Overhead Air Filter

Made to operate around the clock, the **Magnum MI-11700** can improve the air quality in your shop quickly and quietly. It has a two-stage filtration system that removes airborne particles and allergens as small as 1 micron, and includes a handy remote and timer. With a maximum airflow of 1,250 CFM, this professional-quality system performs well in either a home shop or industrial setting.

KMSTools.com



Industrial Replacement 19.75" HEPA Cartridge Filter

Upgrade your dust collector with a **Magnum MI-99125 HEPA cartridge filter**. It fits all Magnum Industrial 1.5, 2 and 3 HP dust collectors, as well as other brands, and is rated to 0.3 microns. This cartridge provides better filtration and airflow than a conventional filter bag; plus it has more surface area and a built-in shaker for easy cleaning.

KMSTools.com



Industrial Precision Mitre Gauge with Fence and Flip Stop

Make accurate, repeatable cuts safely and easily with the **Magnum MI-99525**. The aluminum fence has a metric and imperial measurement scale and integrated flip stop. The miter gauge has seven positive stops from 0° to 90°. The MI-99525 fits both standard mitre slots and T-slot tracks. In addition, the mitre bar has spring-loaded detents to keep the gauge snug in older, well-used mitre slots.

KMSTools.com



Industrial One-Handed Clamp/Spreaders

Magnum Clamp/Spreaders have a quick-release mechanism that makes it very easy to switch between clamping and spreading functions. They provide up to 300 pounds of clamping pressure. Available in 6", 12", 18", 24", and 36" lengths. Light weight, powerful, and affordable.

KMSTools.com





32" Benchmark Laser Measure

The new **Benchmark Laser Measure** is perfect for builders, real estate agents, contractors and DIY projects. It provides continuous measurement, which means as you move the laser pen it continually measures the distance to where ever the red laser dot is. Pushing the button will lock in the reading. It has great range and accuracy for such a small compact device and is capable of measuring in Imperial and in Metric from 1.7 to 32 feet or 0.5 to 10 meters with the accuracy of ± 0.1 ".

The small, pen like shape makes the Benchmark Laser Measure perfect for a shirt pocket and fits comfortably on the hand.

HomeHardware.ca

Versatile Oscillating Multi-Tool Kit

With a multi-tool you can sand, saw, cut and scrape. It's narrow and fast angle of movement provides a high degree of control. A

tool-less quick release system makes for easy blade changes. The **King Canada 8349QR** comes with a hook and loop sanding back-up pad, 24 sanding papers (60 to 120 Grit), HSS segment saw blade, 35mm Tru-Cut narrow offset saw blade, 52mm rigid offset scraper blade and carrying case.

KingCanada.com



Sharp, Reliable Chisels

Hultafors chisels are designed to combine maximum sharpness with hard-wearing durability. EDC Chisels are made of perfectly sharpened Japanese steel and a heavy-duty handle, made of glass-fiber reinforced PP-plastic, that can stand even the most hard-hitting treatment. HDC Chisels are forged in one piece with an I-beam for extreme durability and to maximize the force transmission down to the work piece.

BigBearTools.com



16-in-1 Retract-a-Bit With Light and Knife

This new **Benchmark 16-in-1 Retract-A-Bit** comes equipped to handle 16 different uses. As a screwdriver, it includes 4 $\times$ push-to-lock and retractable 2" bits (1/4" Slot Bit, #2 Square Bit, #2 Philips Bit, #1 Square Bit), 3 $\times$ 1" bits that store in the handle (#1 Philips, T15 Torx Bit, 3/16" Slot Bit). It also doubles as a nutdriver, and includes 6 $\times$ 1/4" drive sockets that also conveniently store in the handle (1/4", 9/32", 5/16", 11/32", 3/8", 7/16"). A fold out bright LED flashlight powered by a lithium

CR1632 coin battery offers up to 60 hours of use. And finally, a carbon steel fold out utility knife that accepts standard trapezoid utility knife blades also stores in the handle. It is a feature packed Retractable-A-Bit and takes the multi-driver to a new level.

HomeHardware.ca

Ultra-Quiet 10 Gallon Air Compressor

The King Canada **KC-10020SQ** packs a lot of power into a compact compressor. It features a 3HP, 14 amp motor with a twin cylinder oil-free pump rated at 3,000 hours, a 10 gallon air tank, and a low 75 decibel noise level. Air delivery is 5.6 CFM at 40 PSI and 4.4 CFM at 90 PSI. There are two 1/4" universal quick connect couplers, and 6-3/4" wheels for portability.

KingCanada.com



Precision Sharpening System



The **Tormek T-8** is the most advanced water cooled sharpening system available and allows you to sharpen your tools to the finest edge, without removing more steel than

necessary. It's built for continuous duty and has a unique and efficient drive system that manages to hold a constant speed, even under full load. Your tool's edge is cooled by the water, so there's no risk it gets overheated.

Tormek.com

Ideal for small shops and the home hobbyist

With its 1HP motor, and 3 high speed steel cutterhead knives, the **Craftex CT086 6" jointer** provides plenty of power and features jackscrew knife adjustment, open style stand and a 46-1/4" precision ground cast iron table. The infeed and outfeed tables are precision ground cast iron, and the large 4-1/2" x 29-1/2" cast iron fence is centre mounted with positive stops at 45 and 90°. On sale for \$499. BusyBeeTools.com



Heavy Duty Mobile Workshop Stand

The **B3620** is the **perfect movable workstation** for mounting any benchtop equipment or machinery. It features a large 20" by 23" composition top and a 15" by 24" storage shelf. Load up the tool holder to always have your hand tools ready and accessible. A foot activated caster lift lever makes it easy to unlock the stand for easy movement. On sale for \$199. BusyBeeTools.com



14" Bandsaw With 13" Depth of Cut

Featuring a one piece frame construction and a powerful 2HP, 110V motor, the **Craftex CX119N** is extremely stable and vibration-free. It has a dual tilting table, computer balanced cast iron wheels, ball bearing blade guides, a quick release tension lever, a large 16" x 20" cast iron table supported by a one piece trunnion system, and an improved T-Fence for more accurate cuts. On sale for \$1,399 + \$50 in-store credit. BusyBeeTools.com

Replacement HEPA Canister

Get significantly improved dust filtration with the **CXHEPA canister**, designed to fit Craftex 2HP and 3HP dust collectors, but can be retrofitted to most other collector brands on the market. It filters out 99.6% of dust particles 0.3 to 0.5 micron and 100% of all dust particles 1 micron and larger to help keep that harmful particles out of the air you breathe. Starting at \$195. BusyBeeTools.com



Full Featured Table Saw

Equipped with a durable 2 HP motor the **Craftex CX212** has the power to easily cut through stock with ease. It features a 40-1/2" x 27" table with a T-type heavy duty 30" rip fence with aluminum face, user friendly blade guard, left tilting arbor, ample storage shelves, riving knife, and a 4" dust port for optimum dust removal. On sale for \$1,099. BusyBeeTools.com

Affordable Dust Collection

The **Craftex CT053 1 HP Dust Collector** is one of the best selling dust collectors in Canada. It features a 1 HP motor, 570 CFM and a 3 year warranty. This powerful dust collector will serve one machine at a time and will handle large machines such as thickness planers and jointers with ease. The 1-micron upper bag & 570 CFM provide the efficiency you need. On sale for \$165. BusyBeeTools.com



Cordless Power Assist Wheelbarrow

Powered by any Makita 18V Li-Ion power pack (sold separately) and a brushless motor, the **Power-Assisted Wheelbarrow** can carry up to 287 pounds, and easily handle inclines up to 12°. With an 18V 6.0 Ah power pack installed you get up to 60 minutes of runtime. For added convenience you can install a second 18V power pack and get up to 2 hours of runtime. Makita.ca



Wave Cutter Evolution Bits

The scalloped edges on **Fisch Wave Cutter** bits cut quickly at any angle, produce less friction, decrease heat build-up, and improve chip ejection. You get super clean holes – both rims and bottoms. The wavy peripheral cutting edge prevents the edges from wearing out. These forged bits are CNC precision ground and can be re-sharpened multiple times. Available in a wide variety of sizes. Fisch-Tools.com



Find Miter Saw Settings, Easily. No Math. No Waste.

The **Sawset** is a carpenter's protractor that finds saw settings with complete accuracy. Constructed with durable 18 gauge engraved stainless steel with a large 7-inch scale allows you to read up to a quarter of a degree. It's double sided with 2 large easy to read scales, one for double miters and the other for single miters. With this simple to use tool and your T-bevel it just takes 2 easy steps to find absolutely any saw settings for any angle. This 18 gauge stainless steel engraved protractor is perfect for both Pros and DIYers alike! Sawset eliminates guessing, mistakes and waste. Use it for crown moulding and baseboards, wainscoting and handrails and hardwood flooring. Sawset.ca

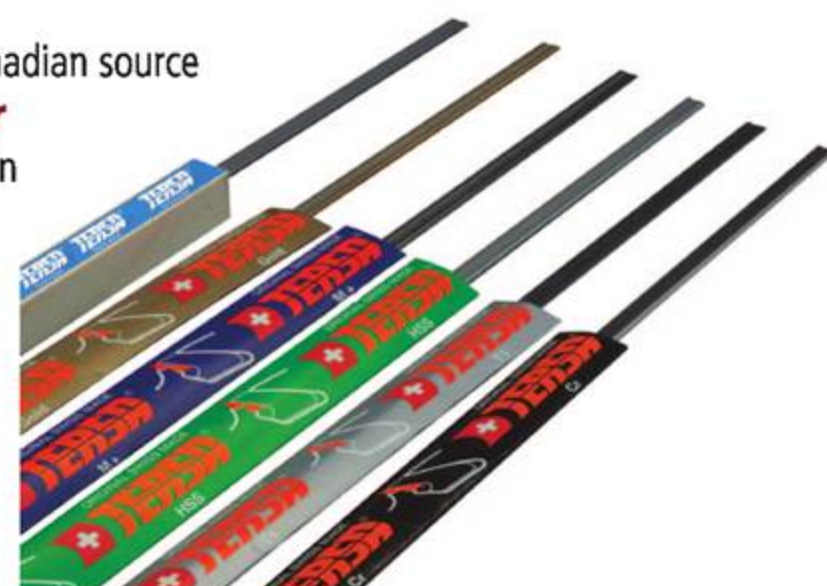


Exchange-A-Blade Starlock Carbide Tipped Wood & Metal Blade

Carbide tipped oscillating blades last 30 times longer than regular bi-metal tools. Combine that with EAB's green exchange system and you'll realize substantial savings. When the blade gets dull, simply return it to your retailer for a \$5 discount toward a replacement blade. The EAB flush cut 3/4" blade (#1071502) fits the new Starlock blade mounting system and OIS compatible tools. These are top quality blades made in Switzerland, and are designed to easily cut through a wide variety of materials, including wood, metals, nails, particle board, and more. \$29.99 (includes a \$5.00 exchange credit). ExchangeABlade.com

Tersa Planer Knives – The Original

Tersaknives Inc. is the Canadian source for all your **Tersa planer knives**. We carry knives in HSS, M+, Carbide and Chrome Steel in various lengths, custom cut lengths available. Very competitive prices and free shipping on orders of \$250 or over. Orders placed are processed on the same or next business day. TersaKnives.com



Superior Table Saw Protection

The **Centurion Table Mounted Blade Cover** (#CEN12215) can be mounted on any 12" or 14" table saws. The sturdy telescopic blade cover provides an excellent barrier to user's hands and effective dust collection capability. It provides a 5" (127mm) high clearance above the table and can be locked in place as needed. There is no need to remove it when you want to rip narrow pieces or make rabbet or dado cuts, and a 3" diameter dust-extraction hose keeps dust from the cutting area.

Normand.ca



Turn Your Table Saw into a Panel Saw

The **Centurion 60" Table** (#CEN12146), constructed of heavy duty tubular steel for maximum stability, can be mounted on most 10" to 14" table saws. The table slides on ball bearings and can be quickly locked in place. The crosscut fence is 64" (162cm) long and can go beyond 101" (256cm) with the extension. It can be positioned either at the front or at the rear of the table, or removed and stowed when not needed.

Normand.ca



Dual Speed Bandsaw

The 15" 1-3/4HP **Steel City 20-400** offers 2,250 and 3,350 linear feet per minute blade speeds to accommodate a wide range of materials. You get an 11-3/4" resaw capacity and a 14-3/4" throat depth. It comes with a quick blade tension adjustment and locking handle, and graduated rip fence that slides on ball bearings. The cast iron 16" x 20" table tilts -10° to 45°.

SteelCityMachines.ca



6" Jointer with Either Straight or Helical Cutterhead

You can get the **Steel City 30-200 jointer** with either a 3 blade cutterhead, or if you mill a lot of figured wood, with 16-2 sided replaceable insert knives. Both models feature a robust 1HP motor, extra long 55-3/4" cast iron tables, cast iron fence with -45°, 0°, and 45° angle stops, magnetic switch, and hand wheels with retractable handle.

SteelCityMachines.ca



Portable and Affordable Dust Collection

The 2HP heavy-duty motor on the **Steel City 80-210CS3** delivers an impressive 1,550 CFM of air flow. It features a 12-3/4" blower fan wheel, a 42 gallon dust collection bag, and a 6" inlet port (that you can also convert to two 4" ports with the included adaptor). Mounted on four casters, it's easy to move around the shop as needed.

SteelCityMachines.ca



Full Featured 3HP Table Saw

The 3HP motor on the **Steel City 10-500 S3** delivers all the power you need to process the toughest stock up to 3" thick (2-1/2" at 45°). It features a generous 29" x 78" cast iron main table and extension wings, and a 50" rip capacity to the right of the blade. It includes a blade guard, anti-kickback pawls and both a standard and European-style riving knives.

SteelCityMachines.ca



All Purpose Latex Wood Filler

DAP WOODPRO is a high quality, low-odour, easy-to-use latex-based wood filler formulated to create a surface and body that looks and acts like real wood. It can be used to repair cracks, gouges, holes and other surface defects on furniture, woodwork, moulding, cabinets, panelling, plywood, windows, doors and painted surfaces. Can be sanded, cut, planed, drilled, nailed or screwed, stained and painted. Water clean-up.

Dap.ca



Wood Filler with DryDex

DAP WOODPRO-X has the same qualities as DAP's WOODPRO, but with the addition of DryDex Dry Time Indicator – goes on pink and dries natural for an invisible repair. The colour change lets you know when WOODPRO-X is cured, ready to be sanded, stained, or painted. This easy-to-use filler is low in odour and cleans up with water.

Dap.ca



The Ultra-Portable Chainsaw Sawmill

The **Logosol F2** can easily handle logs that are up to 24" (60 cm) in diameter and 12-1/2' long (3.8 m). It's so lightweight that you can lift and move it by hand. The frame is built of 3-1/2' (1 meter) sections that fit in the trunk of a standard car. In a couple of minutes, you have assembled and set up the sawmill at home in your backyard or out in the woods.

Logosol.ca



Works BIG in Small Spaces

The **BESSEY GearKlamp** provides a unique clamping solution for cramped locations, up against another object or, when reaching across something to clamp. The patented gear mechanism separates the spindle from the handle for greater clearance and is fully enclosed to keep out dust and debris. There is a quick release shift button for fast set-up and a rotating rail-mounted handle for final pressure application.

BesseyTools.com



10 Times Longer Sanding

SandNet discs provide 10x longer life versus standard sanding discs. Each disc features a clog-reducing net design coated in premium aluminum oxide grit for fast material removal while reduc-

ing material build-up. Clean and reuse multiple times by simply shaking, vacuuming, or rinsing the disc to remove any build up. A 10 pack of discs includes a free connection pad (a \$5 value) for easy attachment to tool.

DiabloTools.com

True Helical Portable Planer

The **Scorpion 13" planer** is the only portable planer that has 40 carbide 4-sided knives with a curved edge set on a shear angle for slicing through any type of wood with virtually zero tear out. It produces a beautifully smooth surface. Features include a Wixey electronic digital height readout, anti-snipe cutterhead lock, adjustable height 12" extension tables, and a cutting depth indicator. On sale for \$1199.95.

CWImachinery.com



Take Your Turning to the Next Level

The Laguna **Revo 18|36** is one of the only lathes that comes with a Variable Speed Drive. The VFD converts 1 phase input to 3 phase output, so even at low settings you will get an incredible amount of torque. A Digital Read Out unit displays accurate RPM at all times and you can make adjustments electronically. Turning speed ranges from 50 to 3,500 RPM.

LagunaTools.ca



The Mother of All MIDI Lathes

The new Laguna **Revo 12|16** is the most robust MIDI lathe on the market. It features a Pulse Width Modulation inverter that allows for consistent and powerful torque through all speeds and no dropping of speed with load. You get 15-1/2" between centers and a 12-1/2" swing over the bed. Includes a reverse function, full function spindle lock, self ejecting center removal, and so much more. LagunaTools.ca



Peerless Performance in Dust Collection

The **Laguna P|flux** series are designed for shops that run dust collectors all day. Available in 1.5, 2 and 3 HP configurations with air intake levels from 1,314 to 2,817 CFM. All feature HEPA canister filters, 32 gallon waste drum, smart sensors that let you know when the waste drum is full, and remote control switches.

LagunaTools.ca



The Woodworker's Dream Dust Collector

The **Laguna C|flux** series set a new standard for quality and performance. The horizontal chute is designed to maximize airflow while improving CFM. It features a 1 micron canister that removes 99.97% of particles between 0.2 and 2 micron, and 48 sq. ft. of polyester spun bond pleated filter to ensure maximum airflow.

LagunaTools.ca



Extreme Bandsawing

If you're looking to rip large planks to size, resaw lumber into veneer, or cut complex shapes in the thickest of stock, you need the power and features offered on the **Laguna 18|Bx 3 HP, 220V Bandsaw**. This premium machine has all the features you'll want, at a price you can afford.

LagunaTools.ca



Affordable Heavy Duty Bandsawing

The new **Laguna 14|bx** is a beefed up version of the hugely popular 14|12 bandsaw. The upscale 14|bx features a solid one-piece heavy gauge frame, magnetic on/off switch, disc brake with micro-switch, and dual light mounting positions.

LagunaTools.ca

Combination Worktable and Sawhorse

The **WORX Pegasus** is a space-saving worktable that quickly and easily converts into a sawhorse that supports up to 1,000 pounds. It has a 31" x 25" tabletop that supports up to 300 lbs and features integrated quick clamps and slots for four clamp dogs. A lower storage shelf holds tools and materials, and includes a place to attach a power strip. Can be interlocked it with another Pegasus to get an expanded work surface. CanadianTire.ca



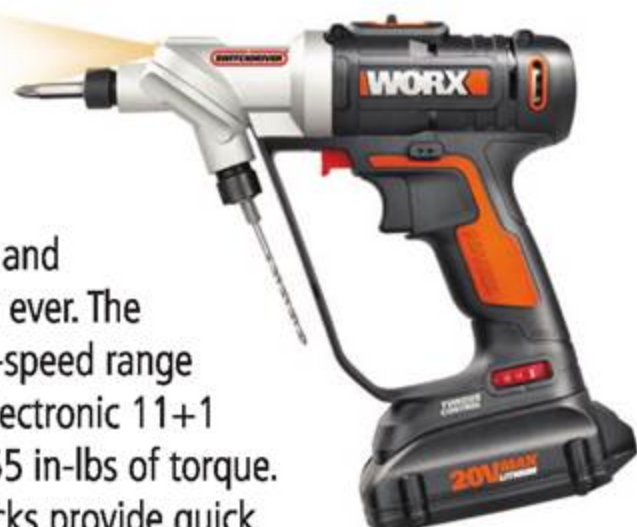
2-in-1 Jigsaw/Reciprocating Saw

With the **WORX Axis 2-in-1 Jig Saw/Reciprocating Saw** you get two power tools in one. Converts with the push of a button. Convenient, tool-free changes of standard reciprocating saw blades and T-shank jigsaw blades. The 20V Max battery delivers 3,000 RPM with a 3/4" stroke length. Its compact and lightweight design, coupled with an ergonomic grip provides comfort and control. CanadianTire.ca



Drill and Drive with the Switchdriver

The **WORX 20V Max Li-Ion Cordless Switchdriver** is a 2-in-1 cordless drill and screwdriver with rotating dual chucks that make switching between drilling and driving faster and smoother than ever. The 20V battery delivers a variable 2-speed range of 0-400/1500 RPM. A precise electronic 11+1 position control delivers up to 265 in-lbs of torque. Dual 1/4" hex quick-release chucks provide quick and easy bit changes. CanadianTire.ca



Value Packed Drill-Driver Combo

You can tackle the toughest projects with the **WORK 20V Cordless 2-Piece Combo Kit**. The drill features a 3/8" chuck, a no-load variable speed of 0-1,350 RPM, 265 inch pounds of torque, and 16 clutch positions. The impact driver features a 1/4" hex chuck and delivers 950 inch pounds of torque and an impact rate of 0-3,000 IPM. The kit comes with a 3 year warranty. Worx.com/en_CA/



Benchtop Bandsawing

Perfect for anyone who works in a small shop or doesn't need to resaw large boards, the **Grizzly G0803** is equipped with a 1/3 HP motor that delivers a blade speed of 2,460 FPM. It features a steel frame and doors, a 12" x 12" work table that tilts a full 45° and has an 8-78" throat capacity with a 3-5/8" cutting height. Grizzly.com



Affordable and Portable Cyclone Dust Collector

The 1.5 HP motor on this **Grizzly G0860 collector** delivers a maximum airflow of 868 CFM with a static pressure of 9.7". It features a 12-3/4" welded steel impeller, 20 gallon waste drum with a quick release handle, 6" intake hole port, and wireless remote control. Swivel casters make it easy to move the collector around the shop. Grizzly.com



Simple, Quick and Precise Pocket Holes

The **Milescraft PocketJig200** (#1323) is perfect for making corner joints, T-joints, framing joints, and miter joints. With built-in board thicknesses, there is no need to manually measure. Just set this pocket jig to your desired setting, set the depth of your bit and start drilling. Includes everything you need in a convenient carry case to get started with your first project.

Milescraft.com



Durable Rolling Kneepads

KneeBlades (#1603) are designed for any job where you are required to be on your knees, providing you with more balance, flexibility, and mobility. The three-wheeled mobile base allows for full 360° turning capability, without lifting from the floor. Close to the ground knee roller design minimizes back stress. With the push of a button, you can go from Knee Blade to knee pad.

Milescraft.com

Portable Drill Guide

With the **Milescraft DrillMate** (#1318) portable drill stand you can drill straight holes, angled holes, on the edge of a board or even round stock. Everyone knows that the success of many DIY projects depends on drilling straight and accurate holes. Now you can add a whole new level of accuracy with this drill guide jig when drilling holes with your standard hand drill.

Milescraft.com



The Perfect Pocket Hole Jig

With the **PocketJig100** (#1321) you can connect work pieces in a quick and timely manner or do repairs around your house. Its small, compact design allows you to do applications where a small jig is required. Built-in board thickness locations make for easy measurement and set-up of your work pieces, virtually eliminating the need for manual measurements. Everything you need to get started with your first pocket holes.

Milescraft.com



Ergonomic Multi-Purpose Push Block

The **Milescraft Grabber** (#3403), made from a Non-marring, TPR material, is ideal for use on router tables, table saw, jointers and even bandsaws. Its high visibility yellow makes it easy to find in busy shops. Safety is very important and you always want to keep your hands as far away from the cutting tool as possible.

Milescraft.com



Create Accurate, Strong Dowel Joints

The **Dowel Jig Kit** (#1309) contains everything you need to get started creating strong and accurate doweled joints. The self-centering jig and adjustable fence allow for precise dowel alignment and maximum joint strength. Now you can perform one-handed alignment and skip the hassle of measuring and marking when drilling corner or edge joints.

Milescraft.com





Powerful 5-Stage HVLP Spray System

Equipped with a Heat Dissipation Box that removes any heat build-up from the turbine case, and a Noise Reduction Cover that reduces noise, the **Fuji Mini-Mite 5 Platinum T70** is an industry favourite. The 5-stage turbine, which develops approximately 9.5 psi, is powerful, portable, and perfect for all fine-finishing. Additional power allows the user to apply heavier coatings and thicker viscosity finishes faster and with less time spent on preparation of materials. The system is easy to operate and maintain, and is perfect for the professional or beginner. Includes the Fuji T-70 air gun with 1 QT cup and a standard air cap set #3 (1.3 mm) for general purpose fine finishing, plus five bonus items – 6 ft. whip hose, wet film gauge, 19 pc. spray gun cleaning kit, extra turbine filters and 'Always Measure' booklet.

FujiSpray.com

When Visibility & Versatility Count

The **Mini Carver** is the newest version of the Mini Grinder, taking one of Arbortech's most popular wood carving tools to the next level. Additional features and functionality make the Mini Carver even better at rough shaping, sculpting and sanding. Robust enough to last but compact enough to offer detailed carving capabilities and maneuverability. It's the ideal power tool for wood sculptors and carvers who value performance, efficiency and versatility.

ArbortechTools.com



The Perfect Finishing Gun

The **GREX 850LX 21-Gauge Nailer** is equipped with all the features found in GREX TOOLS including their unique integrated edge guide. Light weight, it shoots brad nails from 3/8" to 2". GREX 21 gauge fasteners feature superior holding power versus 23 gauge fasteners, while still leaving a nearly invisible hole for filling and finishing. GrexUSA.com



Colour and Protect in a Single Coat

RMC Oil Plus 2C is a two component finish, available in 40 standard colours that can be applied to any wood surface. It's comprised of an oil and an accelerator that you mix together and then easily apply with brush, pad or cloth. The result is a quick drying superior finish that is wear, water, and heat resistant finish, and 100 percent VOC-free. It cures fast, and after 5 days the surface can be cleaned with water and soap. Get a beautiful finish in no time, with no mess. Available in 350 ml, 1.3 L and 3.5 L duo cans.

RubioMonocoatCanada.com





**Here's How
to master
your next
project!**

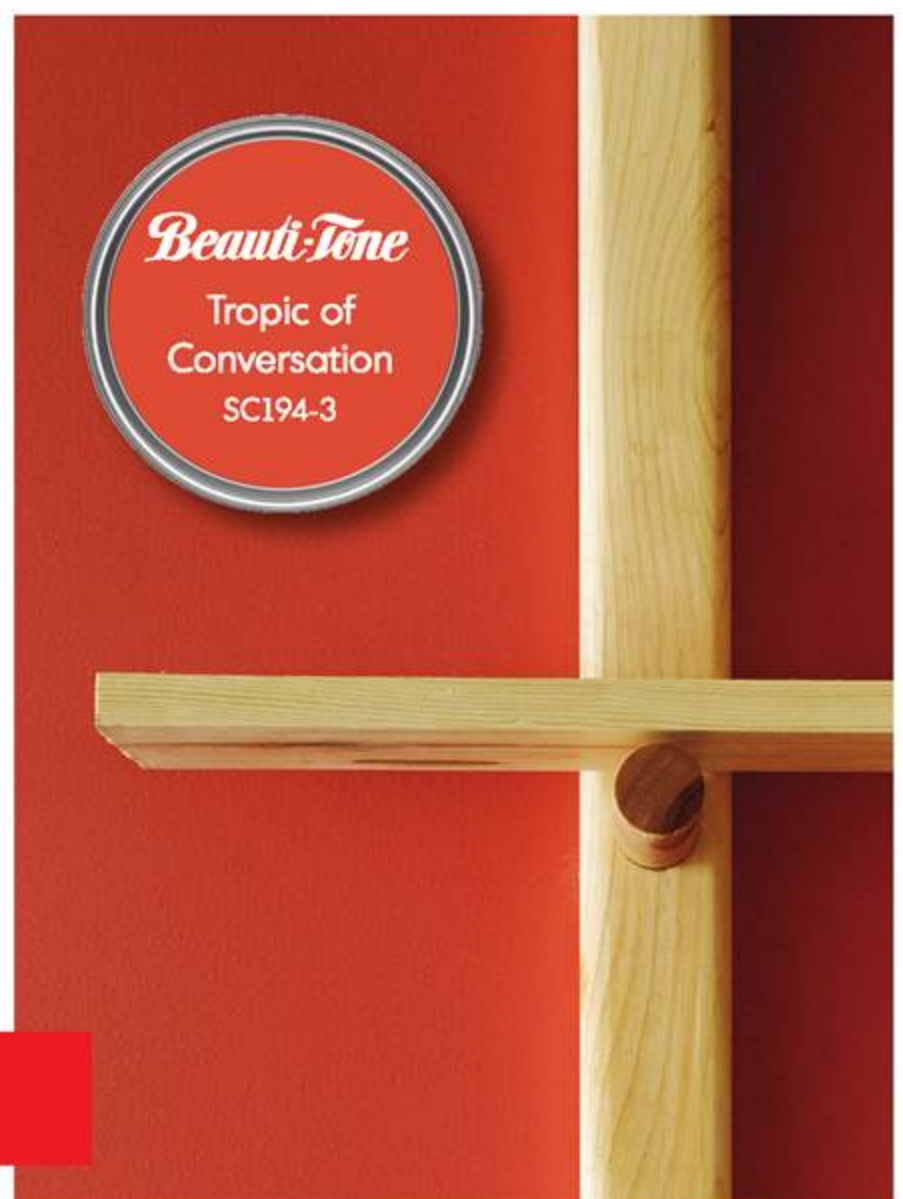


Dowelling It Up a Notch

Family and friends will simply pine over this sleek and modern shelving unit. Keep all your daily essentials within reach with its airy and functional, open concept design. Cleverly crafted with basic materials, it is sophisticated simplicity at its best!

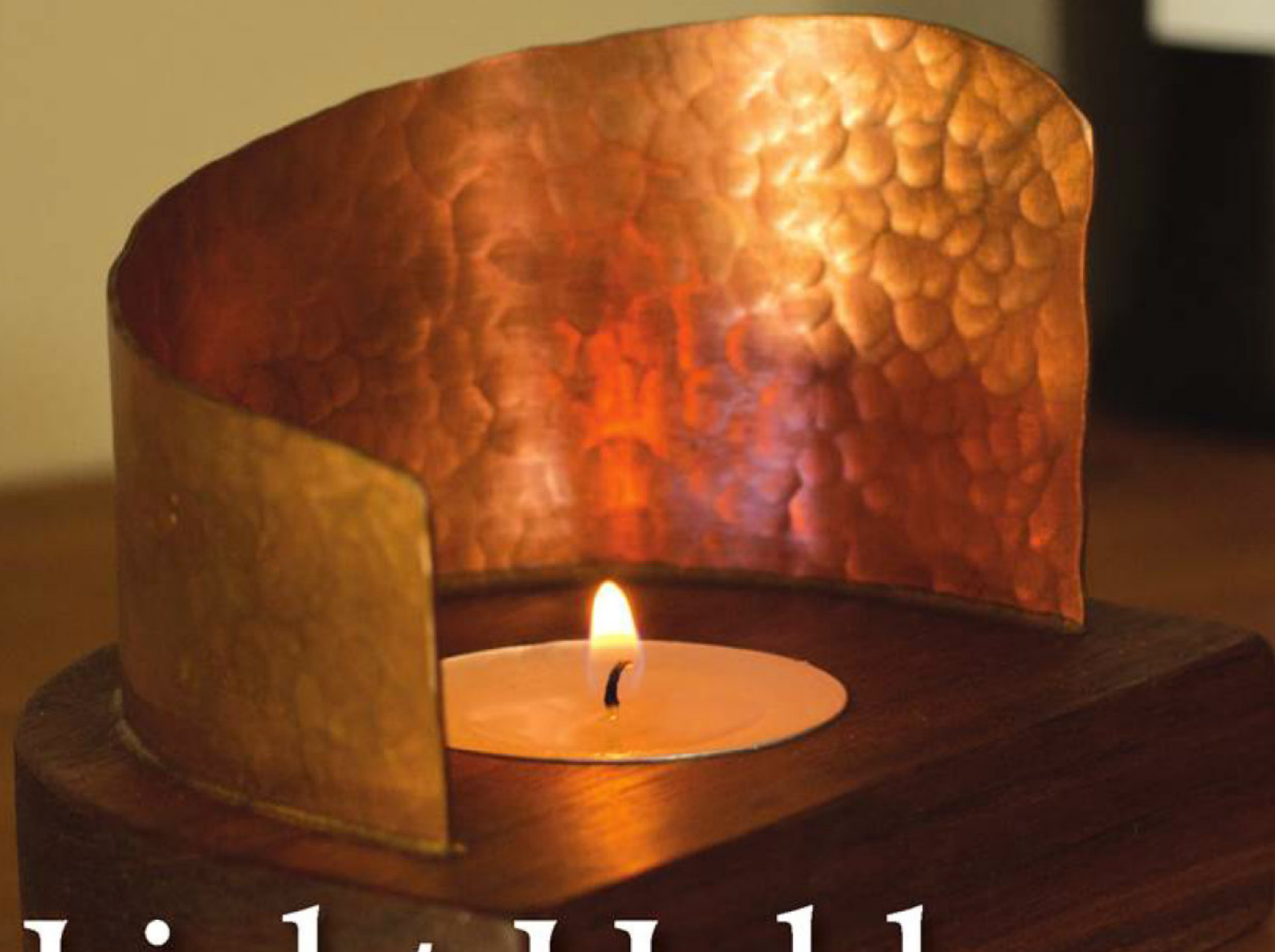
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FREE Home at Home Ipad App



For project instructions and a materials list, please visit www.homehardware.ca

Print colours shown may appear different than actual paint colours due to the printing process. please refer to actual paint chips for colour accuracy.



Tea Light Holder

with a mirknig.su

Planished Copper Reflector

Photos by Rob Brown

This easy project makes a great present for anyone on your gift-giving list. Just be sure to make an extra for yourself.

BY ROB BROWN

There's something wonderful about starting and finishing a project in one afternoon, especially when that project is a gift for a number of your friends and loved ones, and it's a week before Christmas. Tea lights give off a soft, warm glow, and as long as you keep curious pets and kids away from them, there should be no safety problem.

Customize yours

This tea light holder can be kept simple and straightforward. Even leaving the copper reflector off is an option, though it really adds a nice touch to this project. Changing the reflector to a thin, bent lamination made from a few layers of veneer is a fun option.

You could even pierce and carve a wood reflector, adding an entirely different look to the finished tea light holder.

With a small piece like this, a bit of texture can go a long way. There are so many options when it comes to texture. Experiment with some of the tools you already have in your shop – nail heads, awls, knives and many other tools can be used to add texture to wood's surface, even if that's not their main purpose.

I've used a shape similar to a half circle for the footprint of this tea light holder, but any geometric or organic shape will likely work wonders.

Keep it oversized

Small workpieces aren't easy to secure while you work on them, so ensure you leave some waste on your workpiece. This will allow

you to screw the workpiece down as you rout the reflector groove and clamp the piece as you're drilling the tea light cavity. The extra material will also support the trim router as you create the groove to house the reflector.

Once the workpiece has been dressed to final thickness (this holder is 1" thick) draw the final shape of each tea light holder onto the blank. The holder I made is 3" wide × 4" deep × 1" thick. If I had straight edges for a trim router to reference against, I could have used an edge guide attachment to guide the router while it created the reflector groove. Since the back edge of my holder was curved, I used the trim router freehand. To help guide me, I clearly marked the location of the groove on the wood's surface. If you were going to create many of the exact same shape, it might be worth your while to create a pattern for your trim router to run against.

Rout a groove

The first step is to fix your workpiece to a workbench so it doesn't move at all. With a 1/8" diameter straight bit chucked into my trim router, and its cutting depth set to about 1/8", I turned on the trim router and slowly lowered the bit into the end of the desired groove. I slowly and carefully moved the trim router along the marked line, leaving a fairly even groove in the wood. The groove doesn't have to be perfect, as epoxy will hide some inconsistencies.

If you happen to really mess up, you can dress your wood down by 1/8" to remove any evidence of wrongdoing. As you're doing this, just say to yourself, "I think this holder would look better if it were a bit thinner." It's amazing what we can trick ourselves into if we put our minds to it.

Tea light holes

While the blank is still oversized, drill the holes that will accept the tea lights. Securing a large blank while boring is easy. A 1-1/2" diameter hole accepts all tea lights I have ever come across, but I don't honestly know if they come in different sizes. As always, have all your hardware on hand before starting this project. I have also found a 5/8"-deep hole allows the tea lights to sit ever so slightly above the surface of the wood and gives you just enough to grasp onto when removing a spent tea light.

Cut and sand

A bandsaw will cut each holder from the blank, while a disk or edge sander smooths the cut edges. Another option for customization – cut the holder from the blank with your bandsaw table on an angle. This approach takes you away from a common right angle look. Sand the entire piece and ready it for a finish.

Apply a finish

Durability isn't of huge concern with a tea light holder, but looks sure are. I find the only type of application I don't use at this stage is an aerosol spray can, as it will cover the pores of the wood in the reflector groove and weaken the bond between the reflector and the holder's base. A wipe-on finish is relatively easy to keep out of the groove, though if some finish gets in there, it's not the end of the world. I applied a few coats of Osmo Polyx-Oil, but you can use a finish of your choice.

Make the reflector

I like the look of copper, and in terms of metals, it's pretty easy



Draw the Outline – Mark a visible line on the blank, that outlines all of the tea light holders you plan on making. Add a second line on each holder marking the location of the reflector groove.

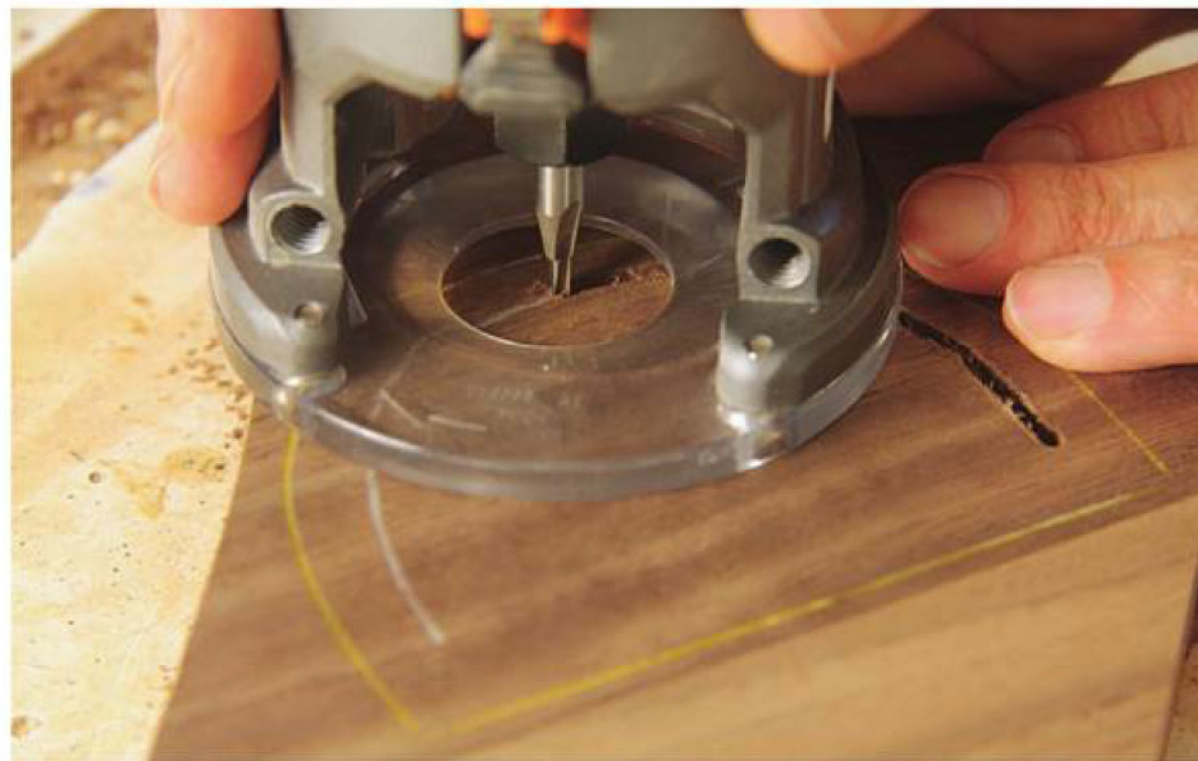
to work with. You can buy small pieces of copper from metal stores. I first used a pair of snips to cut a piece slightly oversized, and sanded its edges smooth. I used a ball peen hammer to help curve the copper reflector and left the hammer marks on the visible surface of the copper. It's a long process, but if you take your time, you will be rewarded with a stunning look.

I used a cross section of railway line I happen to have, but for this one project I would think almost anything that was very hard and smooth would work.

When planishing the copper you don't need hard blows, just medium-strength hits that are fairly evenly spaced across the copper's surface. If you happen to miss an area just return to it to briefly to give it a few hits. The act of planishing the copper starts to curve the metal, but to fine-tune the shape to fit your reflector groove isn't too hard. Using just your hands is enough to easily work it to shape so it fits the groove nicely.

Treat the copper?

The copper will accept a patina with time, but if you want to keep the copper surface looking shiny and new for as long as possible, you can apply a finish over its surface. On the other hand, if you want to speed up the weathering process there are chemicals to add to its surface and simple ways of darkening copper's surface to



Gettin' Groovy – With a 1/8" straight bit chucked in the trim router, Brown carefully moves the trim router freehand to create as even a groove as possible.

a duller look. I didn't add anything to the copper's surface, and I'm looking forward to seeing what it will look like in a few years.

Secure the reflector

Now that the reflector fits the groove, and the wood and reflector are finished how you want, mix up some epoxy, and put some in the groove so it's as even as possible. It's a good idea to leave the epoxy a little below the upper surface of the wood, so when you install the reflector, the epoxy will finish about level with the wood. It's also smart to wait a few minutes after adding the epoxy to install the reflector, so the epoxy can level out in the groove. You can only do this with slow-setting epoxy, as 5-minute epoxy will be dry before you install the reflector. Using a toothpick or other small piece of material to spread out the epoxy works well, as long as you don't make a mess – epoxy is hard to remove.

Once the epoxy is dry, it's time to pop in a tea light, light it and watch the small flame dance.



ROB BROWN

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Bore a Hole – Brown finds a 1-1/2" diameter hole works perfectly for tea lights. Drilling it to the perfect depth is also important.



Smooth the Edges – After a bandsaw cuts each tea light holder from the blank, Brown sands the edges on a disk sander.



Time to Planish – A ball peen hammer and a hard surface allow small divots to be hammered into the front surface of the copper Brown is shaping. The copper reflector will have to be fine-tuned by hand to fit into the routed groove in the holder.

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An Illuminating Experience

If a rookie woodworker with almost no experience can make this cedar post lamp, you can too.

BY JAMES JACKSON

Readers of this column over the past few issues have been treated to recent tales of failure and success as I navigate the new world of woodworking. But this isn't my first foray into the hobby. A decade ago, after graduating from university and still searching for a job, I was looking for a way to make Christmas gifts for family members, that wouldn't cost a ton of money.

I went into my Dad's woodshop and started experimenting. I made a candleholder for my girlfriend (now wife) but I wanted something unique and interesting for her parents.

"Why don't you make them a lamp out of an old cedar fence post?" my dad suggested.

I was hesitant at first – the only thing I doubt more than my woodworking skills is my electrical skills – but figured I'd give it a shot.

We had a huge pile of cedar rails on the farm, and it seemed like a fairly easy building material to work with. I started by bringing a rail into the shop so the snow and ice could melt, and it could dry out over a couple of days. The next step was to cut the piece to length, about 13", and then I took a revolving drill brush to it to knock all the dirt, mud and moss off. Next was a handheld brush to remove the caked-on dirt and to expose some of the natural wood grain.

I took a 1" spade bit and drilled a hole down the center of the post for the wiring. The bit wasn't long enough to go the entire length of the post, so I had to flip it around and drill from the other side.

For the base, I took a 1/2-" piece of cherry and cut it into a 7" square. I drilled a 1" hole in the middle of the board to align with the hole in the post, then drilled a smaller hole from the edge of the board inward. This allowed me to feed the wire through the wooden base and up into the cedar rail without interfering with the base of the lamp. The only portion of the wire visible was the piece that extended from the lamp to the wall.



Finally, I centered the rail on the wood and attached it by counter-sinking three screws from the bottom, along with a little bit of wood glue. I used a roundover bit to put a decorative edge on the base.

I went to a lumber supply yard and bought a packaged wiring kit off the shelf for about \$15, which really drove up the cost of this project. If I were to do it again, I think I'd go to a thrift or second-hand store and buy a used lamp off the shelf for a fraction of the cost (just be sure to test the lamp before buying it).

I put a couple coats of clear Varathane over the entire lamp to allow the natural wood to shine through. The cedar rails look grey and dirty out in the field, but they have a nice, soft brown colour once they're cleaned up.

The lamp was a hit with my future in-laws, and they had it in their kitchen for about nine years before finally relegating it to a shelf in the basement.

It's a simple build and can be done in just a few hours once the cedar rail is dry. If someone with almost no experience in the woodshop can make it, you can too.

JAMES JACKSON
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Photo by James Jackson



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