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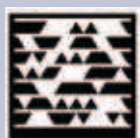
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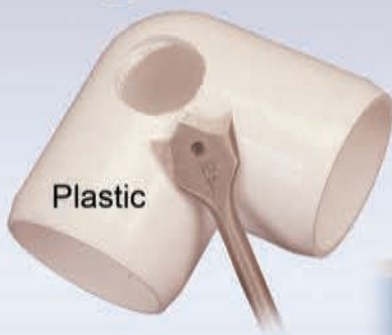
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Drive with Speed, Quality and Confidence

This issue of *EHT* covers a wide range of DIY projects. Larry Walton walks us through one of the most common deck-remodeling projects—board replacement—and offers his professional insight gleaned from years of on-the-job experience. Mark Clement provides a different angle on deck construction—tips on how to build and design one from the ground up—including how to give it a personal touch and suggestions for overlooked materials. Ted Leger offers advice on must-have tools for a woodworking shop, we also have a column on power tool accessories, as well as an automotive story on changing rotors and brake pads. And I contribute an article on shortcuts for DIY trim work that I've collected over time.

We're now in the process of planning for topics to cover in 2017, and we'd like to continue providing a diverse array of DIY subjects to keep our readers interested. That's where you come in. Drop me line and give me your suggestions. Are there topics that you feel deserve more exposure in our magazine and on our website? Do you find creatively offbeat stories interesting, or do you find them impractical in a how-to book and difficult to apply to your own projects? How do our articles mesh with your skillset; is the instruction too basic, or too complicated at times for your level of experience? (We're aiming for "just right.")

Our mission is both to instruct and entertain, so we'd like to hear from our readers what you find instructive and entertaining. If you'd like more information on kitchens and baths, please let us know. If we place too much emphasis on outdoor projects and not enough on interior décor, then say so. And finally, if you have specific project recommendations that you'd like us to incorporate into the upcoming year, then send us the details. We'll keep our ears open and see if we can find a suitable project to fulfill your request.

Send all suggestions to mweber@latitude3.com, and we'll add them to the list.

Thanks for reading,



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The information in *Extreme How-To's* editorial content is intended to explain and simplify home-improvement tasks. Tools, products, materials, techniques, building codes and local regulations change; therefore, *Latitude3* assumes no liability for omissions, errors or the outcome of any project. The reader must always exercise reasonable caution, follow current codes and regulations that may apply, and is urged to consult with a licensed professional if in doubt about any procedures. **Printed in the USA**

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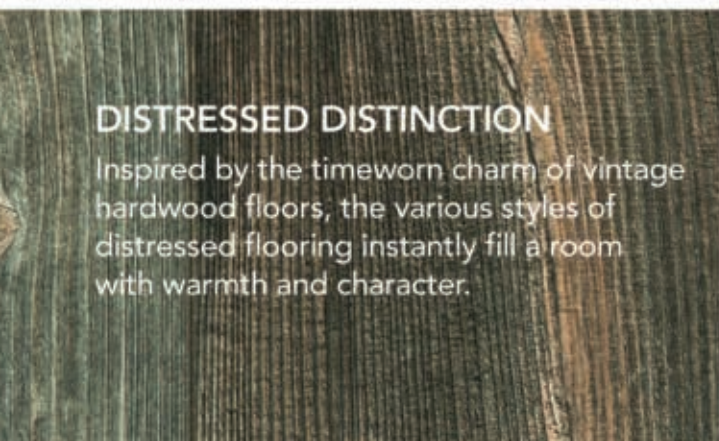
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Q: What's the most reliable method for attaching a treehouse to a tree?

A: Consider using a Treehouse Attachment Bolt, also called a TAB. This is a specialized piece of hardware designed to carry large loads in a tree while minimizing damage to its cambium. The TAB consists of a tiered bolt with different sized parts, featuring a thick collar or "boss" near the midpoint. The TAB's threaded end inserts into the tree fully, and the collar inserts halfway. The unthreaded stem section protrudes from the tree and holds the treehouse support beam.

Q: How do I get bats out of the attic?

A: This is a timely question for our October issue.

Bats can be annoying, leave foul-smelling droppings, and some people consider them downright creepy. The best way to prevent bat problems is to seal off all gaps into the attic. Bats can squeeze through a space as small as half an inch. If you already have a serious bat problem, you should probably call your local animal-control department for professional removal. You can also check out the Bat Conservation International website at www.batcon.org, which offers tips on how to humanely catch and release a bat, and even how to build a bat house, in case you'd like to lure your new friend out of the attic with fancier accommodations.

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Q: What's a more durable wood finish, shellac or varnish?

A: All wood finishes fall into one of two categories: evaporative or reactive. Evaporative finishes such as lacquer or shellac dry as the solvent dissolves. These finishes can then be stripped away by reapplying the solvent. Reactive finishes (such as linseed oil and varnish) bond with the woodgrain through a chemical reaction, which typically makes them more durable.

Q: What is the difference between face brick and brick veneer?

A: Face brick is exposed brick on a home's exterior or interior. Brick veneers are much thinner than brick and are made from fired clay and shale. Brick veneers are much lighter than actual bricks and are applied to an existing structure such as a wood frame. Brick veneers are a good choice for existing homes since a real brick structure is impossible to construct once the home is built. Brick veneers can be added to almost any surface, allowing homeowners to have the style of brick without the associated cost. However, brick veneer does not withstand wind, fire and the other environmental issues as well as real brick, which means it typically needs to be maintained more often than face brick. **EHT**

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NOT YOUR AVERAGE CABLE RAIL.

Cable railing's popularity is soaring among residential and commercial clients for good reason. These days, many manufacturers are offering some version of this stylistic railing. But what you see in this image is not just your average cable rail.

Unlike most cable railing manufacturers which utilize aluminum structural components, AGS Stainless provides a prefabricated system comprised entirely of stainless steel – from the posts and top rail to the cable and hardware.

The result is one that reflects the intrinsic quality, value and beauty of stainless steel. High-end homes deserve more than just the form and function provided by aluminum railing. Stainless steel's durability is uncompromising and its distinct luster provides a striking visual impact enhancing any setting or décor.

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Power Tool Accessories



By Matt Weber

Get more from your power tools by using the right accessories. Tools are crucial for the professional craftsman or the serious DIY'er, but what if you could optimize those tools for more versatility, making a good tool even better? With a wide variety of available accessories you can optimize, organize, power, or alter your tool applications. The following are a few highlights the *EHT* staff thought you might find interesting.

DEWALT POWER SOLUTIONS

Use your corded tools where there's no power outlet. DeWalt

has added the 1800 Watt Portable Power Station (DCB1800) to the company's wide range of battery and charging solutions. The new 1800 Watt Portable Power Station allows for AC power in remote locations. Able to run most corded tools, it provides 1800 watts (15 amps) continuous power and 3600 watts peak power. The DCB1800 runs on four DeWalt 20V MAX batteries. (For high-power applications, four 20V MAX 3.0Ah batteries or higher amp-hour are recommended to provide the best results.) Not only can the station power a corded tool remotely, but it also becomes a multi-port parallel

charger for up to four batteries when plugged into a wall outlet via extension cord (sold separately). Visit www.dewalt.com

MILESCRAFT DRILL90 ATTACHMENTS

The 1303 Drive90PLUS is an impact-ready right angle drive/drill attachment from Milescraft. With this versatile tool, your existing power drill or impact driver can now access hard-to-reach spaces. The newly engineered design of the Drive90PLUS has metal head construction and improved gears for enhanced durability and longer life. With a reach of



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Photo courtesy Wood-Mizer LT40
Hydraulic owner, David Yasenchack.

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Milescraft's new 1304 Drill90PLUS is a new heavy-duty version of the original Milescraft Drill90. This design has an ergonomic body design with removable, dual position handle and an enhanced, all-metal drive with bearings providing longer life and durability. It comes with a 3/8-in. keyless chuck and is compatible with most drill accessories including spade bits and hole saws.



For professionals, The heavy-weight 1305 Drill90PRO has all metal construction with industrial gears for longer life expectancy and a smoother drilling experience. Featuring an all metal drive with four ball bearings, it's built tough for heavy duty usage and

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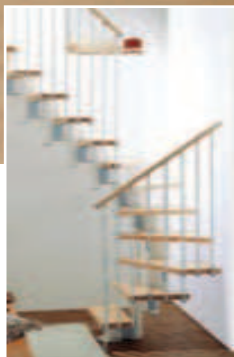
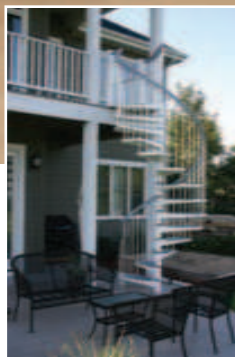



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TG TOOLS KIK BITS

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when compared to standard brad-points. This means the Kik bits bore faster, cleaner and last longer due to decreased wear. In fact, the tip cuts so aggressively the bit requires an extraction ridge inside the flutes that removes material quickly to prevent heat buildup.

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into place, giving a negative copy profile. The comb assembly is then turned over and, using a 1/4- or 1/2-in. router and a copy pin, the user follows the negative copy contour allowing the router to cut a perfect cope. It can cope any shape of baseboard or chair rail in just seconds, is adjustable for out-of-plumb walls, and cuts both left- and right-hand copes once set up. It also makes easy work of joints, such as tenon, dado, half and lap,



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Top 6 Tools to Start Your Woodworking Shop



Photo by Charles Self

By Ted Leger

It took one time working with lumber and wood stock and I was hooked. From then on I loved to eat, sleep and talk about woodworking to everyone. And within a short period, I built my first shop and grabbed my tools and organized them. That was my “man cave.”

It normally doesn't take long for someone that is going to have an interest in woodworking to grow hungry to set up his or her own shop or “allotted space” so they can satisfy their craving for building projects with wood. Especially if they can afford it, (and sometimes even if not), even the novice woodworker will start to check out

the tools of this awesome hobby and skill set.

The issue that most will run into is the cost, especially if you want to fill a shop to the brim with a vast array of tools. This can be very pricey. So you have to start slow, and add as you go. But there are six indispensable tools that are needed when you begin.

TABLE SAW

The table saw is essential to any woodworker's arsenal of tools. Even if it is a bench-top table saw, that's fine. You have to have one. When you start ripping lumber over and over, doing so with only a handheld circular saw, or what is

more commonly known as a “skill saw”, just won't cut it.

When used with a rip fence, a table saw is more accurate and more powerful than a circular saw. Due to this your cuts will be straight and your arms won't be so tired from the circular saw and straight-edge jig that you would constantly be setting up. And don't forget the time factor. Table saws cut much, much faster than any circular saw.

CORDED ELECTRIC DRILL

If you can only afford one drill, this is the choice to make. And be sure it has a 1/2-inch chuck to hold the larger bits. A corded drill

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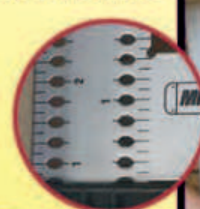
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tends to be more powerful than a battery-operated one, unless you can afford a high-end battery operated drill.

If you can somehow get two drills onto your tool list, that would make a large difference as well. One battery-operated and one corded drill with a 1/2-in. chuck on both tools is best if you can possibly make it happen. Don't skimp on a low-cost cordless. If you do,

you will learn why it was so cheap. With a cordless drill, you normally get what you pay for.

JIGSAW/BANDSAW

The ideal wood shop would have both a jigsaw and a band-saw. If you cannot afford both at first, then go with the less expensive jigsaw. A good band-saw will set you back about 500 dollars or more.



The jigsaw and bandsaw are great for cutting curves in wood. Unless you want all of your projects to feature hard angles on every part, then you'll really have a hard time without such a tool. Large bandsaws can also re-saw

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big pieces of lumber with irregular shapes. For any large scrollwork you have to have a jigsaw or band-saw. There is no way around it.

COMPOUND MITER SAW

A miter saw is an awesome tool for any shop. The compound miter saw will cut multiple angles at one time; the bevel and the miter. Some of the lower-cost miter saws will just cut the bevel. If you can afford it, go with the compound machine for more versatility.

This tool also will act as a chop saw for straight cuts. Many projects require making the same cut over and over, and you can't beat the speed of this saw compared to a circular saw.

Some compound miter saws will have a slide feature, allowing you to slide the saw across a wider



board. Without the slide, cutting width is limited by the size of the saw blade. You can cut up to 15 inches wide with some sliding miter saws.

RANDOM ORBITAL SANDER

For those only able to purchase one electric sander, this is the one to get. Palm sanders may be a bit

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less expensive, but they aren't cheap enough to justify getting a regular one over the random orbital sander.

These sanders will use sticky backing or even hook-and-loop fastening systems to hold the sanding disc. What puts this tool above its lesser versions is the simple fact that it won't leave a sanding pattern when used correctly. This is due to the motion of the sanding head moving completely random at all times. Regular palm sanders go

back and forth or side to side, and so that is what sanding pattern will be left on the stock you are cleaning with the tool. No matter what your finish, if you use a sander where the motion isn't constantly random, then marks will appear in the finished product.

ROUTER

Finally, the last tool for your work space is going to be the router. Even the beginner does well to own one. It shapes and

molds the wood. It will cut beautiful grooves and patterns into the work piece, and can be used for joint work also. If you are all about trim and molding on your pieces, this definitely is the tool for you.

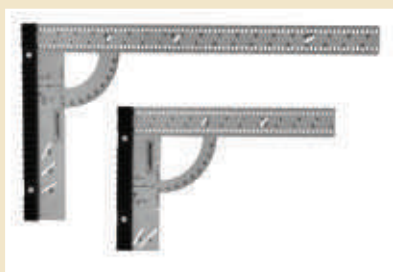
If the money is there, then it's highly recommended to purchase a combination router. This is a router that has a base



that you can change out from a fixed router (which doesn't move), to a plunge router that can make plunge cuts in the lumber. Rest assured that once you start using the plunge side of the router, you will be glad you purchased it.

MILESCRAFT DOWEL JIG KIT

The Milescraft DowelJigKit includes everything you need to get started creating strong and accurate doweled joints. Whether you are building or repairing furniture, this kit allows for quick and accurately doweled corner, edge or surface joints. The DowelJigKit includes a JointMate, which is a self-centering jig with an adjustable fence that allows for precise dowel alignment for maximum joint strength. The built-in metal bushings ensure accurate alignment when drilling, for perfectly positioned dowels. The jig is designed for use with 1/2- to 1-1/2-in. thick lumber. Included in the kit are steel dowel/tenon centers for durable and accurate location marking of dowel holes or the second board being joined. It also contains three sizes of fluted dowel pins with chamfered ends that add strength and endurance to your joined joints. Plus, brad-point drill bits and steel drill stops in three sizes (1/4, 5/16, 3/8 in.) provide durable performance. Visit www.milescraft.com.



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The router does well on its own, but you will want to eventually purchase or build a router table for it to slip inside. This will make routing not just easier, but there are many cuts that only can

be made on a router table.

If the woodworking bug has bitten you, don't fret. Getting a shop or space going so that you can enjoy this excellent pastime is not hard to set up. And with

these six major tools, you will be cranking out projects as your heart desires in no time, even if you are on a limited budget. **EHT**

Ted Leger is a woodworking enthusiast who turned his hobby into a passion. You can find more woodworking tips and advice from him at his woodworking blog, www.WooDesigner.net.

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8 PRO TIPS FOR WOOD GLUE

- Store wood glue at room temperature. Most glues work best at 50 degrees or above. Check the product label for proper temperature use.
- One of the most important tips is dry-fitting parts. This is especially important if gluing intricate joints such as mortise and tenon or frame and panel. Joints should slide together smoothly, but not too tightly or there won't be enough room for the glue.
- Before applying glue, gather the clamps you need and make sure you have plenty. You will also need clamp blocks or pads to protect wood surfaces, especially soft woods, from denting under clamp pressure.
- The mating surfaces should first be sanded smooth and cleaned of any oil, dirt or sanding dust.
- Evenly coat the wood surface with wood glue. Thin strips of wood can be used as "paddles" to smooth out beads for more thorough coverage of narrow joint pieces, inside mortises or dados, and for edge-jointing. If coating larger surfaces such as veneers, a roller is the best choice for a smooth and thorough application.
- Refer to the manufacturing instructions regarding clamping and working times, which vary among types of glue.
- Most woodworking glues require at least 30 minutes of set-up time, with no stress on the joints for 24 hours.
- A small bead of glue should squeeze out of the joints when clamped. This can be wiped away with a damp cloth, or wait for 30 minutes and then cut away excess glue with a sharp chisel.



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The Super-Naturalist (\$60)

We decided to take a closer look at one of our best sellers, and using what we learned from developing the Survivalist Hatchet, we re-created the Naturalist, adding some new features and making it, well, Super. We started by upgrading the alloy steel to 4140 "ordnance tool steel", for greater edge retention and better impact resistance, then shaved off several ounces to make for improved handling control and quicker swings. We added a much-needed nail puller, curved the bit a bit for better chopping and deeper cuts, and finally, stamped our logo into the steel. We feel that this hatchet is truly befitting of the Survivalists little brother. Works better than any other for yard work, bushcraft, construction, camping, drywall, you name it.

Weights in at just under 17oz of steel mounted on an 18" curved hickory handle. Bit is 3-1/4" long, overall head length is 7". Naturalist sheath fits this hatchet like a glove. (we did plan it that way!)



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DECK BUILDING TIPS

By Mark Clement

Why do I love building wood decks so much? I think it's because a well-crafted deck is more than a box and some boards on the back of a house. A lot more.

Because I'm a contractor and a carpenter, I find that decks are part layout, part site work, and fast framing where thoughtful design, dialed-in trim details, beautiful materials, and fun carpentry bring life to a pile of lumber.

No matter how big a deck is, it's the trim details and fundamentals—yes, that includes tools, glorious tools—that transform projects from cringe-worthy to the creative carpentry I get so much satisfaction from.

So here are some tips I use from design to carpentry. Here we go.

POSTS

I've built lots of decks, playgrounds, docks and retaining walls. One of my very favorite things to work with is round posts. Where I'm from, we call them 'pilings'.

They're called 'poles' or 'round posts' in other parts of the country.

Mainly Southern Yellow Pine, they're (1) gorgeous and (2) awesomely versatile. They have sensational structural integrity, which I love. And they have truly signature style: The round shape is pleasing and the grain just leaps out of the lumber. So if you're building a deck and want a look as natural as the surroundings, look at round posts. They're also awesome for fences.



Round posts, aka 'pilings' are ideal for creating a custom look. Strong and structural, I've used them for decks, docks, fences and retaining walls.

14 DECK BUILDING TIPS



I built up 'I'-posts with 2x lumber to create custom pergolas on a custom deck. Conversely, I used 1x4 for a privacy screen on a duplex home.



PERGOLAS

I don't mean full-sizers. I mean smaller pergolas integrated into the guardrails. They're awesome for everything from a subtle division between yards (think: zero lot line homes) to creating a sense of a space (think: Niche for a grill or seating area). In other landscapes, they work as what I call static busters, say, for example where you don't want a wall between you and your neighbor, just something to break up the line of sight.

One thing I really like to do is make them from built-up or 'laminated' posts. I create an 'I' of sorts, 2x6-2x4-2x6.

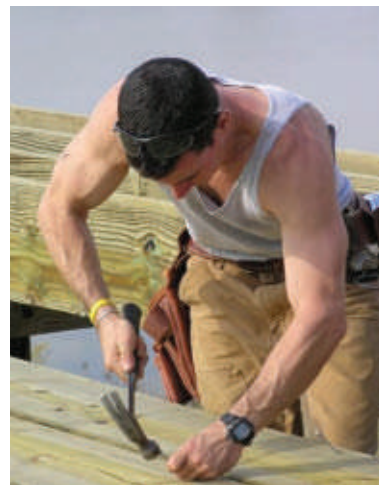
NAILS AND METAL HARDWARE

There's a mistake nearly everybody makes installing metal hardware, namely joist hangers.

That mistake is using the same nails for the angled holes as the face-nail. What you're supposed to do is use a 16-penny nail for the angled hole through the joist into the ledger. The longer nails criss-cross in the ledger and make an awesome connection with major pull-out resistance.

While I often use screws for deck connections, when I do use a nail it's often for connecting a joist to a beam. Since starting the nail when the beam is in place

can be a headache and a finger-smacker, I sometimes start them before I roll the joists into place. Gun nails work, but hand nails really drive the joist into place.



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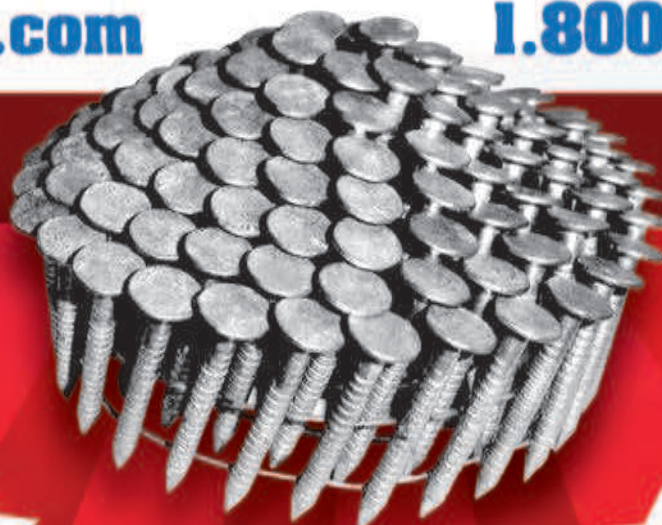


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14 DECK BUILDING TIPS

STRUCTURAL SCREWS

The world of what I call the 'structural screw' has come many-a furlong in recent years. Once the stuff of timber garden beds and cordless drills letting their smoke out, they're now the go-to for most pros. They're insanely awesome for ledger boards on decks and anchoring pergola girders to their posts. You can rip 'em in with an impact driver, and it's like welding the wood to itself.

One place structural screws have not found a home until recently is in the post-to-beam connection and in guard posts. You have to check the code reports because not all screws are rated for this, but the brand I use, Spax PowerLags are.



Using structural screws is like welding the wood together. They go in faster than thru-bolts and other hardware I've used.



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14 DECK BUILDING TIPS

You can use two through the face of a beam and into the shoulder cut of a 6x6, as shown in the photo detail. Because I'm a fan of the over-build, I'd use four, two in front, two in back.

WOOD

In case you didn't notice, I'm a big fan of building wood decks, from beauty to ease-of-use, to good-for-my-soul carpentry. And unlike denser materials they don't retain nearly as much heat in the summer, like a stone patio for example.

Other materials try to mimic wood, because wood is worth mimicking. And, while you have to take care of anything that lives outside (a concrete slab gets mold on it too), caring for wood is reasonably easy.

From the carpentry standpoint, it's versatile, I don't have to alter my framing for diagonal decking (other decking types typically require framing 12-inches on center for diagonal decking). Obviously, wood's structural integrity works for framing, and its natural beauty makes it the gold standard for trim and finished surfaces. I just like it.



POWER WASHING

The first thing to know is that a power washer is not a magic wand. The best way to clean a deck is to approach it more like the un-glorious kitchen sink dish than like an industrial, power tool-based operation.

Soak the lumber with a type of detergent that cleans what's on it. Some detergents are

This pivoting pressure washer wand enables me to keep the high-pressure water jet at a low angle to the work for effective rinsing

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formulated for mold and mildew, others for dirt. For projects where you want to brighten the wood or strip an existing finish, check the detergent.

I make the 'doing the dishes' connection not to be drab but to keep it simple and inexpensive. You wash your car with a sponge, right? I soak a deck, then scrub it with a deck brush, then rinse it.

Here's where the pressure washer comes in. You have been advised: A pressure washer is for rinsing. Detergent does the cleaning, just like a greasy dish in your sink. For rinsing, keep the pressure low and the nozzle at a low angle to the work. Hyde's pivoting pressure-washer wand gets that done for me effectively.

END CUTTING

It is a common DIY deck mistake to cut individual deck boards to length. What pros do is cut the first two or three to length—some carpenters leave 1/4-in. overhang—then run the remaining deck boards long. Once they're all installed, snap a line from the first board to the last and then cut all the boards at once with a circular saw.

NAIL TRICK

For pressure-treated lumber, I mainly use ground contact-rated Southern Yellow Pine. For decking I prefer 2x6. And when I install that decking, I butt the boards tight to each other and fasten.

For kiln-dried lumber like Western Red Cedar, I gap the boards so they can expand in



Kiln-dried lumber like Western Red Cedar should be gapped during installation to give room for expansion and contraction.

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14 DECK BUILDING TIPS

high moisture situations. All it takes is sticking a 16-penny nail in a few joists to create the standoff.

RINGS UP OR RINGS DOWN?

There's a deck-building debate that's more lore than science. In fact, when I built my first decks

(they were docks) I was taught to install deck boards with the annual ring cupping down. The idea was that the deck board—if it cupped at all—it would cup in the direction of the grain. Annual ring down, it sheds water. Up, it holds water.

Well, this is fiction. Install the best looking side facing up and move on. Use ring-shank nails or screws to fasten. The reason deck boards move is because they do so naturally and because they dry at different rates on the top (in the sun) and the bottom (in the shade).



The rule of thumb for installing deck boards: Put the best side up.

One thing I recommend is to finish deck boards on the bottom before installation to help them shed water easily.

DELIVERY

I prefer to get deck packages delivered and dropped at the project site. It's easier, faster, and I have to manage boards fewer times.

For the delivery, I always have a few 2-bys or (gulp) pallets for the load to land on. Better to break a pallet than a driveway.

For managing the boards to the back of the house, where they most often go, hand-carrying

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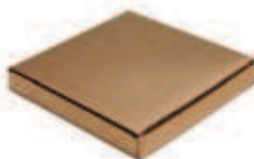


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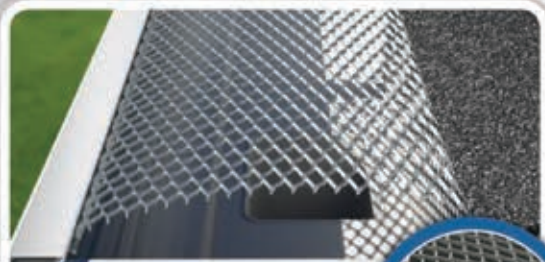
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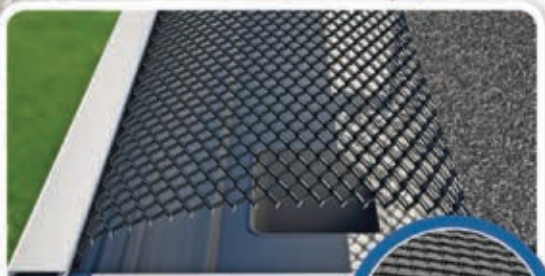
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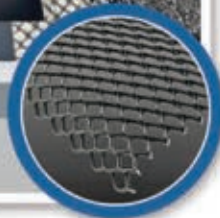
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14 DECK BUILDING TIPS

2-bys is usually how I do it. But for 6x6—if I can fit into the back yard—I much prefer using a wheelbarrow with the timbers across it perpendicularly.

KIDS

I love to get my children involved in my projects. Within reason. Lexi and I had a great time building this deck. She helped me with the



My daughter Lexi is now 15 and doesn't want to do this stuff with me. This was one of my best days as a dad. Also, you can get a closer look at the 'I-beam' post here from pergolas I built.

hardware I used on it and we got to—safely—goof around and do cool stuff together. I treasure it too, because she turned 15, and the recycling bin is cooler than me now.

STAIR

Laying out the guard post height on a stair, if you've never done it, can be a Herculean effort in understanding angles. But if you know the 'stacked 2x4 and framing square trick' you can do everything from scribing angles to back-mitering the rails to marking your post for a code-compliant height, all without knowing a single angle.

I'm abbreviating this a little, but...Run a 2x4 on edge along the stair nosings. Place another one on top of it. Run it past the posts a few inches top and bottom. Screw or clamp the second board to the post. Mark the back side of the



Stacked 2x4 and a framing square are your best friends for laying out a stair rail.

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2x4 along the posts. Also, mark its location on the post. This is your stair angle and your overall length.

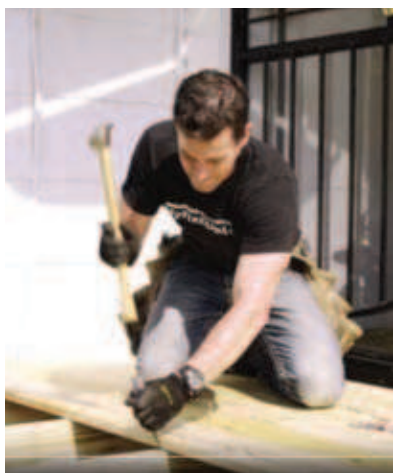
Next, position the framing square atop the 2x4 with its long edge over the post. At the top of the framing square blade, run your pencil. This is the top of the guard posts. Cut both posts in place.

To cut the rails, bevel your circ saw or miter saw 45-degrees and make this a back-mitered compound cut for a tight look. Install. Cut the posts in place. Install both rails, then install a 2x6 top cap.

CHISEL TRICK THAT'LL MAKE WOODWORKERS CRINGE

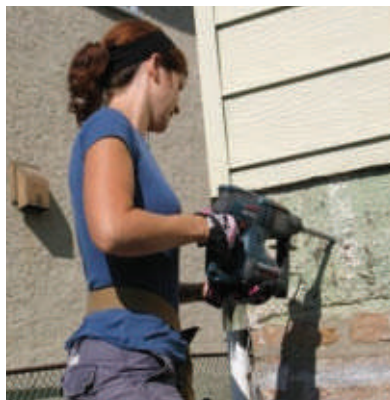
Need to persuade a deck board into position? Use your chisel.

First, start a nail or screw in the deck board. With the bevel of the chisel facing away from the deck board, drive the chisel into the



Use a chisel as a lever to persuade deck boards into place. It's simple and works well—along with being a great work out!

joist. Pulling the chisel toward you will lever the deck board into position. You have to pull hard. Once there, sink the fastener and check your biceps. You'll be pumped.



Simply put, a rotary hammer is an awesome concrete and masonry drilling tool that has other uses around a deck site as well.

TOOLS, GLORIOUS TOOLS!

Rotary Hammer. There are two main things I consider when I need to drill holes in masonry for a deck, which is usually for the ledger board along the house.

First, since I pulled a permit for the build, I know from my application that I'm not allowed to fasten a deck ledger to a brick veneer. A house made of brick—yes. A house covered with brick, no.

Second, if I can drill into the house—this was an old stone foundation—I know I need the power and efficiency of a rotary hammer (a hammer-drill's bigger, tougher brother). If you have to drill in masonry or concrete for 1/2-inch diameter bungs—yes, they're really called that; also called 'shields'—a rotary hammer is the tool for the job. A 1/2-in. hammer-drill might be able to do it. And even if it can, every inch of the way will be excruciatingly loud and you'll go through bits like gangbusters.

If you don't own a rotary hammer, you can rent one. It's worth it. And, it can serve double duty. I've used chipping irons and spades on my rotary hammer

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14 DECK BUILDING TIPS

to break rocks out of post holes, loosen impossibly compacted soil and chip off the edges of side-walks or patios that obstruct post placement. They're a great deck-building tool.

Sidewinder Saw or Worm-Drive?

For pros building decks, worm-drive circular saws are great for several deck-specific cuts like cutting joists in place. You can do it with a sidewinder, but a worm

drive is better. I also like it for cutting off the stack.

But wormies are heavy. While I like their length and out-front design, a sidewinder is easier to lift and move around. **EHT**

Mark Clement is a carpenter and co-host of the MyFixitUpLife show, www.MyFixitUpLife.com.



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Worm-drives are a great deck-building tool. Their in-line body is great for cutting joists and other deck-specific cuts.



Cutting off the stack (i.e., not using sawhorses) works with either a sidewinder or a wormie.



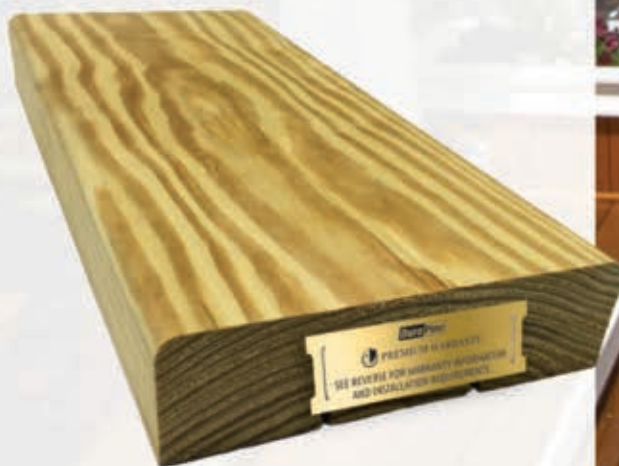
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HOW IT WORKS



SHORT OF A FULL DECK

By Larry Walton

I had been keeping this deck alive for several years with an occasional replacement board, some sanding, a little deck stain. I even trimmed the ends of a section of the cantilevered deck boards. But now the time had arrived to build a new deck.

I started pulling off deck boards hoping to find a solid structure underneath. Several observations had raised these hopes. During earlier repairs I had noted that the deck framing was pressure-treated 4x6, that old fasteners were holding well and that new fasteners were going into solid wood.

We were thinking about making changes to the deck size and shape, but the retaining timbers at the lawn-to-deck transition were well established and would not be easy to change. Additionally, the location of irrigation components (lines and sprinkler heads) would have to be moved with a change to the deck layout. Once I confirmed that the existing deck framing was in great shape, the decision to keep the deck at the same size and shape was easy.

I ordered the tight-knot cedar 2x6 from the local lumber yard, which delivered the boards right to my driveway. I went with cedar because of the beam spacing, the cost and because the fencing near the deck was also cedar.

Installing new deck boards over a solid, existing frame





SHORT OF A FULL DECK

Replacing deck boards on a solid frame is a relatively easy project, but you still need to plan ahead. Because the deck boards are cantilevered beyond the joists, noting where the original edges were is important if you want to get back to the same deck dimensions. In our case, we marked the original deck board ends by stretching a string line over the ends and driving stakes so we could get the string on the same line when the new deck boards were installed.

Here's how we replaced our deck boards over the existing beams.



Cedar is very resilient, but eventually it will deteriorate with exposure to the elements. Water damage was the worst at the ends of the boards, but almost non-existent under the eaves of the house where they are protected from water.



We started the demolition by removing the edge boards.



Dewalt's 40-volt battery powered chainsaw worked great for cutting the deck boards into pickup-box lengths. There are no cords to get tangled as with electric chain saws and no gas or startup concerns as with conventional saws.



We stretched and staked a layout string in line with the existing deck board ends so we could establish our cut line on the new deck.

Although the deck boards were mostly nailed down, some of it was screwed down where I had done some repairs over the years. It was worth the effort to remove screws before pulling the old deck boards.

The primary technique I used for removing the boards was jamming a crow bar between deck



boards and prying up. Any number of pry bars or demolition bars would work just as well.



I was anxious to check the condition of the beams that served as the sub-frame so I scraped off the top edges with a floor scraper both to test their condition and to prepare them for the new deck boards.

I used the chainsaw to cut several boards to length at once while they were still nailed in place. You have to be very careful doing this that you are not getting into nails or whatever is underneath the deck.

Cutting the deck boards to the length of my truck bed allowed

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SHORT OF A FULL DECK

me to load them and still get the tailgate closed.

I hauled the old deck boards to the local wood recycle center where they were ground into wood chips and reused.

The pressure-treated beams under the old deck were in great shape. I scraped off debris and removed nails remaining in the top surface. Note the one old deck board I left at the end away



from the house to help keep the beams in position.

Once I saw that the framing was good to go, I ordered enough cedar 2x6 from the local lumber yard to cover the deck and make the edge trim around it. The lumber yard delivered the 16-ft. boards right to my driveway at no extra cost.

I added a small triangle area to the deck where there had been a square notch. I started

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by digging down to solid ground to set a pyramid block.



After setting the rim joist over the pyramid block, I cut an angle on the intersecting joist by keeping the chainsaw bar parallel to the new rim joist.



Here is the framing for the added area. Note how we supported the

new joist with a concrete block and extended the existing beam with a 2x6 to intersect the joist on the pyramid block.



When we started laying out the new deck boards, we used 7d nails as spacers between the boards, which allowed for shrinking because they were quite "green" (aka wet). If the boards were dry, we would have used 16d nails as spacers.



I snapped a few lines parallel to the house across the beams so I could periodically check to see if the deck boards were still running in line with the house. Often it is easier to measure to these lines on the beams than to measure back across the new decking.

I place a reference board on the ground to make sure my cantilevers were out far enough to be trimmed back on the angled portion of the deck.

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SHORT OF A FULL DECK

I sighted down the boards and turned them so the crown was toward the house. This made it easy to start at one end of a deck board and work the crown out from the concave side of the

board while tacking it with a deck screw on every other beam.

With the deck boards cantilevered past the outside beams, I snapped a chalk line and trimmed off the ends.



I added deck boards as a trim boarder around the outside of the deck. I put at least one screw through the trim board into each deck board.

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SHORT OF A FULL DECK



After all of the deck boards were positioned and tacked down, I went back over the entire deck and screwed down the decking with two screws at each joist.

The finished deck looks just like the original when it was new. Thanks to well preserved, pressure-treated beams underneath, this new deck was



relatively inexpensive and fast to replace. In a few months the color will match the silver of the cedar fencing near the deck. **EHT**



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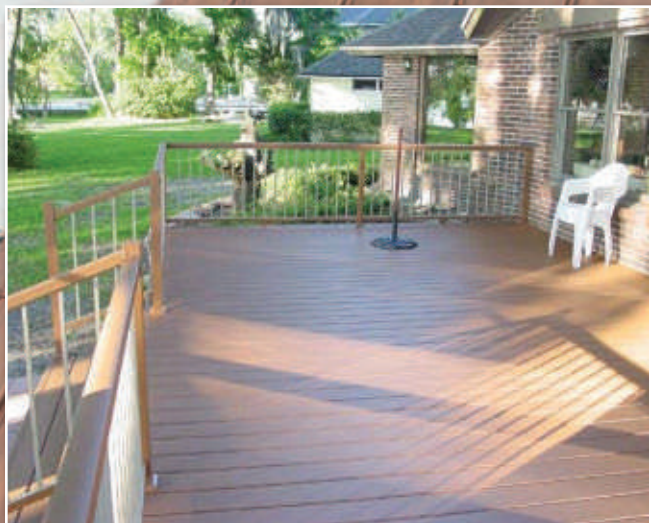
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TRIM SHORTCUTS FOR DIY'ERS

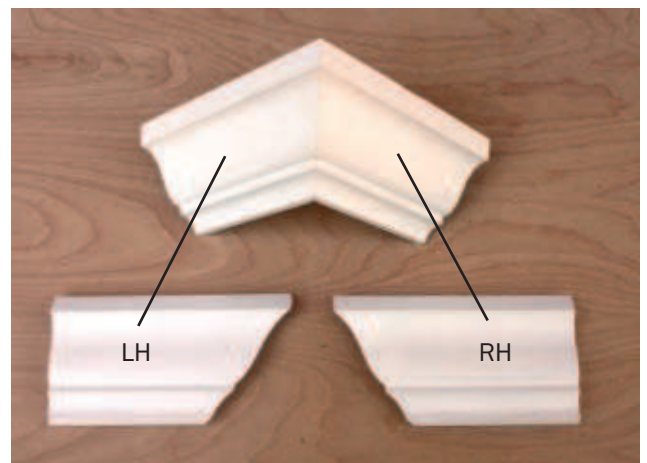
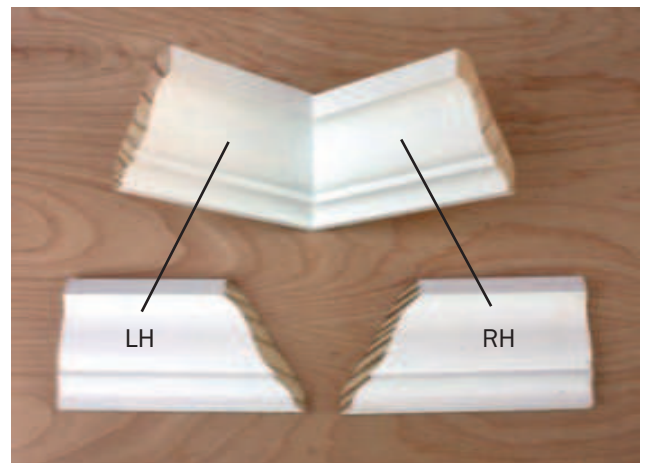
By Matt Weber





Molding and trim often provide the details that give a home its character and distinction. New installations and upgrades have become favorite projects for do-it-yourselfers who want to put a personal stamp on the interior décor. Here are a few handy tips to help simplify the job and ensure home-improvement success.

Make Crown Corner Templates. Crown molding can dramatically impact the décor of a room. Cutting crown molding can be a brain-bender, however, even for construction pros. The traditional method involves cutting the molding strips "upside-down and backward" on a miter saw, where the saw's base represents the house ceiling and the saw's fence represents the wall. Anyone can get confused when thinking backward while trying to keep the cuts straight. To help visualize the cuts you need, make corner templates of the crown molding. Make templates for right-hand and left-hand cuts for both inside and outside miters, and label them clearly. Then, before cutting a molding strip, check the blade orientation of the miter saw to make sure you're going to produce the right angle.



© Pablo Scapinachis Armstrong/123RF Stock Photo

Use Mitered Returns at Pinch Points. Sometimes the design of the house leaves no room to complete a straight run of molding. This is a common problem above arched windows and doors. The arch might be so close to the ceiling that it would physically interfere with the molding, or maybe just give it a cramped, unsightly appearance. To give the crown molding some visual "breathing room," the solution is to end the surrounding runs with 45-degree inside miters located at an aesthetically pleasing distance from the obstacle. Then, cut a 45-degree corner strip for each and clip it square just short enough to complete the 90-degree turn so it terminates into the wall. These mitered returns give the end of the molding strips a sleek, finished appearance.



Fasten Securely. Do it right so you don't do it twice. For outside corners on crown and base molding, help the miters stay closed by applying a bead of wood glue to the joint and securing the pieces together with finish nails. You can then smooth the seam by running the rounded edge of a nail set over it to press the fibers closed. For thick, heavy moldings or problem gaps, drill pilot holes at the top and bottom of the joint, and drive 4d finish nails perpendicular through one molding into the end of the other.



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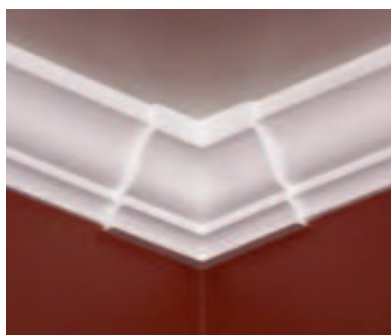
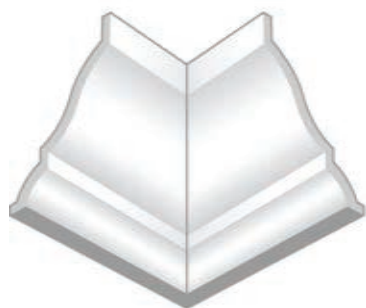


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TRIM SHORTCUTS FOR DIY'ERS

Use Corner Blocks. Miter cuts require very precise cuts and careful installation. And, even when they're successfully joined, they can open over time as humidity affects the building materials. Square, 90-degree cuts (whenever possible) are easier to measure, make and fasten, and they tend to conceal the gaps created from contraction a little better than angled miters. For this reason, consider using square



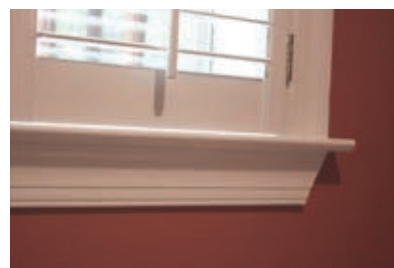
corner blocks to butt against square-cut lengths of casing around doors and windows.

Straight cuts can also make crown molding easier to install. Cutting accurate miters in crown is a difficult task, and cutting cope joints can be very time-consuming. Consider using pre-fab corner blocks for 90-deg. inside and outside corners as a work-saving solution. First, fasten the

pre-made molding blocks onto each corner, then cut the crown square and butt the ends against the blocks. Lowe's offers the EverTrue SlideFit system, in which the molding actually slides behind the corner blocks, so the ends of each strip are completely concealed.

Be Creative and Resourceful.

Make creative use of trim pieces in ways they may not be marketed in the store. Use inverted base molding to create "crown" for a



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bookcase. Use crown molding to create skirting beneath the shelf of a fireplace mantle. Use door casing repurposed as an apron for a window. Think "outside the box" when sourcing trim for your projects.

Choose Pre-cut Kits. You can build up trim around a door piece by piece, but it's easier to use a pre-assembled kit. Available at most home centers, the prefinished kits require no angled miter cuts for installation. Because they include all necessary pieces in the sizes you need, there's no need to pay for standard lengths and waste the scraps. A typical door kit contains two side casings, a top casing, two plinth blocks and two corner blocks.

For more complex projects such as frame-and-panel wainscoting, companies such as Wainscoting



America offers customized kits that ship to your home as large, single sections with the decorative pattern routed into the MDF panels. Rather than piecing together every rail and stile, the large panels can be installed directly to the

wall so the job progresses as much as 8 linear feet at a time.

Minimize Fastener Holes. The general purpose of trim carpentry is to serve as a decorative feature of the home, so it doesn't make sense for the decorative feature to look all buggered up with dents and holes. Reduce the presence of fastener holes (and the ensuing repair work of filling/sanding/painting the locations) by placing fasteners strategically and judiciously. When



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you need a lot of holding power for a certain application, consider supplementing the fasteners with construction adhesive, using only enough finish nails to hold the trim in place while the glue sets.



Similarly, when you need to use a screw, opt for a trim-head screw. Designed specifically for trimwork,

these screws have a tiny head to leave a tiny hole, which means you have less area to fill with wood putty. Plus, most material splitting is prevented because of a trim-head screw's exceptionally small head.

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"Cheat" with Paint. Use paint to achieve a more elaborate look to certain trim installations. For example, you can make crown molding look taller and more ornate by using a large profile against the ceiling, leaving an exposed strip of wall beneath it, and then installing a second smaller strip parallel to the first just a few inches beneath it. When the exposed wall strip is painted the same color as the molding (white, for instance), it looks like part of the molding application and gives the appearance of a taller profile.

Choose Flexible Caulk. For trim applications that don't require waterproofing, many DIY'ers seal joints and seams with cheap acrylic caulk because it's easy to apply and not as messy to clean as silicone. However, standard acrylic caulk is not very flexible and might eventually crack and open the joint. A hybrid/caulk sealant that contains attributes of both silicone and acrylic will have more elasticity to resist cracking over time.



Use Trim to Conceal. Install molding to conceal unsightly joints or paint lines around the home. An ornate installation isn't necessarily required for simple transitions, but decorative cove or corner molding can provide an easy way to add a finishing touch.



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Add Lighting. Combine new molding with accent lighting. Inexpensive LED rope lighting makes it easy to conceal the light source on top of crown molding by installing the molding strips slightly lower than the ceiling. The rope light lays into the "trough" created by the top of the profile. Allow enough room beneath the ceiling for the glow to provide the ambient pattern you desire, then install the molding securely into the wall studs throughout the room. Be sure to leave access for the lighting to connect to a power source. In some cases the power supply line can be routed behind the wallboard.

Don't Forget the Wall Details. Consider adding depth and character to walls by installing a chair rail, or even create repeating patterns of astragal molding to achieve a faux frame-and-panel wainscot effect. A picture rail can provide a display platform for family photos, knick-knacks or artwork.

Paint Tips. All molding and trim must be primed prior to painting. The top coat of finish color typically had a medium- to high-gloss sheen. When applying paint, it is usually best to use two thinner coats than to try and apply one thick coat. Thick coats of paint are much more likely to have runs or fill up the ornamental detail. **EHT**



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Stop It!

Installing New Brake Rotors and Pads



By Larry Walton

Brakes: Few would dispute their importance on any vehicle, but the Jeep Grand Cherokee SRT shown in this article can really give a braking system a workout. The Grand Cherokee has the capability to do some serious off-roading, which requires solid, precise braking. But more often these machines are pressed into service on the street with daily commute and passenger-hauling duties. The improved engine performance of the SRT (Street and Racing Technology) version puts even more demand on the braking system.

Disc brakes operate much like hand brakes on a bicycle wheel. As the brakes are applied, pads are pushed into both sides of the rotor, which is located between the wheel and the hub or spindle. Because braking is achieved through pad-on-rotor friction, there is no avoiding parts wear. Brake inspections at oil-change intervals are a good idea. Also, inspect brakes with the following conditions:

Brake Noise. Sounds associated with depressing the brake pedal often indicate the need for attention to the braking system.

Squeaks, scrapes, rubs, squeals, grinds ... There are a number of reasons the brakes can make noise including worn pads, glazed rotor, loose caliper, worn rotor or a rock in the calipers.

Feel. Brake problems often manifest in how the vehicle feels when braking. Surging, shuddering or pulls to one side are indicators that you may have a brake problem.

Response. Diminished braking calls for a check of the system and components. This includes depressing the pedal noticeably further to get results along with



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- Motor speed: 5500 RPM
- Blade rim speed: 9070 ft per second
- Max cutting depth at 90D: without rail 2 5/8", with rail 1 31/32"
- Max cutting depth at 45D: without rail 1 5/8", with rail 1 1/16"
- Saw blade: 160mm x 20mm x 48 tooth
- Distance between saw blade and wall: 5/8"
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- Dust port for shop vacuum



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* Accessory pack includes guide rail clamps (2), rail connector, limit stop, and anti-tilt bar.		
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longer braking distances to slow or stop the vehicle.

Brake Dust. Because brake pads and rotors are always wearing, a buildup of brake dust on your wheels is normal. In fact, front wheels usually have more dust than rear because the fronts do more of the work. However, if you notice an unusually high amount of brake dust on your wheels and calipers, you know parts are wearing and a brake inspection is warranted.

When inspecting brake components for wear, look for thin pads, glazed rotors, cracked rotors, loose fasteners and leaking brake fluid from lines, pistons or cylinders.

Here's how we changed the pads and rotors on a Jeep Grand Cherokee SRT.

STEP BY STEP



Removing the wheels allowed access to the rotors and calipers. Notice the buildup of brake dust on the wheels, which is a sure sign of brake wear.



This O-ring keeps dust out of the bearing pack. Our mechanic Derek hooked it to remove it before removing the rotor.



He removed these bolts from the inside to detach the caliper from the vehicle.



He then removed the caliper, which wraps around the rotor.

A bungee cord can be used to hang the caliper to reduce stress on the brake line.

After a few taps with a mallet on the back side, the rotor came right off.

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This close-up of the rotor shows how the pads have worn away a significant amount of the rotor surface.



Derek used this spreader to compress the caliper pistons. You can also use a C-clamp and a block of wood, but be careful to protect the caliper where the clamp contacts it on the outside.

Removal of the pins also released the anti-squeal springs.

With pins and the anti-squeal springs removed, the brake pads can be easily removed from the caliper. The brake pads were very worn but not completely through the friction surface.

Derek thoroughly cleaned the caliper with hot, soapy water.



He applied brake-parts lubricant to the surface on the caliper where the brake pads slide in and out. Be careful not get this lubricant on the friction surfaces of the pads or rotors.



He installed the new pads into the calipers. Notice how thick the friction material is on the new pads.



Derek pushed the pins through the caliper, through the inside pad, through the openings on the anti-squeal spring, through the outside pad and into the smaller holes on the outside part of the caliper, driving them in flush to the inside surface with a hammer.



With the caliper now loaded with new brake pads, he once again removed it from the mounting points and bungeed it out of the way.



A rag thoroughly saturated with brake cleaner can be used to wipe down the friction surfaces of the new rotor and remove residual oils remaining from the manufacturer.



Derek installed the new rotor onto the hub and replaced the o-ring seal.



He positioned the caliper over the rotor.

The caliper is attached to the backing plates by reusing



the original bolts and torquing to spec.

After reinstalling the wheel, the lug nuts are torqued to spec.

Last step is to check brake-fluid level. With new pads, the pistons are not extended as far so the brake fluid levels can change. **EHT**



GIVE YOUR BRAKES A BREAK

How you drive makes a big difference to the longevity of the wear components of your braking system. Aggressive driving, tailgating, late braking, and failure to understand and apply engine braking all contribute to premature brake wear.

Look ahead and plan ahead. If you know you have to stop at an intersection, get out of the throttle sooner and let gravity and friction slow the inertia of the vehicle. Leave adequate following distance to the vehicle in front of you, so you

can slow as needed without jamming on the brakes. Learn to use gear changes and the compression of the engine to slow the vehicle without an over-reliance on the brakes. This is especially important on long descents, where over use of the brakes can cause real damage to the point that can put you in immediate danger.

Take care of your brakes, and they will take care of you.

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YARDMAX YU3066 FULL-BEAM GAS LOG SPLITTER

Looking for a great log splitter? The *EHT* staff tested the YU3066 YardMax full-beam gas log splitter when removing a fallen hickory tree. With 30-ton splitting force, the YardMax unit ripped through logs with brute strength, turning the hardwood tree trunk into fireplace-friendly fuel. With a pivoting hinge, it easily switches from horizontal to vertical position. The four-way wedge splits in four directions, and the spinner foot plate automatically adjusts for natural log rotation.

We used the splitter in its horizontal position, rolling the logs onto the cradle and then throwing the lever to put the machine to work. Operation couldn't be simpler with a single lever that operates both forward and reverse directions on the splitting head.

The unit has a sturdy patent-pending U-beam design and hydraulic reservoirs that house oil filters, features which protect both the equipment and operator from harm caused by split logs falling from the machine. It's powered by a Briggs & Stratton engine and has an oversized 17-gpm pump for high cycle speed. The table accommodates logs up to 26 inches long, and when we encountered a log a little too thick to split evenly, we simply flipped it over and split the other side to create easily manageable



firewood sizes. We recommend this easy-to-tow, high-powered splitter for anyone who needs to turn a lot of large logs into small ones. It comes with the YardMax 3-2-1 Residential Warranty, which backs materials and workmanship for three years, motors for two years, and hydraulic parts for one year. Visit Yardmax.com.



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HOT PRODUCTS

WISEWRAP FLASHING TAPE

Preventing and stopping wood rot is one of the most important aspects to consider when building a long-lasting deck. DeckWise now offers two new solutions with the WiseWrap line of polyethylene waterproof flashing tape rolls. Both products are a self-sealing, rubberized peel-and-stick adhesive that prevents wood moisture damage and also self-seals around fasteners.



WiseWrap JoistTape creates a waterproof seal when applied to the top of deck joists, which stops wood rot. Use on pressure-treated joists or on metal joist framing to create a physical barrier that prevents the corrosion.



WiseWrap LedgerTape, available in a 25-ft. roll, is a flexible polyethylene waterproof ledger-board flashing made of the same self-sealing rubberized adhesive material—only wider (12 inches). Apply LedgerTape to protect against water damage on ledger boards from siding runoff and the elements. Wrap in-ground wooden deck posts to provide a barrier against fungi and soil moisture. Visit www.DeckWise.com.

HITACHI PROFESSIONAL FINISH COMBO KIT KNT50AB

Hitachi Power Tools' newest addition to the Finish Combo Kit market, the KNT50AB, features a new 6-gallon 150 Max PSI pancake air compressor (model EC710S) and Hitachi's popular 18-Gauge 2-in. brad nailer (model NT50AE2) along with a 25-ft. hybrid hose, safety glasses and pneumatic oil. The EC710S compressor (sold exclusively as part of this kit) delivers portability with simplified operation. The pancake design is smaller and more compact to easily transport from job to job or around a home. The 1-hp oil-free high efficiency motor ensures reliable startups, even in the coldest temperatures. The brad nailer accepts 5/8- to 2-in. 18-Gauge



fasteners to tackle almost any finish project. A simple depth-of-drive dial can be easily adjusted to adapt to woods of varying density, and the selective actuation switch lets the user select between sequential mode or bump-fire mode. The 25-ft. hose is spiral-reinforced and includes heavy-duty bend restrictors for added durability. Its hybrid nature results in less weight (about 25 percent lighter than a rubber hose), and it remains flexible in extreme cold temperatures up to -40°, which is an advantage over traditional polyurethane or rubber hoses. Visit www.hitachipowertools.com.

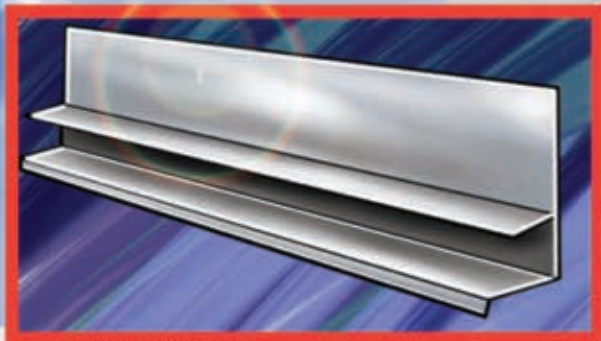
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HOT PRODUCTS

BRINNO TLC200 PRO HDR TIME LAPSE VIDEO CAMERA

The new Brinno TLC200 Pro makes it easy to capture HDR time-lapse videos with the push of a button. You can set your own image-capture intervals (0.3 sec. to 24 hr.) with no processing required. There's no stitching thousands of frames together in post-processing. The Brinno TLC200 PRO will record for months on its four AA batteries, while saving your time-lapse video at 1280x720 to the SD Card. The camera comes with a 19mm lens (35mm equivalent) and accepts interchangeable CS mount lenses. The lens rotates 120 degrees, and the rear features a 1.44-in. TFT LCD monitor. The *EHT* staff tested the TLC200 Pro on a recent deck remodel, and we were impressed with its simple operation and impressive image quality. Visit www.brinno.com.



TERMINIX ALLCLEAR BAIT & KILL

With Zika in the news, there's no better time to keep mosquitos away. Ready-to-use Terminix AllClear Bait & Kill is the first-ever spray that mimics a mosquito's natural food source—sugar from plants—to bait, kill and collapse populations by more than 90 percent in just 2 to 3 weeks. Perfected over 10 years, mosquitoes can't resist the sweet bait. After feeding, they stop biting you and die within 24-48 hours. And, while deadly to mosquitoes, this non-toxic formula is safe for people, pets and the environment. Simply spray on green foliage and/or non-porous surfaces. Two 15 oz. cans protect areas up to 5,000 sq. ft. Reapply every four weeks for lasting control. Visit Terminix.com.



SHOPBOT DESKTOP MAX

ShopBot Tools, one of the largest makers of digital fabrication tools in the U.S., introduces the ShopBot Desktop MAX. The tool joins ShopBot's array of CNC tools used for cutting, carving, machining and milling. With a tool bed measuring 36 by 24 inches, the Desktop MAX is great for working in a variety of materials: wood, MDF, plastics, foams, vinyl and aluminum. Its power and precision will make it a favorite of luthiers, sign makers, furniture makers, and anyone interested in prototyping or full production. It features a removable tool bed, which enables end-machining processes such as creating complex furniture joinery. The tool has two options for beds, an aluminum deck or a plenum with universal hold-down system, which eliminates the need for screws, adhesives or clamps for holding large sheet goods in place. The Desktop MAX features a dual-motor gantry design, providing impressive stability and precision. All ShopBot tools are designed, built in, and supported from ShopBot's Durham, NC headquarters. The full specs of the Desktop MAX can be found at ShopBotTools.com.

The weakest link in a modern roof:

The vent stack gasket

The Problem:

The plumbing vent pipes that penetrate your roof are typically sealed with an old-fashioned rubber gasket to keep water from entering the home. These rubber gaskets deteriorate when exposed to the sun and high temperatures. Over time they get brittle and crack, losing their ability to protect the home from water intrusion.

While modern roof shingles often offer a lifetime warranty, these rubber gaskets usually deteriorate in as little as 3 to 5 years. As a result, water begins to flow into the home causing damage to ceilings, interior walls and carpet.

Problem Solved:

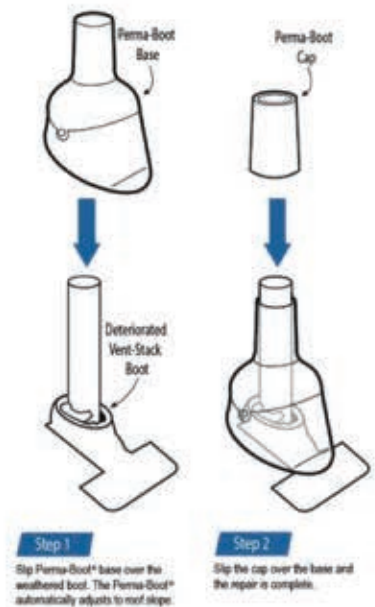
The Perma-Boot is a gasket-less, high performance pipe boot system designed to permanently repair or prevent the most common type of roof leak, the leak around the vent pipes that penetrate the roof.

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Contact Perma-Boot to learn how to add years of leak-free life to your new or existing vent pipe flashings.

**Also ask us about Perma-Boot for new construction!*



Signs of a Blown Head Gasket

One of the best ways to figure out what is going on with your car is to know how it normally operates so you can tell when something has gone awry. Most of the time while we're driving we're so distracted by the radio, the scenery or even worse our cell phones, that we can often overlook our vehicle's cry for help. Getting used to the way your car sounds, feels and looks normally can be the best way to help you detect the early symptoms of a problem so you can repair it before it leaves you stranded or does even more damage to your vehicle.

Every week or so, it would be a good idea to turn off your radio and really focus on the feedback your car is giving you. You should start this exercise from the moment you jump in your vehicle, even before you start the engine. Look for anything unusual around or under your car. Are there any puddles or drips under your vehicle? Are there any new scratches, dings or dents you don't remember? Is anything discolored, are your tires pudgy or getting cracked or have low tread depth? Observing all these things can help you catch problems early.

Also, pay attention to when you start your engine. Does it start easily? Does it make any funny noises or smells? Do any warning lights on your dash board stay on after the engine is running? Lastly, during your drive listen for the same types of things. Are there any clunks, rattles, whines, or grinding sounds? If so when do they happen? Does your car accelerate, brake and corner smoothly? Keeping an eye on these types of things can help you make sure your car is in great shape and help you catch a warning sign early.

Some of the signs you may be looking for, especially if your car model is prone to blown head gaskets, or you happen to have a lot of miles on your car, are the signs of a blown head gasket. Blown Head Gaskets can cause your vehicle to do some very strange things and give confusing symptoms, so we'll list the symptoms here so you can identify your problem early.

Signs of a Blown Head Gasket:

- White smoke from the tail pipe
- Bubbles or exhaust gas in your radiator
- Coolant flowing out of your coolant reservoir
- White milky substance in your engine oil or around your oil cap
- Loss of power
- Overheating engine
- Coolant leak from between your engine block and cylinder head

Your head gasket serves as a seal between your engine block and cylinder head. It keeps the combustion gases in the combustion chamber while keeping the coolant in the water jacket. A blown head gasket will allow coolant to leak into the combustion chamber, or externally, or could allow combustion gases into the cooling passages.

If coolant leaks into the combustion chamber it will come out of your tail pipe as white smoke. It can also seep past your piston rings while your engine is off and contaminate your oil causing a milky white color. When your engine is running, the high pressures in your combustion chamber can push exhaust gases into the cooling passages causing coolant to bubble in the radiator and pressures to get so high that coolant will actually be forced out of the coolant reservoir.

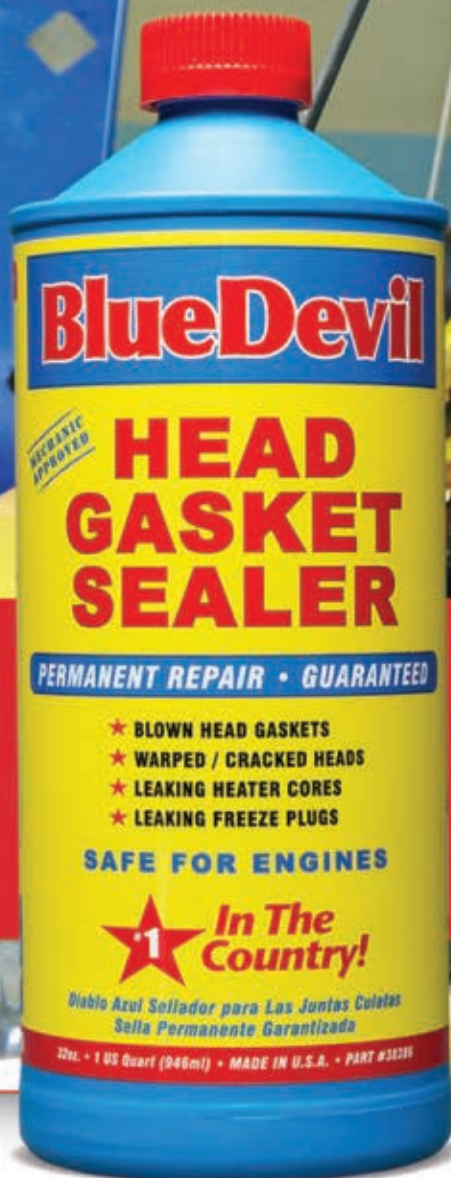
If you are experiencing any of these symptoms within a few minutes of starting your vehicle's engine, there is a good chance you have a blown head gasket.

The good news is if you're paying attention to these symptoms and catch them early, you often can seal your head gasket leak without having to replace the head gasket. BlueDevil Head Gasket Sealer is a powerful formula that can seal head gasket leaks even in vehicles with very large cooling capacities like V8 engines and truck engines. BlueDevil Head Gasket Sealer is easy to use and can quickly and easily seal your head gasket leak.

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