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Q: I have a toilet that flushes slowly. I've tried plungers, chemicals and a plumbing snake, and nothing worked. My neighbor suggested using something called a "blow bag" that attaches to a garden hose. Is this a good idea?

A: A blow bag (also called flush bag) is a heavy-duty rubber bladder that attaches to a hose to clear clogs using water pressure. They can sometimes work where drain snakes can't, like on grease clogs. The deflated bladder fits into a drain pipe. When the water is turned on, it inflates with water and expands inside the pipe. The bladder then releases jets of pressurized water to blast away clogs. However, blow bags come in sizes to match plastic pipes and aren't designed to be inserted into a toilet, so it probably won't get enough friction to hold in place. It's better to insert the blow bag directly into the drain pipe by removing the toilet from the flange underneath.

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Q: I'd like to extend an existing concrete patio. What is the minimum thickness for concrete?

A: Concrete is typically applied at a thickness of 2 inches or more, but the thicker it is, the stronger the slab will be. Four inches is most common for a slab. The thinner applications would include drives, walkways, slabs and footers, just to name a few. With this type of application, both a fine and coarse aggregate are required. Products labeled "High Strength Concrete Mix" are ideal for these types of applications.

Q: Our local home store has stick-down vinyl tiles that have a beveled edge. When you butt the tiles together they create a V-joint between them. Are these vinyl tiles meant to be grouted?

A: Some types of resilient floor tiles are more or less a thicker version of peel-and-stick tiles and do create a grout line of about 1/8 inch when installed. Grouting these tiles can prove to be challenging due to the shallow joint available for the grout, but doing so does help to protect the subfloor from water intrusion and give the floor a finished look. When applying it, remove as much excess grout as possible. The drying time for these tiles would be approximately 24 hours after applying the grout. Avoid walking on the floor until the grout is set. Twenty-four hours after the initial application, or when the grout has hardened, wipe down the floor using a bucket of clean water and a sponge to remove any residual grout haze. A mild abrasive scrubbing pad will usually suffice for this. Removing grout haze may require some type of floor-cleaning solution. However, some grout haze removers may damage the vinyl surface, so refer to the tile manufacturer's recommendations before cleaning. **EHT**

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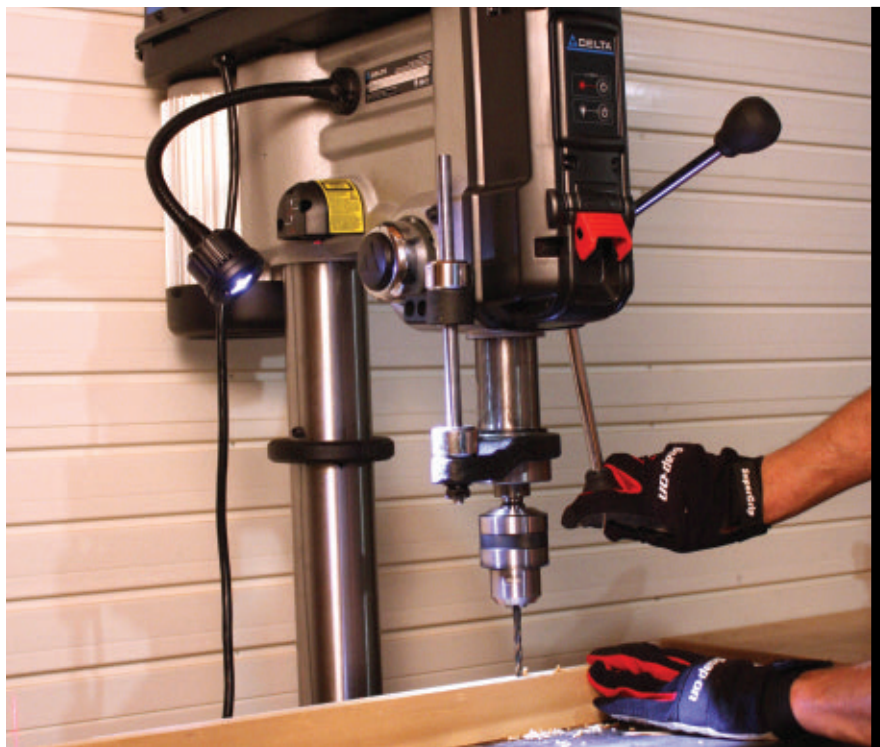
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This is Not a Drill

It's a drill press. Check out some modern features and DIY jigs.



By Matt Weber

The primary advantage of a drill press is its accuracy and speed of repetition. You can adjust the depth stop to quickly bore holes of identical depth and diameter without readjusting the tool.

user can select different drilling speeds by moving a belt-tension lever that places the belt over different combinations of pulleys.

SIZE MATTERS

The size of a drill press is measured in terms of “swing,” which is defined as twice the throat distance (the distance from the center of the spindle to the closest edge of the column or post). For example, a 16-inch drill press will have an 8-inch throat distance. This means a 16-inch drill press would be capable of drilling a hole in the center of a 16-inch disk.

Drill presses generally range in size from 10 to 18 inches and are manufactured by Skil, Ryobi, Ridgid, Craftsman, Jet, Grizzly, Powermatic, Delta and others.

MODERN FEATURES

Different drill presses offer different features, and the Delta 18-inch Model 18-900L shown in this article demonstrates a variety of modern bells and whistles (www.deltamachinery.com). With this particular model, users can select from 16 spindle speeds that specifically suit different materials (softwood, hardwood, acrylic, brass, aluminum, steel) as well

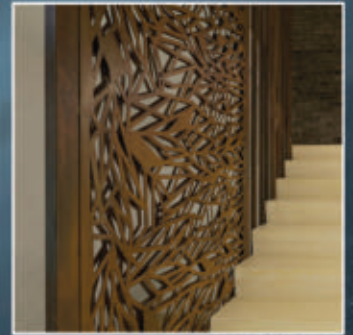
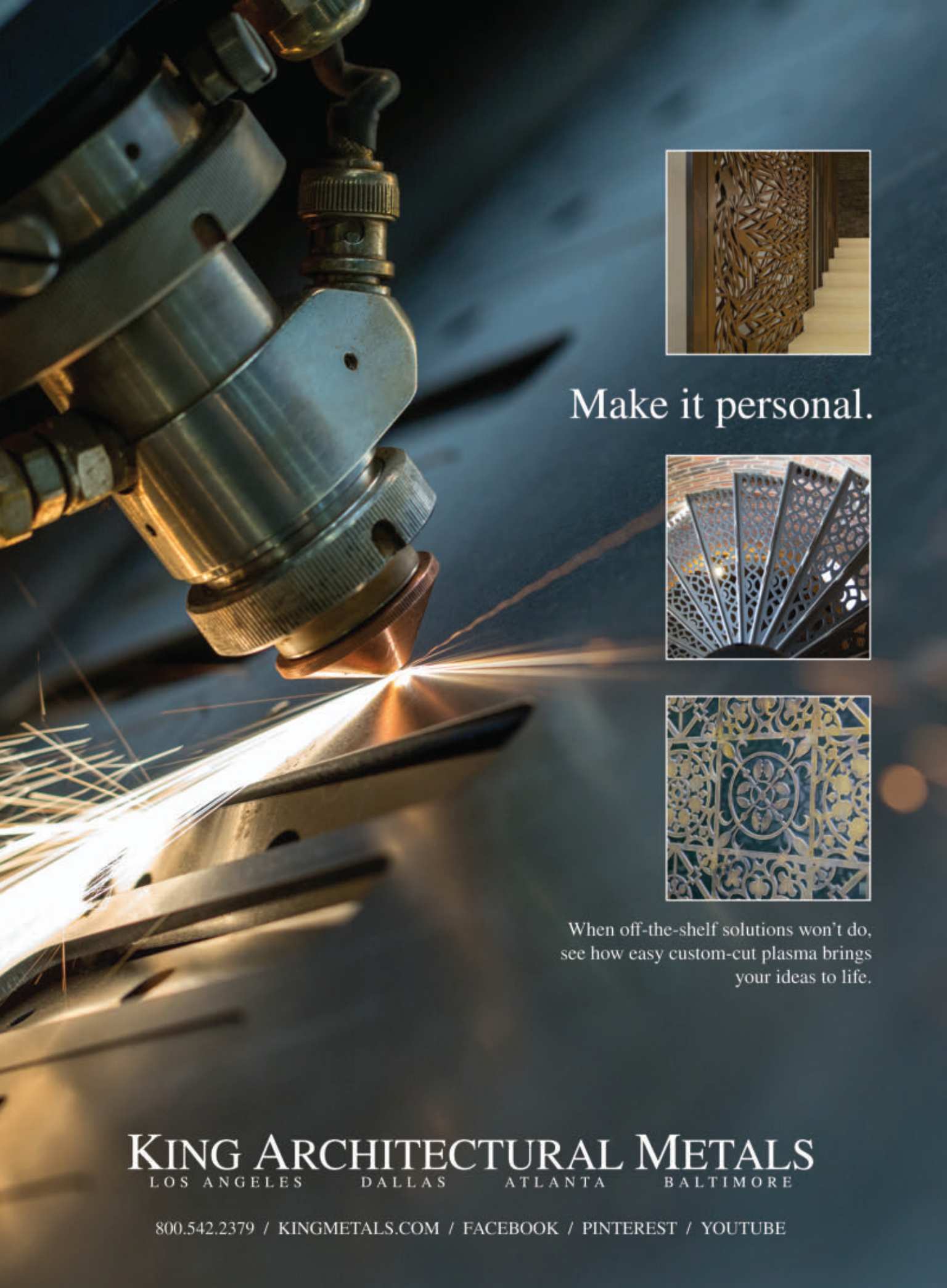
Precision. Control. Productivity. Those are the traits that a drill press offers over a standard handheld drill. The primary advantage of a drill press is its accuracy and speed of repetition. You can adjust the depth stop of the spindle by positioning a locking nut against the stop, enabling the drill press to bore a perfectly vertical hole the exact same diameter and exact same depth over and over. With the right bit, a drill press can bore almost any dense, solid material from wood to masonry to metal—even glass.

A drill press is built around a vertical post attached to a heavy steel base-plate for stability. The drill head or “quill,” which contains the chuck, spindle and bit, i

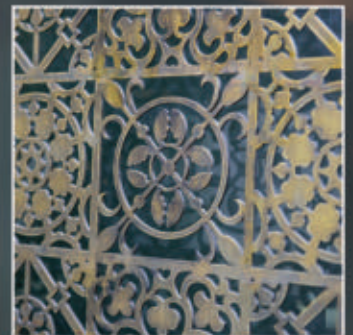
s simply plunged down into the work piece when the pinion levers are turned on the side of the machine.

A work-support table is mounted to the post, and the table can be raised, lowered and pivoted to bore holes at a wide range of angles in workpieces of many different sizes. Both standalone and bench-top versions are available, with the bench-top versions saving space, while the standalones offer greater capacity for larger workpieces, more power for tougher materials, and usually a wider range of operating speeds.

The motor of the drill press is connected to the spindle, chuck and bit via a drive-belt and pulleys that power the drilling action. The



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as different bits (twist bits, brad-points, Forstners, hole saws and spade bits). The unit's instruction manual also contains a handy chart for matching drill speeds to the appropriate combination of bit and material. The Delta 18-900L also offers an auto-tensioning drive-belt system that allows fast and easy speed changes with consistent belt tension and motor alignment.

Another popular feature of today's drill presses is the crosshair type of laser alignment that gives the user pinpoint accuracy for the drill bit. Twin laser beams are fully adjustable to project a bright red crosshair target on the workpiece at the point of contact.

Additionally, the Delta 18-900L's flexible LED light illuminates the work surface for better visibility. This is a welcome amenity when working in dimly lit workshops or garages.

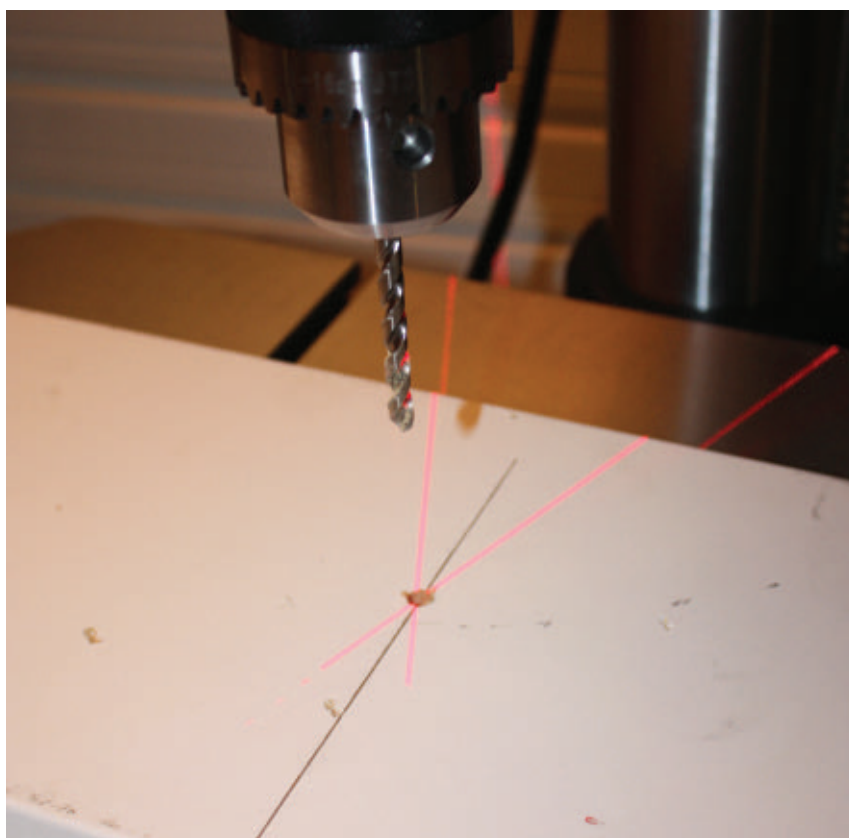
SPECIALTY BITS

Beyond the standard action of drilling holes, drill presses also lend themselves to certain specialty operations such as cutting a mortise, which is a square or rectangular hole that receives a tenon, forming a strong woodworking joint. You can buy a special attachment for your drill press that allows you to drill the square holes. These specialty bits are basically a four-sided square chisel with a hole in the middle where a drill bit is inserted. As the bit penetrates the wood, the chisel forces the corners of wood around the drill bit into the spinning bit, which removes the material and pulls it out of the hole. The result is a square hole. The advantage of mortising with a drill press is that the user can often cut a mortise in a thicker board than can be cut with a typical dedicated mortising machine.

Another popular drill press application is drum sanding. When the chuck is equipped with a sanding drum and a matching sleeve, the



A work-support table is mounted to the post, and the table can be raised, lowered and pivoted to drill holes at a wide range of angles in workpieces of many different sizes.



A popular feature of some modern drill presses is the twin laser alignment that projects a bright red crosshair on the workpiece at the point of bit contact.



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drill press can be used to sand the edges of boards and panels for assembling furniture and cabinetry. The 25-piece sanding drum kit from Delta comes with five drums of various sizes with matching sanding sleeves with 80- and 120-grit abrasive.

SHOP-MADE JIGS

To optimize your drill press for the easiest and most efficient operation, it often helps to build some simple jigs to facilitate the job. Here are some basic instructions to whip up some of these handy devices that help streamline the work:

Simple Straight-edge Fence.

A straight-edge fence is a basic guide that mounts to the work-support table of a drill press. The workpiece can be moved against the fence in a straight line, enabling the user to drill repetitive, identical holes in the stock.



When equipped with a special accessory, drill presses can cut a mortise, which is a square or rectangular hole that receives a tenon, forming a strong woodworking joint. Photo courtesy Delta Machinery.



Drum-sanding attachments enable a drill press to sand the edges of boards and panels for assembling furniture and cabinetry.



To assemble a straight-edge fence, fasten two rectangular blocks at the edges of a very straight board to tightly bracket the drill press table and guide the workpiece for repetitive drilling.

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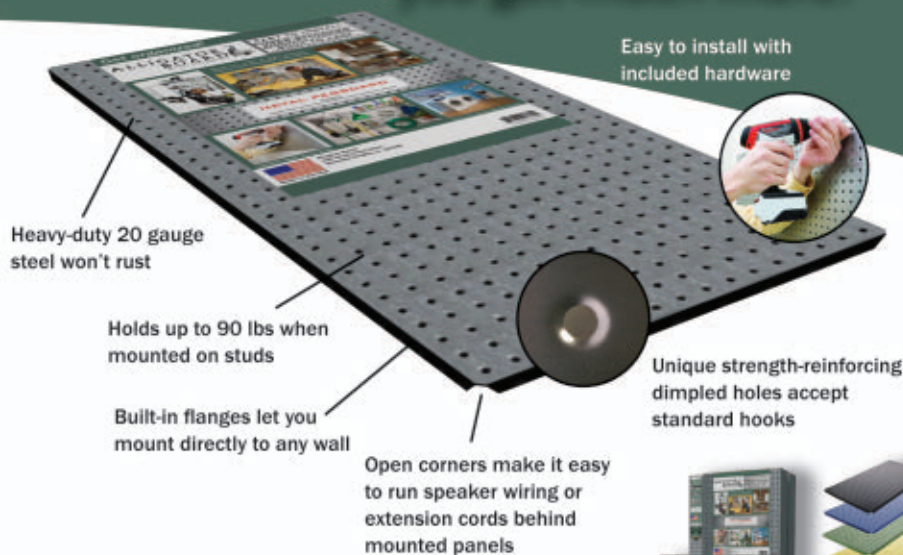
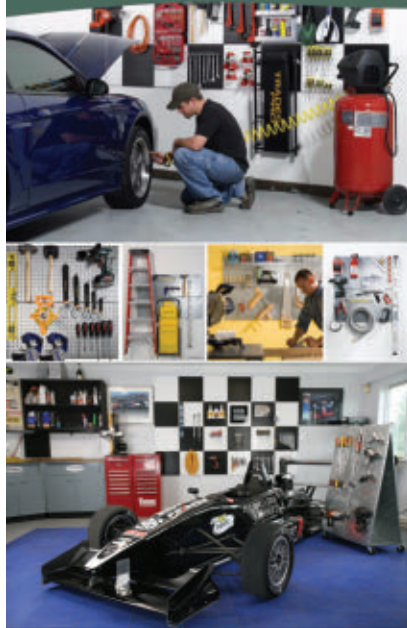


To make the fence, first select or rip-cut a very straight board that will guide the workpiece in a straight line. Measure the width your drill press' work-support table. Cross-cut the board to that length plus 4 inches. Then, cut two 2-in. rectangular blocks to the same width as your fence board. Screw or glue these two blocks to the edges of the fence board so their outer edges are flush

Mark the hole locations and push the workpiece along the straight-edge fence to drill a series of identical holes. In this photo I'm drilling 1/4" dowel holes in a shelf standard for an entertainment center.

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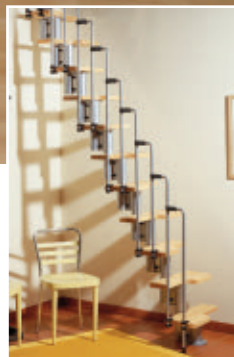


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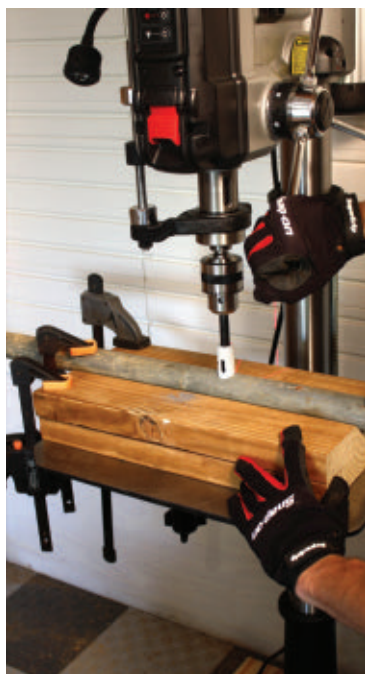
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with the edges of the board. The blocks should overhang the edges of the work-support table, bracketing the fence tightly against the surface but allowing the fence to slide from front to back to accommodate different sizes of workpieces. To use, simply mark the line of the holes to be drilled on the workpiece, position the fence on the table with the workpiece flush against it so the drill bit is in line with the marked point of contact. Drill the first hole, then slide the workpiece along the fence as you progress with the succeeding holes.

The fence shown in the photos was made from a 1x6 PVC board. This jig design works well for drilling material that sits flat on the work table, but for drilling the edges or ends of a workpiece when only a narrow edge of the stock sits on the table and the bulk of the material is upright, you can increase the height of the fence for better support. Simply stack one or more very straight boards onto the jig, fastening



To make the pipe jig, I fastened together two 2x8s and cut a 90-degree V-notch down the center with a table saw.

them flush with the guiding edge to give the workpiece greater vertical support.

Pipe Jig. When drilling a cylindrical shape, such as a pipe, the job is easier when the workpiece is clamped on the table. The pipe jig uses a V-shaped notch to hold cylindrical objects steady to prevent rolling. The larger the V-notch, the larger the pipe it can support. First, stack two 2x8's of the same size and screw them together face to face. The thickness of the stacked boards provides enough wood to cut the V.

Set a table saw (or handheld circ saw with rip fence) so the blade is at a 45-degree angle. Use a square to align the top edge of the tilted blade with the center point of the jig. Then, align the rip fence to hold the jig

in position, and run the stacked blocks lengthwise over the blade. Turn the blocks around and send the opposite end over the blade to complete the second side of the 90-degree V-notch. Your jig is now complete; just flip it over and clamp it to the work table to hold pipe when drilling.

Auxiliary Drum Sanding Table.

A sanding drum in the chuck of a drill press cannot pass through the work table. This being the case, if you run a workpiece along the drum, the lower edge of the workpiece doesn't get sanded. A drum sanding table enables you to sand the entire edge of the workpiece.

To assemble the sanding table, first measure the drill press table and cut a piece of plywood to the exact dimensions. Place the

Simply clamp the pipe jig to the table and use the V-notch to prevent cylindrical objects from rolling when drilling.

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To build the auxiliary drum-sanding table, first cut a piece of plywood to the exact dimensions of the drill press table. Then, align the plywood's edges with the work table, clamp in place and bore a hole slightly larger than your sanding drum through the plywood.

Drill corresponding 1/2" holes on the corner of the plywood table and through the plywood fence. Insert a 1/2" dowel into both the plywood table and the fence to serve as a hinge pin to pivot the fence.



plywood on the table, aligning the edges and clamping in place. Use a hole-saw or Forstner bit in the drill press to bore a hole through the plywood table. I chose a hole saw with a slightly larger diameter than the largest of my sanding drums. In one of the front corners of the plywood table (about 2 inches from the edges) drill a 1/2-in. hole for a 1/2-in. dowel to fit. This is the pivot point for a moveable fence. To make the fence, cut a 2-in. strip of plywood to the same width as the plywood table. Align the fence flush with the edges of the table, and on one end drill a corresponding 1/2-in. hole for the dowel. Insert one end of the dowel into the fence and the other end into the plywood table.

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Run the workpiece between the sanding drum and the fence to sand the full edge of a board.

To use the jig, place the workpiece against the edge of the fence, pushing the fence so the workpiece makes contact with the sanding drum. Remove the

workpiece, then move the fence slightly closer to the drum (about 1/32 inch) and clamp it in place. Start the drill press and push the workpiece between the fence and the drum to sand the edges.

With these commonly used jigs and the right bits for the job, a drill press can be a reliable workshop staple for woodworking, metalworking, handicrafts and more. **EHT**

BENCHTOP DRILL PRESS

For DIY'ers who don't need quite the capacity or have room for a large floor-mounted drill press, a 10" benchtop drill press can offer precise hole alignment at less cost. They offer many of the same features as the larger models, including depth control and angle adjustment. When bolted securely to a workbench, a benchtop unit can provide a versatile drilling and sanding station for your workshop or garage.



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How to Install a Winch on a Pickup Truck



By Larry Walton

I'm sure you realize that your truck is one of the best tools you own. Not only does it get you to the jobsite or to the lumber yard and back, it hauls the other tools and supplies for your projects. You can improve the working capability of your truck by adding a winch. Not only can a winch help you recover when you're stuck, you can perform a number of other lifting, towing and pulling tasks as well.

In fact, spend some time logging and you get a good feel for just how much work you can accomplish with the aid of wire rope and some blocks. I use my winches for pulling trees and shrubs, for dragging firewood logs to the road, for big game retrieval and for lifting

heavy objects with the aid of an overhead block.

We recently installed a new 9.5ti Winch by Warn Industries on our project F-250.

Warn's Trans4mer Grille Guard/Winch Mount Kit made it possible to use the stock bumper for installing the winch, which meant an aftermarket bumper was unnecessary. I felt confident that the mounting design would be sturdy. The winch mount connected solidly into the frame at the tow loop locations, with added bracing going back into the frame and into the bumper as well.

All of the parts fit well, and the only milling needed was drilling a few holes. While Warn's engineers did a great job on their precision

parts, the installation instructions needed a little help. Here's how we got it done.



Shown is the front of our Super Duty before installing the new winch. We found that the fog light locations were OK, but the driving lights would have to move.



Removing the bumper involves two bolts near each tow loop and one bolt inside each fender well.



Find these angle brackets inside the fender wells. A bolt on each side needs to be removed to detach the bumper.

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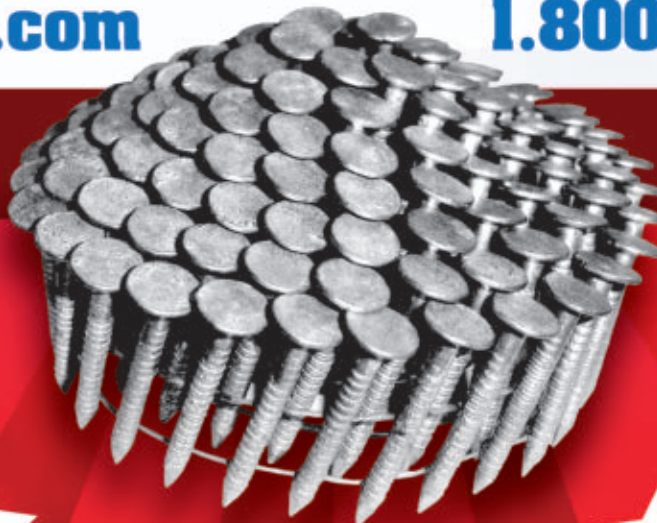


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Once you've removed the six bolts mounting the bumper, be careful with any wires attached to the fog and driving lights.



With the bumper off, we removed the tow loops from the end of the frame rails by accessing the bolts from underneath.



A plastic storage bin makes a good support for the loose bumper.



Remove these bumper mounting bolts to install the upper brackets.



The upper brackets mount to the back of the bumper and curve up over the top of the bumper.



We put the bolts for the frame extensions in place before inserting into the frame opening and the bolts dropped right into place.



The frame extension mounting bolts take nuts from underneath.



Attaching the frame extensions involves holding the bolt heads at top while torquing the nuts from below. Because you can't get to the nuts with the bumper on, go ahead and torque them down. Shims in the kit help with most misalignments.



It was no problem sliding the bumper past the frame extensions and re-fastening the bumper.



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Taking over a year to develop, our **signature hatchets** will help you hack through almost any job **fast**.



The Survivalist (\$135)

This is it. This is the culmination of all we've learned about the craft of tool making. And we believe it's the pinnacle of hatchet design. Made from top quality 4140 tool steel (AKA "Ordnance steel" because it's commonly used for making breech and barrel parts for guns and cannons) for both toughness and edge retention, and ground to within a +/- .005" tolerance, we designed the curved blade for both optimal cutting and splitting wood. We've also incorporated a nail/tent stake puller and the hammer end (of course) has our patented recessed striking face. At 19oz on an 18" handle, it's perfectly balanced for any job, whether it's pounding nails, chopping and splitting firewood, or fending off the impending zombie apocalypse. (Cause we all know its coming. And now it's official Kansas preparedness policy. True story!) This premium hatchet cuts like a full size axe yet is small enough to fit in a backpack. It comes with a top quality custom fitted leather sheath

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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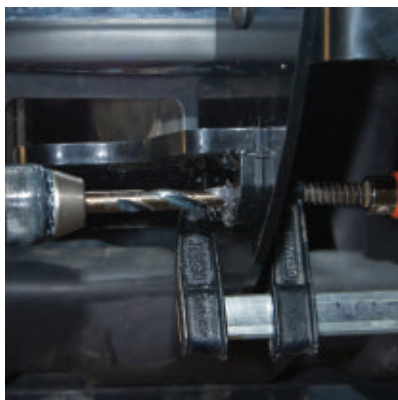
We assembled the grille guard and winch carrier according to the instructions.



The grille guard tubes fit between the side members, but you want to leave the bottom tube out until after the winch is mounted.



With the grille guard and winch carrier assembled, fit them to the upper brackets on the front of the truck.



Once we determined the position of the winch carrier/grille guard, we clamped it to the frame extension bracket and drilled two 7/16-in. holes in each side member.



We used the predrilled holes in the frame extension brackets as guides for the holes we drilled into the brush guard side members.



After drilling the 7/16-in. holes in the side members we threw the assembly back on the saw horses, cleaned it up and applied some silicone that came with the kit.



We put the assembly back into place with the bolts in at the upper brackets and used some of the shims that came with the kit to fill the space between the side member and frame extension bracket before putting in the lower bolts.



The upper bracket brace attaches at the frame rail on the bottom and the bracket up high.



This nut (included in the kit) has a rod welded to it so you can feed it into the frame rail.



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I found that using a pair of clamps and a cinder block was a pretty good way to hold onto the upper bracket brace for drilling.



We used the supplied triangular trim plates to reinstall our tow loops on the frame extension.



We found that the factory tow loop bolts were too long for this application, so we threaded them back in the loops and cut them off before using them to install the tow loops.



Our state requires front license plates so we used the supplied brackets to put the plate on the pickup.



We bolted the fairleads to the front of the winch carrier.



With the winch carrier, brush guard and fairleads in place, it was time to install the winch.



After putting the nuts in the slots at the bottom of the winch housing, we placed it in the winch carrier.



Four bolts go from the bottom of the winch carrier into the nuts in the winch housing.



After the winch was in, we installed the lower grille guard tube.



We threaded the electrical cables up through the grille to the passenger-side battery.



We put the electrical cables on the battery clamp bolt behind the existing nut.



Finally, we performed the ceremonial attaching of the hook to the wire rope.



Our new 9.5T winch had max power spooled out. In our first pull we brought down a pine tree on a landscaping project. **EHT**



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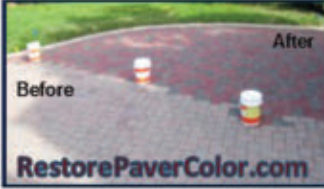


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Tips for Selecting a Garage Door



By Kathy Ziprik

Timeless woodgrain carriage house styles. Colorful attention-grabbing contemporary accents. Statement-making designs with eye-catching appeal. Experts at Haas Door recommend that homeowners open themselves—and their garage doors—up to the potential for endless possibilities of enhancing the curb appeal of their homes.

"The garage door is a focal point of many home exteriors so it's important to use it to create curb appeal on a house," says Jeffrey Nofziger, president of Haas Door from Wauseon, Ohio. "Selecting the right garage door for a home is more than just picking a durable entryway. The garage door should be an extension

of the home's style and personality."

According to the 2016 Cost Versus Value Study by *Remodeling* magazine, a garage door replacement offers the third highest return on investment for a homeowner of a midrange priced home. At a projected 91.5-percent cost recouped, a new garage door almost pays for itself when selling a house.

"The garage door is probably the most used entryway in the home," says Nofziger. "Doesn't it deserve to be a welcoming entry that adds to the overall style of the home?" He recommends the following tips for selecting a garage door that can enhance a home exterior and add valuable curb appeal to a house:

Tip #1 - Step back.

Before selecting a garage door stand by the street and look at your home overall. Now, think about the style of the home exterior, the colors on the house and the textures. Determine what kind of garage door—smooth or woodgrain—and what color or texture would best complement your home's overall exterior.

Tip #2 - Light or no light?

Decide if you'd like a solid garage door or one with windows to allow light into your garage. If you choose windows, look at the style of windows on the front side of your home (including the grids) and look for a garage door with similar window styles. For example, if your home has lots of small window panes, then look for garage door windows with grids that replicate the look of smaller panes of glass.

Tip #3 - Be practical.

Select a garage door that can handle weather conditions for your geographic area. For instance, a 5000 Series door can stand up to Mother Nature, even in Florida conditions, with its corrosion-resistant aluminum, thick insulation and weather-resistant paint finish.

Tip #4 - Stand out ... or stand back?

Decide if you want your garage to be a stand-out focal point when looking at your house or if you want it to blend in with your home's style. There's no wrong answer. Oftentimes a stand-out door, like one in an elegant

Craftsman style with a wood grained finish, can add visual dimension and appeal to a home exterior. Or, a door in a painted bronze color can stand out beautifully against a stone veneer home facade.

Tip #5 - Think of the future.

A garage door selection is one that should last many years for your home. So, look below the beauty of the surface to choose a low-maintenance door that has a strong warranty and will give you years of beauty with minimal upkeep. **EHT**

VISUALIZE YOUR NEW DOOR DIGITALLY

To assist homeowners to envision how different types of garage doors can add to the overall curb appeal of a home, Haas Door offers a free design tool called HaasCreate. In just a few steps, the online visualizer tool, located at www.haascreate.com, allows you to upload a photo of a home and outline the existing garage area. An app for the iPad, which doesn't require an internet connection to use, is also available for free at the Apple store.

HaasCreate helps to instantly create a new garage door with different styles, options and colors at your fingertips. For those people without an existing picture of their home, they can choose from sample home images. Personal product selections—including a garage door style, color, windows, overlay colors, trim colors, handles and accessories—allow the user to customize a garage door that enhances the home exterior. Visit www.HaasDoor.com.



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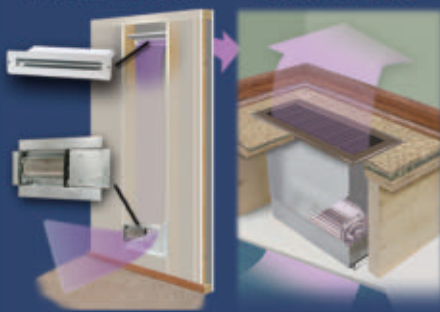
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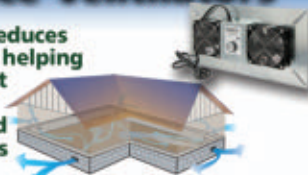
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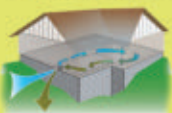
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For More Information



GARAGE GEAR ROUNDUP



Get it in gear. Here's a roundup of the latest tools and equipment to take your garage or workshop to the next level of DIY domination. From tools and storage systems to flooring and doors, there's sure to be a something to catch the eye of the *Extreme How-To* reader.

FREEDOMRAIL GARAGE

According to National Association of Home Builders (NAHB), 86 percent of homebuyers want a bonus garage that's organized. Organized Living makes it easy for builders to meet their homebuyers' demands with FreedomRail Garage storage upgrades. FreedomRail Garage is ideal for new home construction because it is strong and easy to install. Once installed, homeowners can adjust FreedomRail Garage to fit their active lifestyle and changing needs without any reinstallation. Once the mounting grid is secured to the wall, attach any of the wide variety of storage components, including baskets, hooks, shelves and more. Visit organizedliving.com.

GARAGE GEAR ROUNDUP



SWISSTRAX

Swisstrax easily, durably and reliably creates an eye-catching floor with 19 colors, 10 styles and 5 woodgrain patterns of modular flooring. Swisstrax interlocking tiles have been engineered for your garage with more than 20 years of innovation. Install the floor in hours and enjoy it for decades. Ribtrax, the most popular style (pictured), offers the overall strength and design for heavy items such as rolling creepers, jack stands and tool boxes to sit or easily maneuver across the floor. Ribtrax flooring tile's open profile design allows for an easy-to-maintain floor equipped with drainage underneath each tile. Visit swisstrax.com.

TJERNLUND SPACE-SAVING WORKBENCH/TABLE

Homeowners, handyman types and tradespeople desiring a sturdy, space-saving work surface that folds up and stores compactly on the wall can install then Model FB2632 workbench/table now available from Tjernlund Products. Model FB2632 features a heavy-

duty load rating of up to 250 lbs. and is the ideal solution for garages, utility rooms, laundry rooms, tool sheds, kitchens and utility trailers where floor space is limited. Made in the USA of



heavy-gauge, anti-corrosive steel, it is designed for easy attachment to 16- or 24-in. O.C. wall studs. Unit dimensions are 32-by-26-by-2 inches, weight is 25 lbs. and all mounting hardware is provided. Visit tjernlund.com.

DUCK BRAND SHELF LINER

Duck Brand offers a variety of shelf liner products that are ideal additions to workbenches, cars and other garage areas.



A non-adhesive liner that offers grip top and bottom can be used to prevent surface scratches, keep your items in place and provide a cushioned surface—on your shelves, on your workbench top and in your toolbox drawers. Keep your car neat and clean by placing a shelf liner with grip top and bottom on the dashboard ... or place a liner such as Easy Liner with Clorox in your storage areas to protect against dirty (and germ) sports equipment. Easy Liner with Clorox is protected by antimicrobial agents that prevent mold and mildew growth on the liner. Visit duckbrand.com.

DUCK TAPE

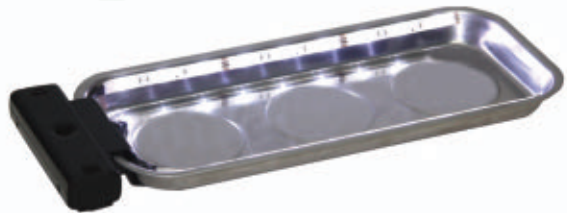
No respectable DIY'er should be without several roles of Duck Tape (ranging from Original to Max Strength) in their tool box





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for repairs and quick fixes around the house, garden or garage. Available in five "strengths," Duck Tape also comes in specialty versions such as Exterior, Double-sided, Clear, Extra Wide, Glow-in-the-dark and more. Visit duckbrand.com.

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Zerust products create an invisible barrier of corrosion-blocking molecules around your valuable metal items, protecting them from harmful rust and corrosion. They're non-toxic, FDA cleared and easy to use.

Zerust Vapor Capsules offer a rust-prevention solution for nearly any item you'd find inside the garage. With different options to meet your space needs, simply place or adhere the vapor capsules to the inside of any existing storage container, and your metal items are protected from rust and corrosion for up to two years until removed from the storage container.

Zerust Drawer Liners combine the patented corrosion-inhibiting formula with a heavy-duty non-slip rubber to keep your tools in

tip-top shape. Available in a non-slip mesh or solid rubber, the liners can be cut to fit any drawer or storage box shape or size and will protect your tools from denting, slipping and rusting for up to five years.

Zerust Table Saw Covers are a must when it comes to keeping saw blades sharp and free from rust. Specially designed with Zerust patented anti-corrosion formula, the table saw covers protect your table saw from rust, corrosion, dust and moisture for up to five years. Visit www.zerustproducts.com.

GRIZZLY ULTRA-QUIET CYCLONE DUST COLLECTORS

The new Ultra-Quiet Cyclone Dust Collectors (Models G0777 and G0777HEP) feature a low-RPM motor and a large impeller to deliver a sound rating of only 70-72 dB. The 1.5-horsepower, TEFC single-phase motor operates on 110V or 220V power supply (prewired for 110V), and both models feature a primary filter that captures 99.9 percent of particles 0.2-2 microns in size. The 35-gallon steel collection drum has a swivel caster and remote-controlled switch. Model



G0777HEP features a secondary V-cell MERV-17 HEPA filter that captures 99.97 percent of particles 0.3 microns in size—effectively providing dual-filtration and lasting HEPA performance. Both machines weigh approximately 223 lbs. and are covered by a one-year warranty. Visit www.grizzly.com.

BERKO FAN-FORCED GARAGE HEATER WITH REMOTE CONTROL

Berko offers a durable, compact fan-forced heater that provides supplemental heat for numerous residential and light commercial applications. The Electric Fan-Forced Garage Heater (GH48R) features a built-in digital interface, an automatic shut-off timer, and a handheld remote for easy operation and control. The unit offers up to 480 square feet of heating capability, and features a scratch- and rust-resistant finish, making it ideal for garages, small warehouses, storage facilities, workshops and more. The product comes fully assembled in the box, includes a wall or ceiling bracket, and has a fan-only



option that can be used on hot summer days for circulation. The unit's compact size and clean design makes it a perfect option for any space. Additional features include a digital interface for easier control, a timer option on the unit that features up to nine hours with automatic shut-off, handheld remote and a mounting bracket for wall or ceiling installation. Visit www.marleymep.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.

HANGERJACK

HangerJack offers multiple options to help you hang everything in a nice, orderly manner. You can hang bikes, helmets, hoses, tools and anything else that takes up space in your garage with the HangerJack Gator 24. The HangerJack Gator 24 is made to hold up to 50 lbs. And, the HangerJack Scroll is perfect to use when you're ironing or drying clothes. Instead of sticking hangers onto doorways and doorknobs, you can keep up to 6 hangers in one tidy spot. HangerJack products are easy to install, fully assembled, durable and compact, made in the USA and come with a money-back guarantee. Visit www.hangerjack.com.

WAYNE DALTON TRUCHOICE COLOR SYSTEM

Wayne Dalton takes curb appeal to the next level with the TruChoice Color System for its line of garage doors. This new process provides homeowners an opportunity to have their new garage door painted from a selection of more than 6,000 colors with a durable factory finish without all the hassle of painting the door after installation. The TruChoice Color System allows the homeowner to color coordinate their garage door with the home's

GARAGE GEAR ROUNDUP

trim, window shutters, interior paint shades, or even a favorite color. Doors painted using the TruChoice Color System are covered under limited warranty to protect against excessive fading, and include a bottle of touchup paint for dings or scratches. The TruChoice Color System is available for residential models 8300, 8500, 9700, 9405 and 9600. Visit www.Wayne-Dalton.com.

TJERNLUND AIR VENT WALL SAFE

The new Tjernlund Air Vent Wall Safe looks like a vent register but actually hides a steel safe that measures 13-1/2 inches wide, 4-1/2 inches high and 3-1/3 inches



deep—just enough room for the essentials. The faceplate can be screwed into the wall or mounted in place with magnets, and the kit comes with supplies for both. The kit also includes a wall-cutting template to aid in installation, making it easy for you to create a handy place to hide things in plain sight. Visit tjernlund.com.

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For more extreme jobs, be sure to have T-Rex Tape on hand. It's formulated with super-durable, extra-thick,



sun-resistant materials to work longer and hold stronger than other utility tapes, in all kinds of weather. Featuring a thick, aggressive adhesive that sticks to rough, dirty surfaces, T-Rex tape's Co-EX technology combines three distinct layers of material to create one strong tape. The UV-resistant layer is built into the skin of the tape enabling it to last through extreme temperatures and ultraviolet rays. Visit trextape.com. **EHT**





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- Cutting capacity/throat: 16 1/4"
- Blade size: 131 1/2" L (1 1/8"-1" W)
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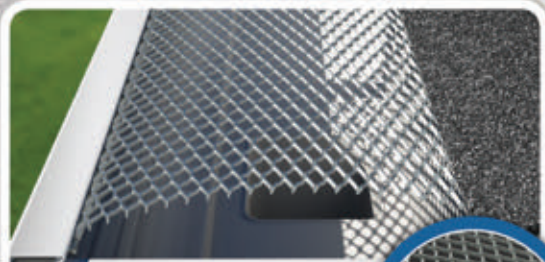
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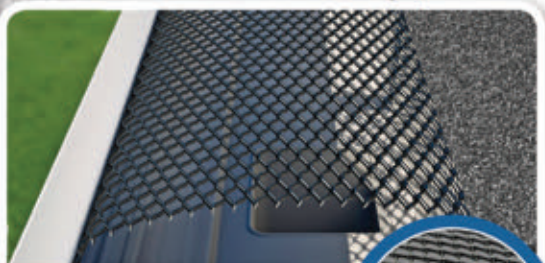
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BUILD A FLAT SCREEN TV CENTER

By Monte Burch

A seasoned woodworker complements a flat-screen TV with a shop-made entertainment stand.

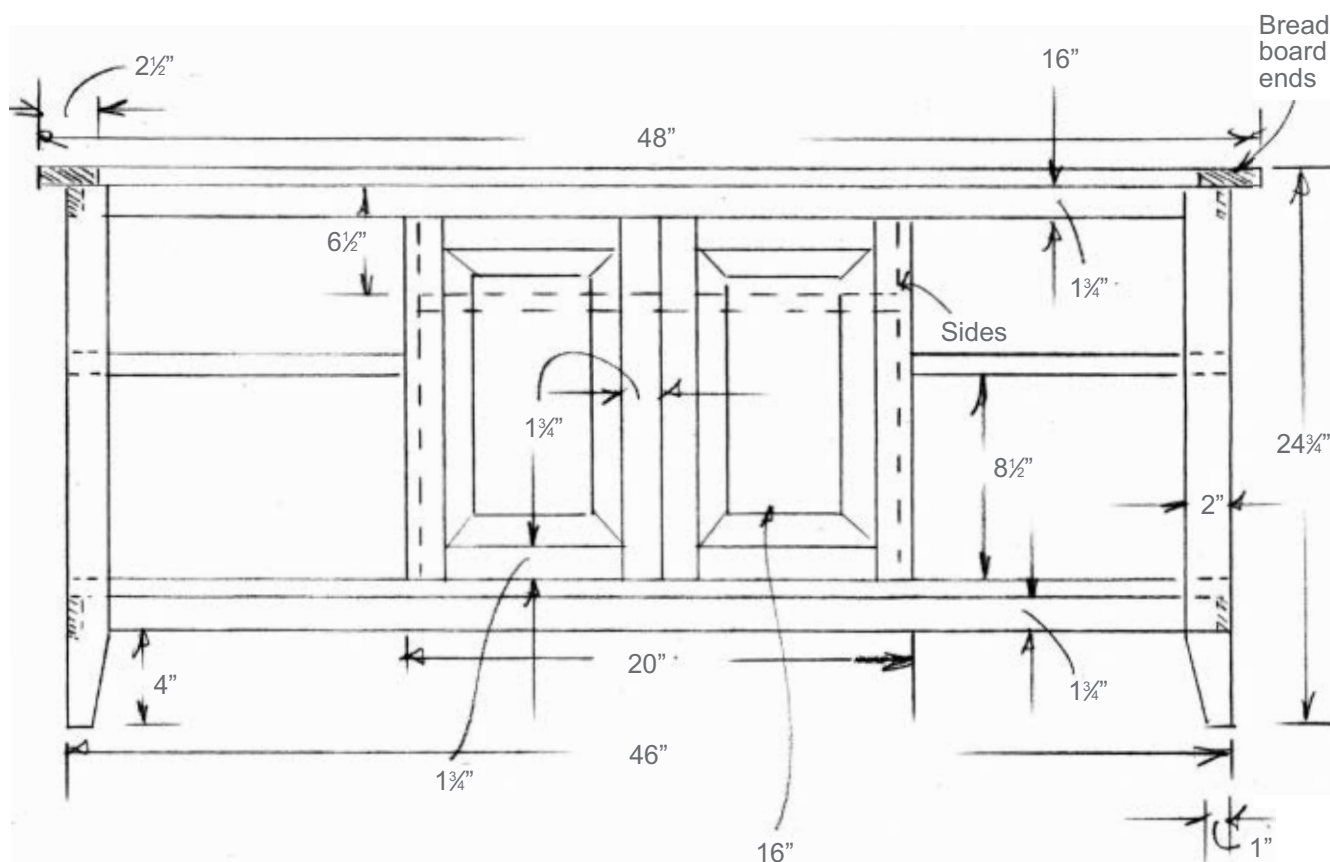
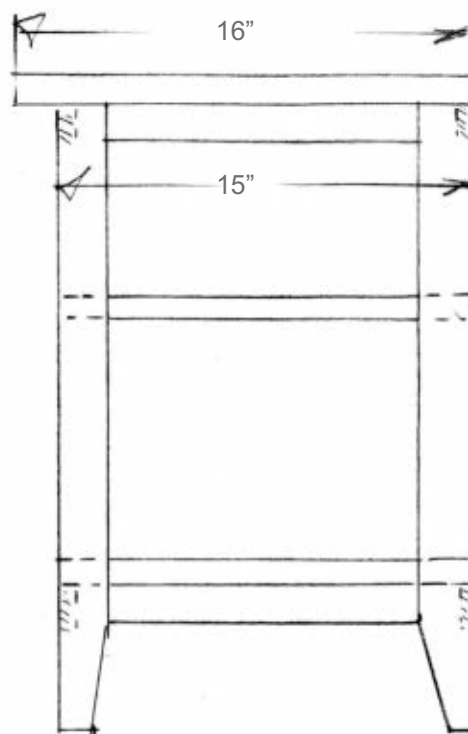


BUILD A FLAT SCREEN TV CENTER

Large, flat-screen televisions have become increasingly popular, as have stands and entertainment centers designed to hold these large, but thin and lightweight units. You can build your own custom stand to match your furniture or décor. The unit shown has an enclosed center area with a shelf for the DVD player as well as an open bottom area to hold DVDs or other equipment. The open, end shelves display decorative items or wooden baskets (shown), or can be used to hold DVDs, remotes and other items.

The project was made from quarter-sawn and figured red oak, cut and sawed several years ago, and dried and cured in my barn. Construction utilizes two techniques—one old, one new. The wide stock needed for the top, bottom, shelves and ends was created by doweling stock together, a traditional woodworking method, using a General Tools Doweling Jig Kit. The casework of the project was assembled using a newer technique, pocket-hole construction, with a General Tools Pocket-Hole Jig Kit. This construction is quick, easy and creates a very sturdy assembly.

When designing a project, I usually draw it to scale before beginning construction, trying several different designs, as I did with this project. However, I lost the heat in my shop last winter, and had to work on the project only during warm days. With the time span, I ended up



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BUILD A FLAT SCREEN TV CENTER



Wide stock is glued up using the General Tools Doweling Jig Kit.



Lay the boards to be doweled together and mark across their edges. Then, using the doweling jig, bore the dowel holes.



Run a bead of glue down in the dowel holes of one board and along the edge of the joining board and into the dowel holes. Tap the two together with a rubber mallet.



Clamp the glued-up stock and leave overnight. Make sure it is flat and not warped.



The breadboard ends are fastened in place with dowels. Mark and bore the holes, then add glue and dowels.

somewhat disorganized and when I glued up the pieces for the shelves, I assembled them too short. I didn't have enough decorative red oak to recreate all the shelves, so I decided to extend the shelves with "bread-board" ends. The shelves looked so good that I did the same on the top and bottom. The result was a mix of old and modern in the design, showing off the beautifully grained red oak.

STARTING LINE

First step is to glue-up the pieces to create the wide stock needed. If using rough-sawn wood, run all the stock through a planer to smooth and create pieces of an exact thickness. Joint all edges, or use a planer blade in a table saw to cut a very smooth edge. Cut the boards slightly longer than necessary. Position the boards together to create each wide piece needed. Mark across the joints with a pencil. Also mark joining edges A-A, B-B, and so forth, so you can quickly rejoin the matching board edges when gluing.



Notch the bottom and shelves to fit around the legs.

Bore the pocket-holes in the ends of the bottom and shelves.



Position the doweling jig on one board and bore the holes to the correct depth. Assemble the clamps needed on a flat, smooth surface covered with newspaper to catch any glue drips. Place one board with the glue edge up and run a bead of glue along its surface and into the dowel holes. Place glue in the dowel holes of the matching boards. If more than two boards are required, repeat the steps. Assemble the boards with the dowels in the mating dowel holes. Tap the boards together using a rubber mallet. Position the boards in a pair of bar clamps and clamp tightly, making sure the boards are flat



The legs were sawn to shape from thick stock. I use a large Jet bandsaw permanently set up in my shop with a 1-1/2" blade to resaw this type of thick stock.

and not warped or canted. Allow the glue to dry overnight.

Once dry, cut the boards to the correct length, without the breadboard ends. Cut the breadboard ends and dowel, glue and clamp them in place in the same manner. Belt-sand any squeezed-out glue and smooth up the joints. Finish sand all boards—top, bottom and edges.

LEG CONSTRUCTION

Cut the legs to size and shape. I have two bandsaws in my shop. A large Jet saw with a 1-1/2-in. blade is permanently set up for resawing. The Jet was used to rough-cut the legs to size from larger stock. All edges are then jointed smooth. A standard 12-in. Craftsman Bandsaw, used for typical bandsaw work, was used to cut the tapered ends of the legs. A 1/2-in. blade in the saw ensures a square, smooth cut.

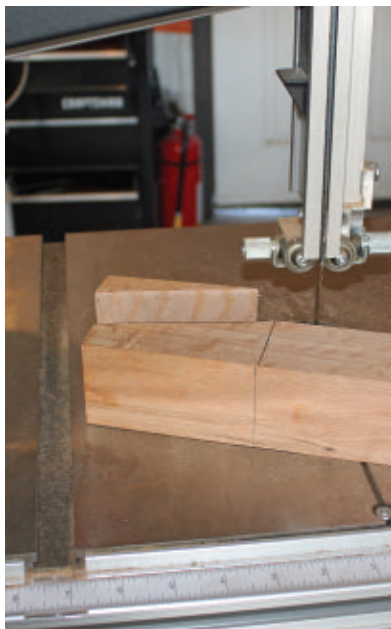


The stock is then smoothed by running over a jointer.



Lay out the tapered cuts on the ends of the legs.

BUILD A FLAT SCREEN TV CENTER



Cut the tapers on the bottom of the legs.



Any irregularities in the leg cuts are sanded smooth.



The frame and casework is assembled with pocket-hole assembly. The General Tool Pocket Hole Kit makes the assembly precise and easy.



Fasten the jig to a sturdy work surface, and then bore the pocket holes using the stepped bit furnished with the kit. The stop collar on the bit sets the drilling depth.



Glue and screw the frame pieces to the legs using the square-drive bit furnished with the kit.



With the front and back frame pieces fastened to the legs, clamp until the glue sets. Use a carpenter's square and clamp to ensure the assembly is square before the glue sets up. Leave overnight.

First step in cutting the legs is to mark the bottom measurement, then mark the top of the taper and cut on the bandsaw. Turn the stock 90 degrees, mark for the cut and saw it on the bandsaw. Because I wanted to show the quarter-sawn sides of the legs to the front, I carefully laid out all the legs to match up as I cut them. Clamp the legs to a work surface and belt-sand the cuts smooth. Make sure to keep the cuts square. Using a finish sander, sand all surfaces of the legs.

POCKET-HOLE JOINERY

Fasten a pocket-hole jig to a solid work surface and drill the pocket holes in the ends of the case frames. Pocket holes can also be used in the inside edges of the frames to anchor the bottom and top in place, but I used countersunk wood screws.

Glue and screw the long frame pieces to the legs. Before the assembly sets up, clamp in a pair of bar clamps and, using a carpenter's square, make sure the assembly is square. If not square, either tap or pull in place with a long bar clamp positioned diagonally, then leave overnight.

Fasten the short end frames to the legs in the same manner. Then position the frame on a smooth, flat surface, bottom side down, and make sure it sits evenly and doesn't rock. You may also need to tap or pull the frame into square. Clamp and leave overnight.

Notch the bottom to fit around the legs and down on the frame pieces. Try-fit to ensure it will fit in place, then place a small amount of glue on the frame tops and place the bottom in position. Clamp with hand clamps and anchor with screws from the bottom of the frame pieces.



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Fasten the end frame pieces to the legs.

Set the assembly on a flat, smooth surface and, before the glue sets, clamp and make sure the assembly sits square and level on the surface. Use a long clamp to rack the assembly if needed.



Cut the case sides to size and rout a 1/4-by-1/4-in. rabbet in their back edges. Bore pocket holes in both the inside top and bottom edges. Place the lower edge on the bottom and anchor with screws. Make sure the sides are installed square to the bottom and temporarily anchor the top to the top frame.

Cut the shelves, notching to fit around the legs, and bore pocket holes in the underside of the ends, including the notched ends. Position the shelves in place and anchor with screws. You may need to remove the top side screws to get the shelves in position, and then reinstall the top screws. The bottom and shelves are cut slightly oversize. Belt sand all surfaces smooth with the frame, followed by finish sanding to remove any belt-sanding marks.

Position the top on a smooth, flat, padded surface and fasten the frame down to the top with pocket screws.



Anchor the bottom in place. This can be done with pocket holes or countersunk screws as shown (left).

The bottom and shelves should be cut just slightly oversize, and then, after assembly, sanded flush with the legs and frame pieces using a belt sander.



Cut the case sides and drill pocket-holes in both their ends. Rout a 1/4 x 1/4" rabbet in their rear edges for the back.

Fasten the sides to the bottom, making sure they are assembled square with the bottom. Temporarily fasten the top edges to the top back and front frames.



DOOR DESIGN

The doors are raised-panel construction. I had two pieces of figured oak to use for the doors. Cut the door rails and stiles to width on a table saw, and then cut to length on a radial arm or miter saw. The pieces should be cut slightly long, enabling you to sand or joint the finished doors down to properly fit the opening. Note the cross pieces or rails are 1/2-in. longer so their tongues will fit into the 1/4-in. deep grooves in the stiles. The rails and stiles are cut using a special router bit, a CMT one-piece Rail and Stile Door Cutter. The bit is set at the correct height to cut the stiles on a router table, using scrap stock to test. The stiles are cut, then the bit is reset to the correct height and the matching rail ends are cut.

Final step is to install a raised-panel cutter in the jointer table and cut the raised panels.



Cut the notches in the shelves to fit around the legs. Remove the holding screws in the sides of the top frames to position the shelves in place. Anchor with screws, and refasten the top edges of the sides.



Fasten the inside shelf in place. Fasten the frame to the top and sand the entire case smooth.



BUILD A FLAT SCREEN TV CENTER

The CMT Raised Panel Cutter shown has two bushings, allowing you to cut an initial shallow cut, followed by a final, finish cut. Glue and clamp the door pieces together, making sure they are square. Try-fit the doors and then cut and sand until they fit properly.



The rails and stiles for the raised-panel doors are cut on a router table using a CMT one-piece cutterhead. The stiles are cut first.



The cutterhead is repositioned and the rails automatically cut to match.



A CMT raised-panel cutterhead cuts the front and back at the same time.

Install the hinges. The European style hinges shown allow for precise alignment and installation of the overlapping doors. The hinges are also self closing. The hinges require a deep recess cut in the backs of the doors. Each hinge packet comes with an instruction sheet and templates for both the doors and cabinet. Use a nail or awl with the door template to mark the recess and holding screw locations. Using a Forstner bit in a drill press, bore the recess in the doors to the correct depth. Set the drill press so you don't drill through the front of the doors. Then drill the starting

holes in the doors for the hinge screws. Position the cabinet templates on the inside front edges of the cabinet, mark for the screw holes with an awl and bore starting holes.

Install the hinges to the doors, and then install them to the cabinet reaching to the inside from the back of the cabinet. Note: Slightly round the front adjoining corners of the shelves if necessary to allow the doors to open freely. Adjust the hinges according to the manufacturer's instructions.

Cut and install 3/4-by-1-1/2-in. interior shelf cleats and cut and install the interior shelf by sliding



The frame and panel doors are then glued-up and clamped overnight.

Self-closing, fully adjustable European style hinges allow for precise and easy alignment of the flush-mounted doors.



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The hinge template is placed inside of the doors to mark the holes.



Holes for the hinge back are bored using a Forstner bit in a drill press.

Screw holes are bored in the doors, and the hinges are installed.

in from the back. Fasten a 1/2-by-1/2-in. holding strip to the back edge of the top and bottom and cut and fasten a quarter-inch plywood back in place. Note: You will need to cut a hole in the back for wiring if a DVD player is hooked to the TV. Install the knobs, sand and apply a clear finish. **EHT**



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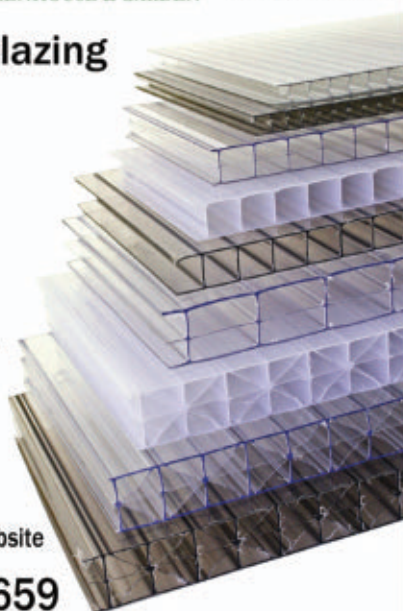
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Homemade Headboard

There are a hundred ways to make a headboard. Here's one—a custom creation combining style and function.



By Matt Weber

On some of my home projects, I'm just winging it. Case in point: making a headboard for a bed. According to my wife, a headboard is a crucial decorative element for a bedroom. It was absolutely imperative that we got one. I had never given the matter of headboards much thought, but I've since learned that it's a hot topic for interior designers, with some specialty outlets offering a product line of nothing but headboards in a wide range of materials, sizes and prices. Most of the headboards I found online range from about \$120 to \$400, and even higher. You can find headboards made from metal, wood, leather, wood and more. Some styles are strictly decorative,

and some are functional with storage shelves.

My wife, Shanna, wanted the headboard colors to harmonize with the bedroom's chocolate walls and turquoise window and bed dressings. The right tones would provide a splash of color to offset the otherwise dark scheme of the room, but Shanna also wanted the headboard to be upholstered to provide a soft, comfortable headrest for night-time reading. This combination of features proved difficult to find, so we decided to invent our own.

PLYWOOD FRAME

Building this style of headboard is a fairly straightforward project and well within the skill set of the average DIY'er. The backbone of

the project is a sheet of 3/4-inch sheathing-grade plywood. We decided that a height of about 22 inches above the surface of the mattress provided adequate room for a headrest. I decided to give it an additional 18 inches of height that extended below the bed surface (behind the mattress and box-spring), so the headrest would look like an integrated component of the bed when viewed from the side. This gave me a full frame height of roughly 40 inches. I made the width of the plywood frame 80 inches—a few inches wider than the width of the king-size mattress. I cross-cut and ripped the plywood to size on a couple of sawhorses, using a circular saw and a straight-edge guide.

The cuts provided the rough dimensions of the frame, but we wanted to add some scalloped corners to give this basic box shape a little decorative flair. I used a template made from cardboard to create the matching corners.



Use a circular saw to cut the rough dimensions of the plywood frame.

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Cut a cardboard template to the same width as the plywood frame. The height of the template must be large enough to encompass your corner cuts.

Mark the midpoint of the headboard on the template.



To make the pattern, cut a sheet of cardboard into a rectangle the exact same width as the headboard. The cardboard doesn't need to be the full height of the headboard, but it must encompass the entire shape of your decorative corners. Use a pencil to sketch the shape of your accent corner on one side of the cardboard sheet. There's not necessarily a right or wrong method of determining your corner pattern, but keep an eye on the shape's visual proportion in relation to the size of the overall headboard. It took me a couple of attempts to draw a contour I was satisfied with. If you'll be upholstering the headboard, it's also a good idea to ease the corners with sloped curves rather than sharp angles that risk cutting through the fabric over time. Once you're happy with the shape, trace the final pattern with a marker to distinguish it from the other pencil marks of your earlier attempts.

Fold the cardboard sheet in half so the edges are perfectly flush. Tape the folds together so it doesn't slip. Use a utility knife to cut both halves of the folded

cardboard, following your marked pattern. When you unfold the cut cardboard, you will have a symmetrical template.

Tape the template to the plywood, with the top and sides flush.



Fold the template in half, aligning the edges and taping together. Draw your accent corners on the template.

Cut out the corner shapes, cutting both sides of the template to match.



Unfold the template and tape it to the plywood, then trace the corner shapes onto the plywood.



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Use a jigsaw to cut out the corner accent shapes.

A circular saw with a straight-edge guide is an accurate system for trimming the frame to its desired height.



Trace the template onto the corners of the plywood, and cut out the shapes along the marked lines with a jigsaw.

FLUFFY STUFF

The next step was to adhere the foam backing to the plywood. Shanna had purchased a length of 1-1/2-inch polyester foam to provide the padding for the headrest. I laid the sheet over the plywood frame, clamped it tightly along the edges with wood clamps, and cut it with a utility knife to match the shape of the plywood. Be sure to use a sharp, new razorblade or you'll struggle with the foam.

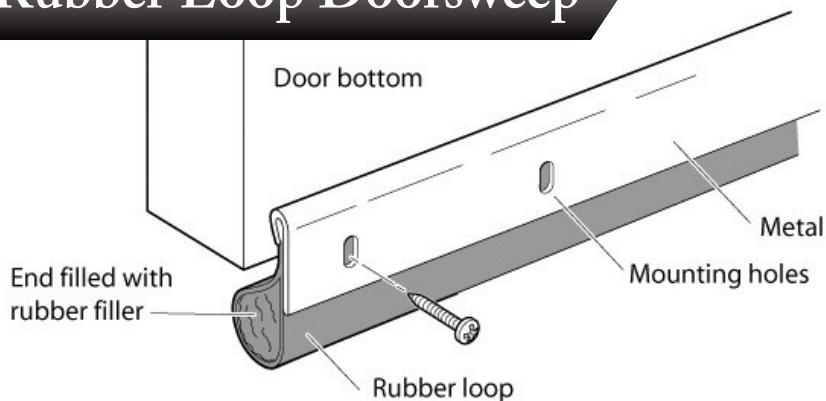
I first tried to glue the foam to the frame with some spray-on adhesive commonly used for upholstery. I don't know if it was poor-quality glue, not intended for

plywood, or that the thick foam was too heavy, but the spray stuff didn't work. I then tried polyurethane construction adhesive, and the foam wasn't going anywhere.

When it came time to decorate the headboard, my wife and mother-in-law took over. This step requires a large, uncluttered work area; they chose an empty room that was being remodeled. They

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Use a sharp utility knife to cut the polyester foam to the same size and shape as the frame. Glue the foam to the plywood with polyurethane construction adhesive.



In an uncluttered workspace, lay the frame face-down over the sheet of batting.

Wrap the batting tightly over the frame and fasten along the perimeter with a staple gun.



laid the plywood frame foam-side down and centered over a sheet of batting on the floor. The batting sheet was about 10 inches larger than the frame around its entire perimeter. They folded the material back over the plywood, pulled it tight and stapled it securely along all the edges. The batting is a plusher material than the foam, providing some extra softness while also rounding out the rough edges of the cut foam.

The surface fabric was applied next, and fabric stores offer a vast array of colors and styles. Shanna actually co-opted a linen duvet color, which she liked for the pattern and coordinating colors, striped with light greens and tans that complemented the bedroom's design scheme. Just like the batting, the fabric was pulled back tightly over the frame to remove any wrinkles, folded along the back and fastened to the plywood with a staple gun.

To mount the headboard to the wall, I installed two heavy-duty D-rings with picture hangers rated to support 100 lbs. each, providing an ample 200-lb. capacity. However, these hangers only support that weight if they're properly anchored into the wall studs—not

drywall. Unless your headboard mounting location happens to be centered over a stud, you're hanger locations will not be located symmetrically on the rear of the headboard.

To determine the hanger locations, lean the headboard against the wall where it will be mounted. Mark the midpoint of the headboard, and mark the wall at this midpoint as well. Then, working outward from the midpoint with a stud finder, mark the stud centers along each side of headboard. Find the outermost studs that fall within the span of the headboard, and mark those two spots on the top of the headboard with tape. Remove the headboard, turn it over, and on its back



Here is the headboard covered with batting, prior to installation of the decorative fabric.

Just like the batting, fold the surface fabric over the back of the frame, pulling it tightly to eliminate and wrinkles on the front of the headboard. Staple it securely along the rear perimeter.





First step to installing the headboard is to determine its midpoint.

Mark the midpoint on the wall, and map out the picture hook locations and D-ring hangers using this as a reference point.



Mark the wall studs behind the headboard. The picture hooks must be installed in the studs—not just the drywall.

The headboard was installed with heavy-duty picture hooks rated to hold 100 lbs. each.



Plot your D-ring locations on the rear of the headboard so they're aligned with the wall studs.

draw a plumb line down from each mark to match the centers of the wall studs. The two D-ring hangers should be installed at an equal height along these lines using two wood screws each. The D-rings should be located approximately 2/3 up the height of the headboard.

The two heavy-duty picture hooks should be installed level on the corresponding stud centers. The installed height of a home-made headboard depends on its design and personal taste. When

measuring for height, remember that the top of the D-rings will hang on the bracket hooks a full inch lower than their nail holes.

Have an assistant help to lift the headboard and fasten the D-rings over the picture hooks.

The hooks and D-rings supported the vertical load, and once we slid the bed against the headboard it fully stabilized any lateral or back-and-forth movement. The headboard was holding steady, and by inventing our own design we got exactly the look we had in mind. **EHT**



Fasten the D-rings with two wood screws each. The final step is to recruit some help to hang the new headboard.

Tray Ceiling Solution

Tray Ceilings Enhance Ordinary Ceiling Lines to Create Architectural Interest



by Myron R. Ferguson

Quite often when I mention a tray ceiling to a prospective customer, I find myself quickly explaining that it is not what they think. The project is actually quite simple. Tray ceilings are generally considered by homeowners to be complicated, expensive and time-consuming to build. As a drywall contractor that specializes in decorative drywall work, I build a lot of tray ceilings because they are fast, easy to construct and come out perfect. I don't just meet my customers' expectations, I exceed them.

A "tray ceiling" is a common term for a recessed ceiling, often with the recessed sides sloped at an angle. The original

flat ceiling has its edges lowered to create the center recess area. The lowered edges vary in width according to the dimensions of

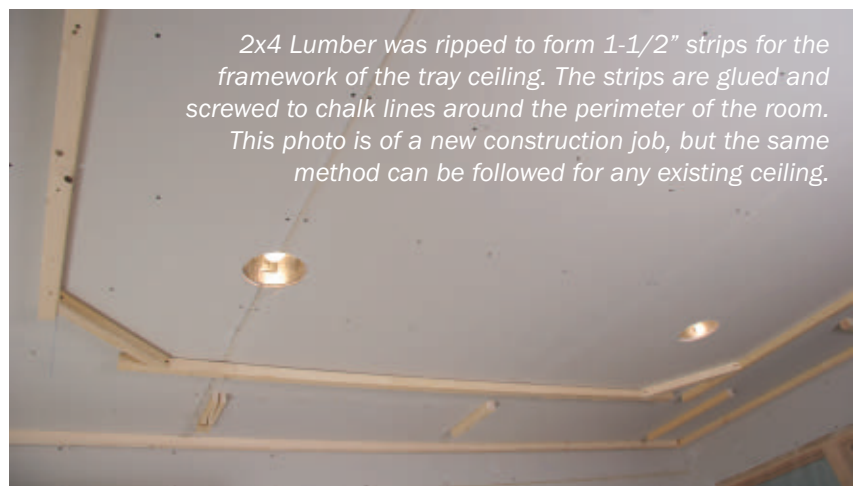


The different height levels of a tray ceiling can evoke the feeling of spaciousness by making a room's ceiling appear higher.

the room. The basic purpose of a tray ceiling is to break up an ordinary flat ceiling line and add a variation in height to create architectural interest. A feeling of spaciousness can be created by the look of the different levels, and a tray ceiling can make a low ceiling look higher.

CREATING THE RECESS

The entire ceiling should have drywall attached before the tray construction starts. First, determine the width of the lowered area of the ceiling. This varies



2x4 Lumber was ripped to form 1-1/2" strips for the framework of the tray ceiling. The strips are glued and screwed to chalk lines around the perimeter of the room. This photo is of a new construction job, but the same method can be followed for any existing ceiling.

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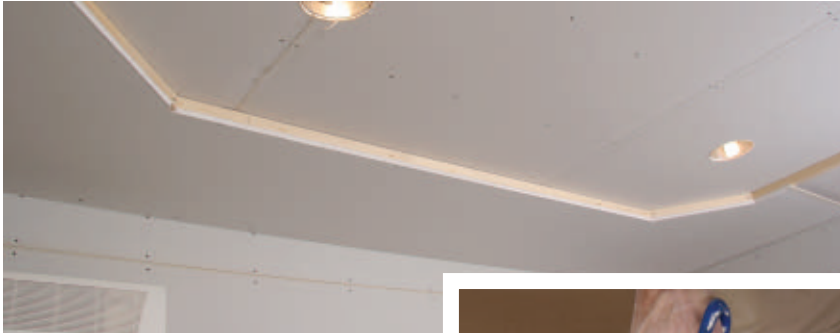


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Next, 1/2" thick drywall is attached to the framework. The thickness of the lowered edge is 2".

The angled edge of the tray ceiling will be created with a special vinyl bead called EZ-Tray manufactured by Trim-Tex Drywall Products. The angled edge is 3" wide. This angled bead is the piece that bridges the lower ceiling to the raised upper ceiling.



bead specifically designed to make a tray ceiling. Snap chalk lines to guide placement of the bead, and staple it in place along the mud leg of the bead. Attaching the bead to the snapped lines helps ensure straight looking edges.

Attach the longer pieces first. The edge that fits against the upper ceiling should have adhesive caulk applied to hold it tight against the drywall. After sanding and priming, this upper edge gets caulked again to create a perfect transition edge.

The mitered joints can be cut to fit with tin snips. Mark the angle with the miter marker that comes with the EZ-Tray. Both edges in the corners can be mitered, but it is easier to attach the first piece with a square cut. Then, miter the abutting edge.

based on the size of the room and is typically 12 to 24 inches wide. Mark off the layout by snapping chalk lines to use as an installation guide.

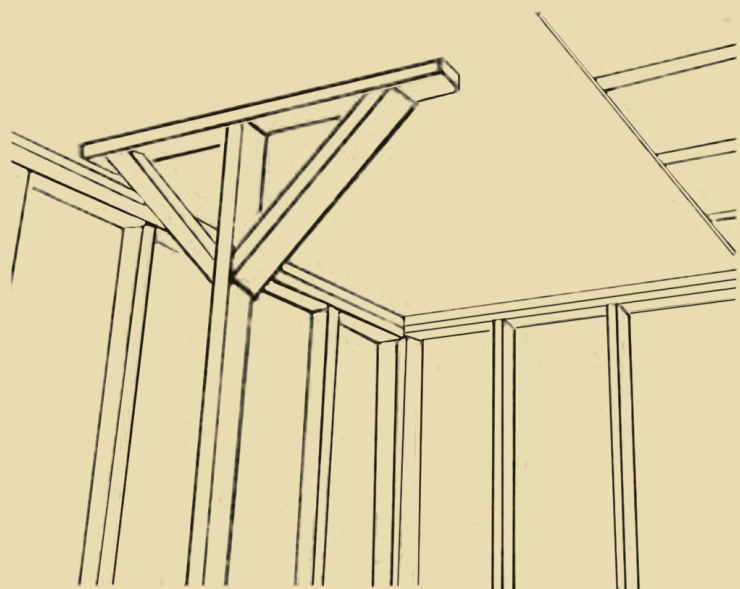
Next, attach furring strips to the ceiling along the wall and inner edge. The furring is 1-1/2-in. thick and should be fastened to the solid framing behind the drywall. Glue and screws are used to secure the furring.

Attach 1/2-in. thick drywall to the furring using standard drywall installation techniques. Ceiling panels can be installed with the help of an assistant and a homemade 2x4 T-support (also called a "deadman"). When working alone, you may need to rent a cradle lift, a device that rolls on casters and safely lifts panels as high as 11 feet.

The next step is to attach the EZ-Tray bead. The EZ-Tray, available from Trim-Tex (www.trim-tex.com) is a 3-in. wide, chamfer-edged layering

INSTALLING CEILING PANELS

When hanging drywall, you'll need to work with a partner to hoist the large, heavy sheets in place. For ceilings, using a stepladder, scaffold or a "deadman" will make hanging ceiling panels a lot easier. A deadman is a temporary brace in the shape of a "T," built from 2x3 or 2x4 stock. Build the brace as high as the ceiling and wedge it in place, using the top "T" bar to hold panels in place until they can be fastened securely.





Chalk lines are snapped to guide placement of the EZ-Tray. This guarantees a nice, straight edge to the tray ceiling.

The edge of the EZ-Tray bead that will fit against the upper section of the ceiling has adhesive caulk applied to it.

FINISHING MOVES

Tape all the seams and inside corners on the drywall and conceal with joint compound. Conceal the mud edge of the EZ-Tray bead with two or three coats of joint compound. Then, sand and apply a coat of primer. After priming, applying more caulk along the upper edge of the tray angle may be necessary for a more perfect transition.

The right paint color can greatly enhance a tray ceiling. For instance, a recessed tray ceiling can be painted a few shades darker than the main ceiling color to make it appear even more recessed and to provide a stronger contrast to the look.

TIME AND COST

The time investment for this tray ceiling project took less than a single work day for a master bedroom, measuring 14 by 15 feet. Installing the furring strips, hanging the drywall, attaching the EZ-Tray, applying the compound and sanding took about 6-1/2 hours.

Material cost was \$95. I used seven 8-foot 2-by-4's for furring (\$21) and mostly scrap drywall



FURTHER COST SAVINGS

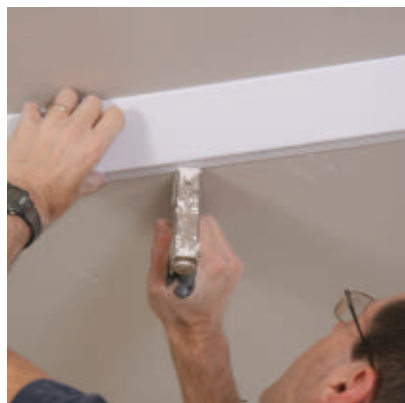
Not only are these ceilings easy to build, but the cost of the materials can be greatly reduced by using scrap drywall and lumber. The recessed edge of the ceiling is usually less than 24 inches wide and drywall contractors always have plenty of scrap pieces of drywall that size leftover from construction sites. If you are using new drywall, there is no need to handle big sheets. Cut them to size for easy lifting. The wood used to fur the ceiling down can be scrap lumber left around most jobsites, or just purchase 2x2 material.



The bead is positioned on the ceiling. Note that the first piece attached in the corners can be installed with the end cut square.



equivalent to about 120 square feet (cost \$30). The beads cost \$44, including 60 feet of chamfer stop for the narrow strip along the wall angle, as well as five 10-foot pieces of EZ-Tray. When I provide an estimate for a tray ceiling, I typically charge about \$12.00 per linear foot, so a 14-by-15-foot room (58 feet x \$12) would go for \$696. **EHT**



The edge of the bead that attaches to the lower ceiling is stapled in place along the chalk line. This edge will be concealed with joint compound later.



A miter marking tool, which is included in each box of EZ-Tray, is used to mark the line that will be cut with tin snips.

Where the ends of the EZ-Tray butt together in the corners, (in this case, in a 45-degree corner), one piece will have to be cut at an angle to fit properly.



Check for proper fit and then attach with adhesive caulk and staples.



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