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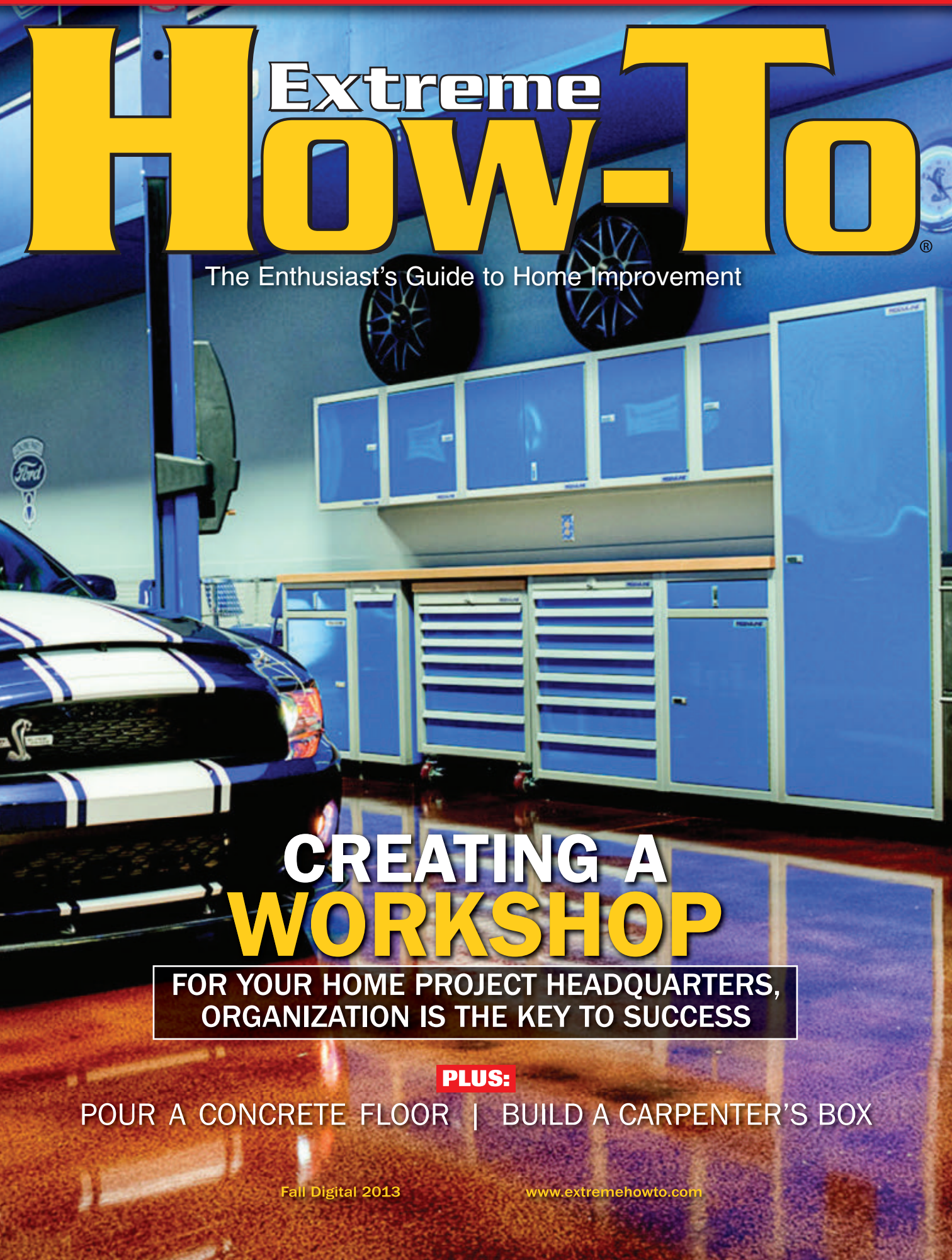

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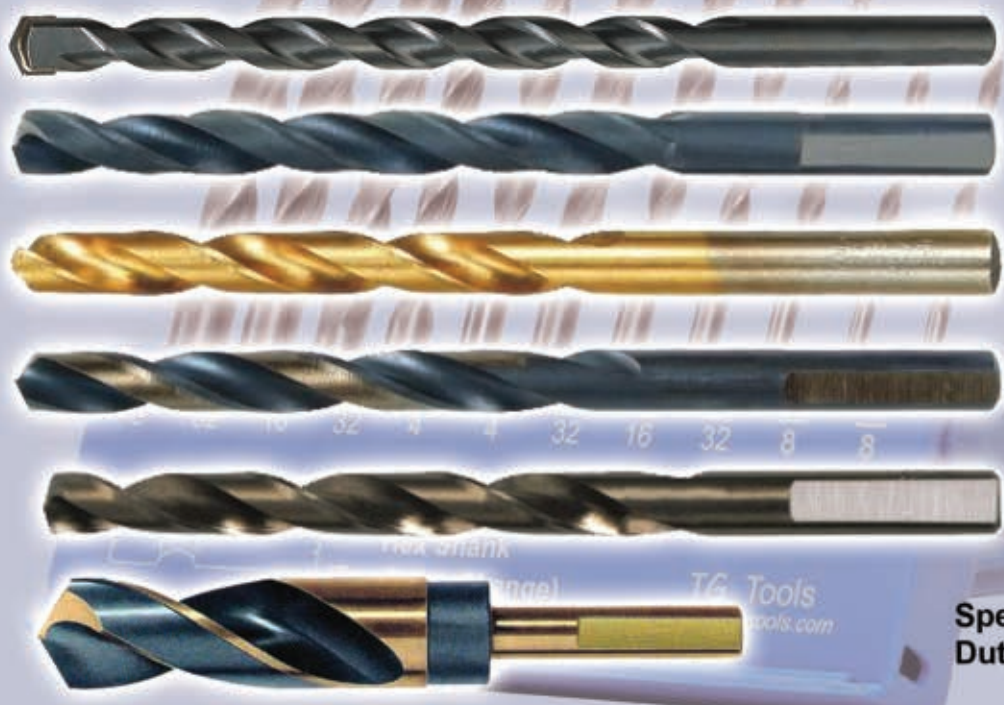

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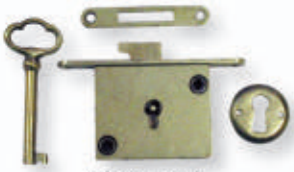

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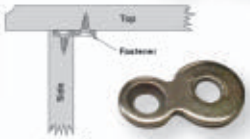

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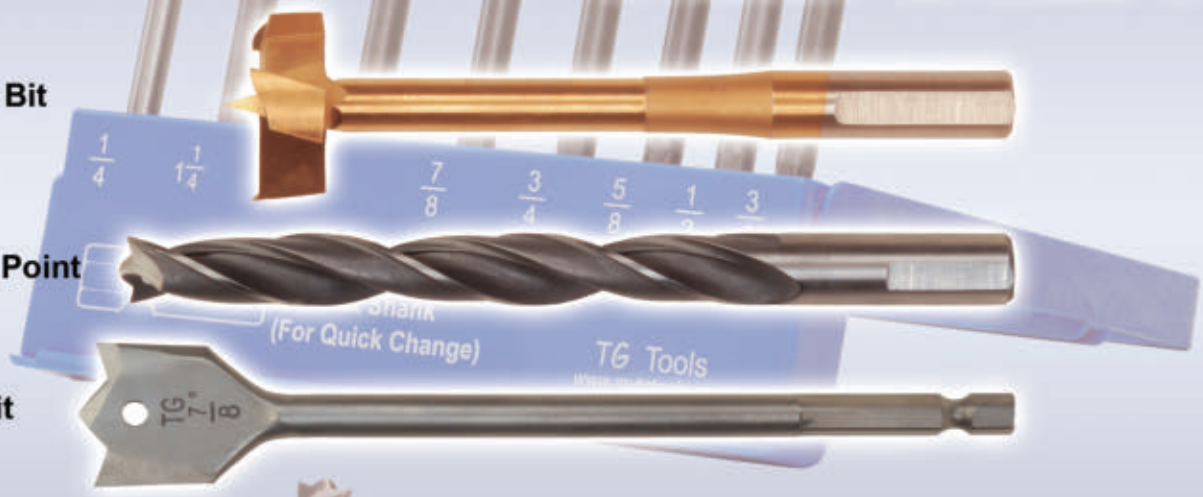

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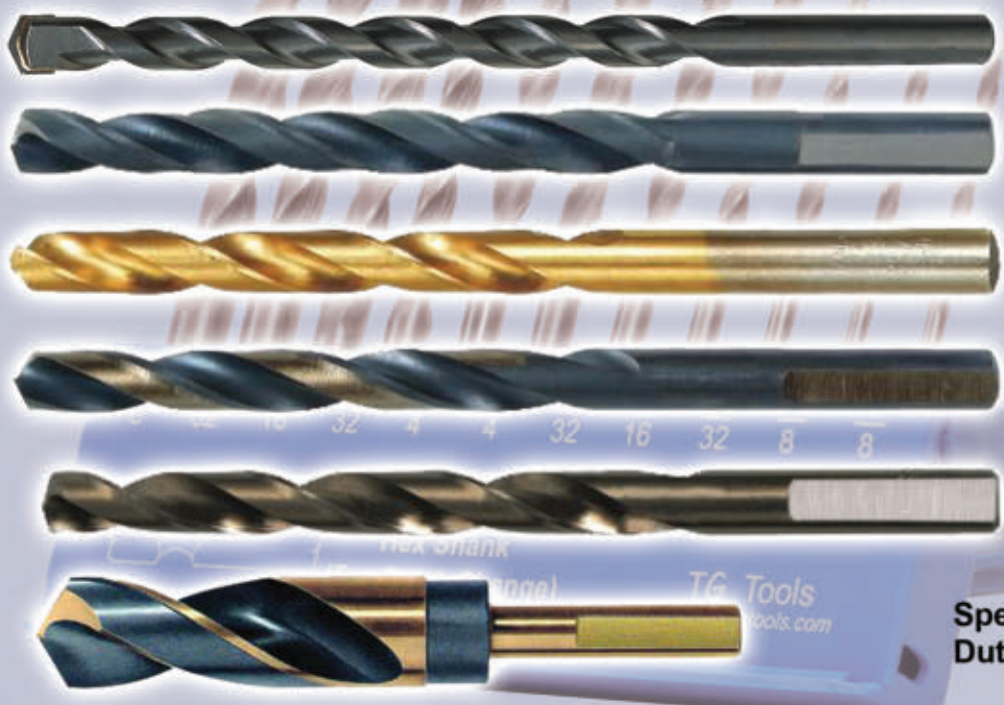

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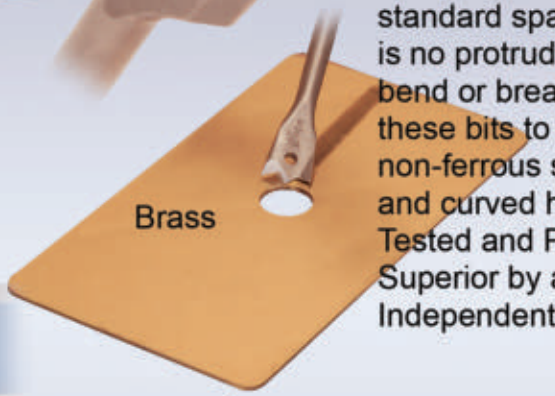

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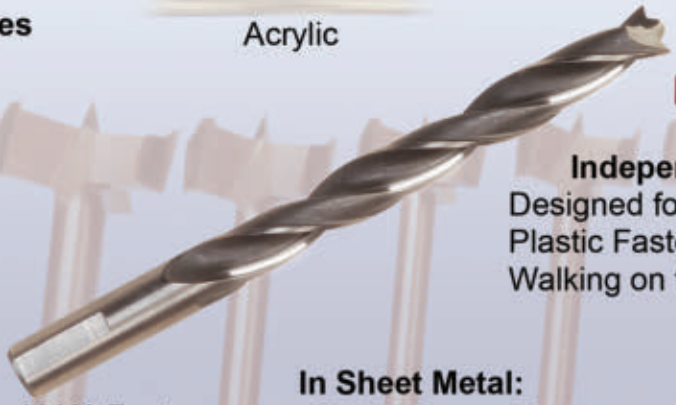

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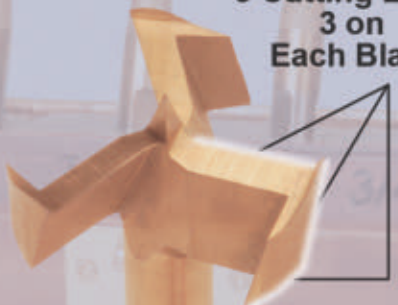

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Q *Why do most woodworking plans call for veneered plywood panels instead of solid hardwood boards edge-glued to create a panel?*

A First and foremost, plywood is more economical. A hardwood log can yield approximately 30 ft. of veneer to every board-foot of lumber. Also, with a plywood core, the veneered panel is dimensionally stable, meaning the material can carry a load without moving so it can be used for structural elements like doors, tabletops and legs. Lastly, a veneered panel spares the woodworker a great deal of labor associated with edge-glued panels, such as jointing, glue-up, planing, sanding, etc.

Q *I found a beautiful Christmas print at a flea market that needed a new frame. How should we hold the picture and glass in place in the new frame?*

A Since most people will never see the back of the frame, we often use foam-board as a backer to hold the picture and glass in place, and then neatly tape the edges onto the back of the frame using black Gorilla tape. The tape holds the artwork firmly and creates a seal so dust cannot work its way between the artwork and glass. However, if you do a lot of framing or sell your work to others, you might consider investing in a tool called a point driver. Used by professional picture framers, a point driver is similar to a staple gun but drives flat, pointed fasteners horizontally along the inside perimeter of the frame, which clamp the backerboard along the edges to hold the artwork securely.

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Q: *Does water putty work for repairing damaged wooden windows?*

A: Durham's Water Putty is a powder product that is mixed with water on site and can be used to repair damaged wood if applied properly. First, remove all damaged material, wood rot, etc. Add a little water at a time to the powder until you achieve a consistency similar to pancake batter. Apply the product in layers up 1/4-in. thick at a time. Allow each application to dry before adding more product. Once the damaged area has been completely filled and dried, sand the area smooth. It is important to finish the repair by sealing it with a waterproofing product such as exterior primer and paint.

Q: *I need to replace about 900 ft. of underground polybutylene pipe that supplies water to my house. Most neighbors have been recommending PVC that I can get in 20-ft. segments and glue together. That seems like a lot of joints that could result in leaks. Is there a better option?*

A: Not only could the pipe joints leak, but you should avoid the use PVC because it can release harmful chemicals into the water supply. A better option would be polyethylene or PEX (cross-linked polyethylene) piping, which are available in 500-ft. rolls and would eliminate most of the joints. Check your local codes for any special requirements on what pipe you can use, and make sure that the product you select is suitable for underground use. **EHT**

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Build a Carpenter's Box

A Handy Way to Tote Your Tools

By Monte Burch

In days past, most carpentry and trim or finish work was done with hand tools, and carpenter's carried their tools to the site in a handmade wooden box. My dad, a finish carpenter who specialized in trim work and cabinetry, had several boxes with a variety of tools—one box for his planes alone. These days a great deal of carpentry and trim work is done with power tools, but a toolbox of selected hand tools is still invaluable. A toolbox also makes a great organized place to safely store your tools in the shop, as well as tote them to the job.

The box shown is a compilation of several boxes I've built, some from teaching 4-H woodworking, as well as some ideas from a few of Dad's boxes. The box shown is made of white pine to keep the weight down. If it's to be a workshop box, you might prefer to make it of a finer hardwood. The box shown is also fairly simple to build, but you could use hand-cut dovetail joints and other construction as a showcase for your work. The box is sized to hold a framing or carpenter's square as well as a 2-ft. level and a variety of tools.

CONSTRUCTION

First step in construction is to enlarge the squared drawing on page 30 and create a pattern for the ends. Using a saber saw or band saw, cut the ends to shape. Note the sides are notched into the ends. Sand the cut edges smooth. Cut the top divider piece to width and length. Note it is 3/16-inch less the width of the end pieces. Fasten it in place between the two ends with screws or finish nails. The divider fits flush with the front of the tool box, leaving an open space in the back to allow for a framing square to slide down into. Cut the bottom and fasten in place with screws or finish nails. Then cut the back piece and fasten it in place. Cut the upper front piece and fasten in place.

The top divider piece has holding strips for several tools. This includes a strip fastened to the back edge, then a second strip set slightly over the thickness of the 2-ft. level it's intended to hold.

An Irwin Dovetail/Jamb saw is held in place in the front with a

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GSA Schedule

A drawer in the bottom of the box holds a small plastic divided box for nails, wood putty and additional tools. The top divider has holding strips for a level and saws, as well as a slot in the back to hold a carpenter's square.

holding strip. This little saw is great for trimming jambs and other tight places. Install a pair of 1-1/2-by-1-1/2-in. blocks between the last holding strip for the level, and the inside edge of the jamb saw support strip. These have slots cut in their top edges to hold a pair of hand saws upright. The handle is a piece of 1x1, ripped from a 2x4, with its edges rounded with a router. Install with glue and screws through each end into the handle ends.

Bore holes in the back top edge to hold screwdrivers, nail sets, punches and other tools. Additional tool holders are built into the ends of the box. One end has a 3/4-in. piece with holes bored in it to hold paddle bits and pencils.

The opposite end has a chisel holder for wood chisels. This is constructed of 1/2-in. thick materials. Cut the front piece and lay it on a work table and then cut 1/2-by-1/2-in. spacers to go between the chisels. Position the chisels in place and glue the spacers to the back side of the front board and between the chisels with hot-melt glue. Add a 1/2-in. bottom to the holder, then fasten the holder to the toolbox end with screws or finish nails. Spaces between the saws and level holding strip can hold a number of other tools, including measuring tools, a stud finder and so forth.

The drawer front overlaps the end tool holders and the tool box bottom. Cut the 3/4-in. drawer front to size, but it has a dado to hold the bottom, so 3/4-by-3/4-in.

Cut the ends to shape on a bandsaw.

Then sand the cut ends smooth.

end blocks are fastened to the ends to conceal the dado. Cut the 1/2-in. drawer side pieces to size. The drawer bottom is cut from 1/4-in. hardboard and held in place in the front and sides with dadoes. These are cut using a table saw with the blade set 1/4-inch high. Make a cut, move the fence slightly, make another cut and continue moving and cutting until you have a dado slightly over 1/4-inch wide.

Fasten the sides to the front with glue and finish nails. Cut the back and fasten between the sides with glue and finish nails. Install the bottom in the dadoes. Use a carpenter's square to make sure the drawer is square, and then fasten the bottom down on the bottom edges of the back with small flat-head nails. The drawer is held in place with a pair of wooden turn

Assemble the box with glue, screws and countersunk finish nails.

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Photo courtesy of Beth and Rod of *See Dirt Run!*

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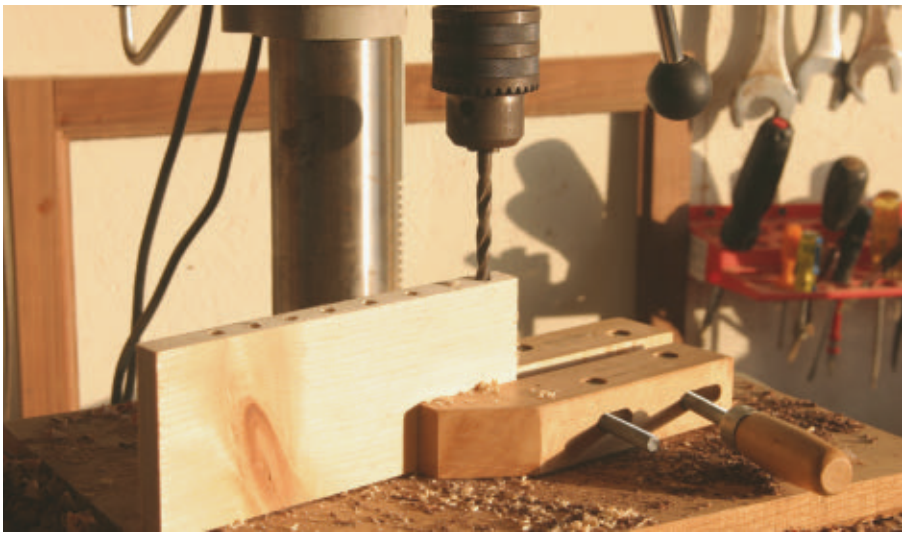
buttons. Set the finish nails below the wood surface; fill with wood putty and sand smooth. Finish the tool box as desired. I left mine unfinished to age naturally. Now comes the fun of filling your new carpenter's box.

TOOLS TO TOTE

The following hand tools create a complete tool box for everything from framing to finish work. They include: a carpenter's or framing square; try square; sliding T-bevel square; two hammers, one 12- and one 16-oz.; nail set; two handsaws and a pull saw; coping saw; 2-ft. level; tape measure; folding rule; two planes, a block and bench plane; chisels; utility knife; pliers; screwdrivers; stud finder and drill bits. Because much of today's work is done with a cordless drill/driver it is included, as are the bits and driver assortment. EHT



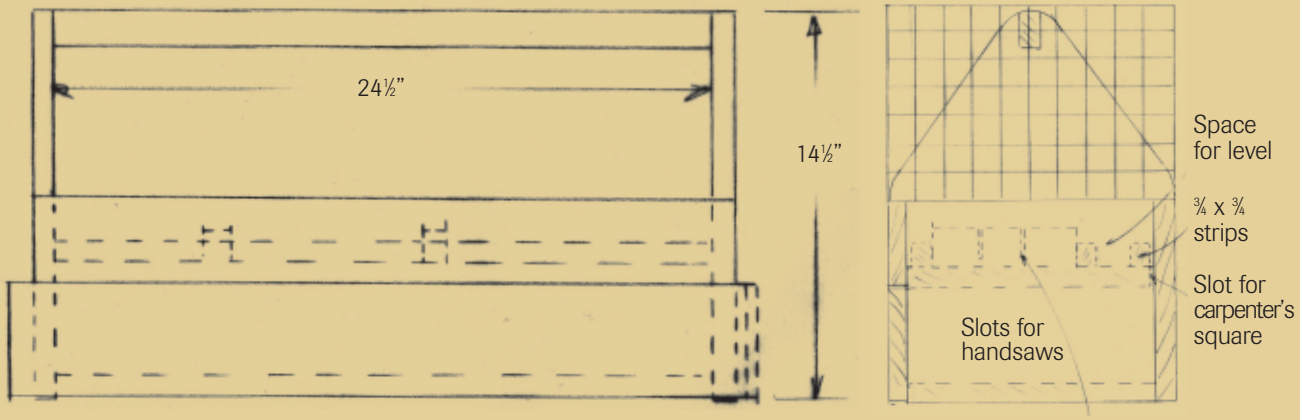
Holes for the paddle bit holder are bored on a drill press. A wood clamp holds the stock upright.

Wood chisels are held in a holder of 1/2" stock. Glue the spacers between the chisels to the front of the holder with hot-melt glue.

Assemble the drawer. The bottom is held in dadoes in the front and sides, and fastened down to the bottom edge of the back with flat-head nails. Make sure the drawer is assembled square.

MATERIALS LIST

Ends, 3/4 x 10 x 14-1/2", 2 req'd.
Top Divider, 3/4 x 8 5/16 by 24-1/4", 1 req'd.
Bottom, 3/4 x 8 1/2 x 24-1/4", 1 req'd.
Back, 3/4 x 7-1/2 x 25-3/4", 1 req'd.
Front, 3/4 x 3 x 25-3/4", 1 req'd.
Handle, 1 x 1 x 24-1/4", 1 req'd.
Paddle Bit Holder, 3/4 x 4 x 9-1/4", 1 req'd.
Chisel Holder Front, 1/2 x 4 x 9-1/4", 1 req'd.
Chisel Holder Dividers, 1/2 x 1/2, x 4", 5 req'd.
Chisel Holder End Block, 1/2 x 2 x 4", 1 req'd.
Drawer Front, 3/4 x 4-1/2 x 26", 1 req'd.
Drawer Front End Blocks, 3/4 x 3/4 x 4-1/2", 2 req'd.
Drawer Sides, 1/2 x 3-1/2 x 7-3/4", 2 req'd.
Drawer Back, 1/2 x 3-1/2 x 22-7/8", 1 req'd.
Drawer Bottom, 1/4" hardboard x 3-3/4 x 23-3/8", 1 req'd.
Drawer Turn Buttons, 1/2 x 1/2 x 3", 2 req'd.



CREAT

For your home project headquarters, organization is the key to success.

ING A WORK SHOP

By Matt Weber

While a garage is nice, I like a workshop even better. And by "workshop," I'm referring to a garage or outbuilding that's a little more dressed up in regard to tool storage and organization. I consider a garage a workshop once it has a variety of shelves, tool racks and work surfaces arranged in some sort of logical order. The place doesn't have to be meticulous, but with home-improvement projects an organized workshop paves the way for greater productivity and less time spent searching for tools. Here's how we dressed up a freestanding garage into a home-improvement workshop.

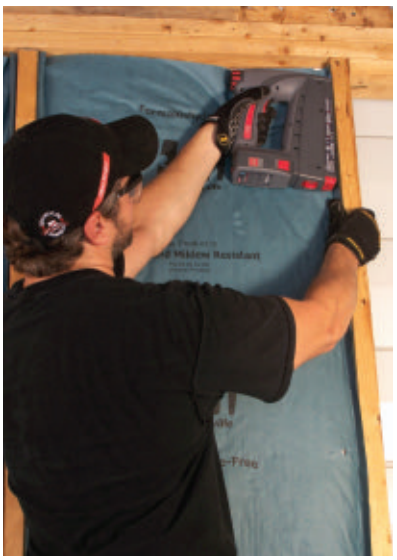
CREATING A WORK SHOP

WALL PREP

When converting the freestanding 24-by-24-sq. ft. garage shown in this article, we were fortunate to begin with a strong foundation. The garage was built on a concrete slab, framed with studs on 24-in. centers and sheathed in metal siding and roofing. The front wall features two automatic garage doors. We swept away the dirt and insect nests from the floor and rafters and then focused on the remaining three walls.

This workshop would be used extensively throughout the summer and winter, and since we had easy access to the open stud cavities we decided to add fiberglass insulation batts. We used the mold- and mildew-resistant variety, because it never hurts to be too careful. The batts are pre-sized to fit between the 24 o.c. studs, so installation was as simple as stapling the paper nailing flanges on each side of the batt approximately every 8 inches to the inside of the studs. Nailing the 1-in. flange to the inside of the studs, as opposed to the face, creates an air gap that aids insulation, and it helps to avoid nail pops when installing any sort of wallboard.

Before: Garage with bare studs



Occasionally we cut extra strips of insulation to fill gaps at the bottom of the framing. When cutting, place the batt over plywood, compress the insulation and use a long razor knife to slice the material in a single stroke. A T-square makes a good cutting guide. Always wear gloves, eye protection and a dust mask when working with fiberglass.

Ultimately we were planning to add a slat-wall storage system with adjustable shelves and tool holders. However, to avoid deflection in the slat-wall panels, we first installed 1/4-in. plywood panels over the studs. The panels were installed with 1-1/4-in. drywall screws roughly every 16 inches. You can saw the panels to size so they break on stud centers, providing a solid fastening surface behind the panel edges. Or you can add blocking between the studs to create a solid nailing surface when the panel edges extend beyond the studs.

To help reduce heat transfer at the ceiling, we installed Enerflex friction-fit radiant panels between the roof rafters.

Use a utility knife to cut out electrical boxes

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CREATING A WORK SHOP

SLAT-WALL SYSTEM

The wall-mounted storage system we chose is called the Flow Wall System, a fully integrated and expandable slat-wall system that combines a large assortment of storage devices and accessories (www.flowwall.com). Available in 1-by-4- and 1-by-8-ft. sizes, the panels are strong and durable, and easy to install. The available accessories include application-specific hooks, shelves, bins and cabinets that attach to the Flow Wall panels with a simple click-together system that requires no tools. Also available are strap attachments for storing cords and hoses. The mounting plates of each accessory can be moved and rearranged at any time.

To install the wall system, begin with a clean wall and use a stud finder to locate and mark the studs. Level and fasten a scrap piece of wood to the wall just below the position of your first panel. Rest your first panel on top of the scrap board serving as your guide, and drive your first installation screw through the slat-wall panel and into the stud behind it. Use a T-square to map out the stud locations on the panels. Work your way up and across the studs, fastening the panels between the slats.

I used a chalk box as a plumb line to locate the stud locations when fastening the plywood panels. A T-square also works well.

The installation of the 1/4" plywood panels serves to eliminate deflection on the wall-storage panels.

To extend the wall vertically, just align the next Flow Wall panel above or below the first, pressing it evenly for a seamless connection, and then screw down the panel securely.

To extend the wall horizontally, insert the provided nylon pin connectors into the pin slots on the side of the panel. Gently push the panels together so the pins slide into the slots on both panels. Then simply fasten the new panel to the wall.

Fasten a level guide board just below the location of the first Flow Wall panel.

Drive screws through the panels and into the wall studs.

To cut the panels to size, we used a table saw fitted with a fine-tooth blade, and used an outfeed roller to support the work. However, you can also use a handheld circular saw, but to do so you should support the panels from below to prevent deflection when cutting, and use a straight-edge guide to keep the cut in line.

For this workshop, we covered the rear wall extensively with the Flow Wall System, and then ran a couple of tracks along each side wall. Available in three colors, white, maple and silver, the number and orientation of the storage panels is totally up to the homeowner and can be easily rearranged. The same goes for the many storage accessories, from wire shelves to ladder racks.

CLICK-TOGETHER FLOOR TILE

To add some much needed décor to the lifeless concrete slab floor, we covered it with a click-together tile system. Garage floor tiles are available in a wide array of colors and styles. We chose the heavy-duty 13-in. tiles, which has five interlocking tabs

CREATING A WORK SHOP

where each tile joins the other tiles. Floor tile systems are easy to install and create an attractive, non-slip, solid surface that's guaranteed not to stain.

To install the garage floor, snap a few square layout lines on the floor to guide the installation. After the tiles have been conditioned to room temperature, start in a corner and place the "smooth" edges toward the wall. Place the next tile against the locking edge, interlocking the pegs under the second tile with the loops on the edge of the first. Continue working in one direction until the first three rows are complete. Then install the next three rows along the adjacent wall to the first. Install the interlocking edging along the first wall, then continue working along the rows, installing the field of the floor.

When installing the floor, leave an expansion gap of at least 1/4 inch between all walls and obstacles such as beams. You'll need to account for this expansion, as well as the width of the edging, when laying out your first rows.

SHELVES & BENCHES

Another nice amenity to this workshop is the Gladiator workbench and set of cabinets available from Whirlpool (www.gladiatorgw.com). The Gladiator products are a complete line of garage storage items that range from wall and floor systems to cabinets and more. For this project we used the modular GearBox, the GearDrawer and the tall GearLocker. The GearBox has a full-extension adjustable shelf for larger items. The GearDrawer has five full-extension drawers for smaller items. Both the GearBox and GearDrawer feature butcher-block maple tops and

large casters. Each storage unit rolls conveniently beneath the Gladiator 8-foot modular maple-topped workbench, which is strong enough to support 1,000 pounds. The Gearlocker is 66 inches high, with one fixed and two adjustable shelves. Each of the Gladiator storage components features locking tread-plate drawers and heavy-duty welded construction. Gladiator GarageWorks is a top-notch product line for all manner of workshops, from woodcraft to automotive work.

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BESSEY Tools offers two horizontal versions and an Inline version with new offerings coming Fall 2012.

Toggle Video

POUR A CONCRETE FLOOR

By Monte Burch

A Guide to Concrete Construction

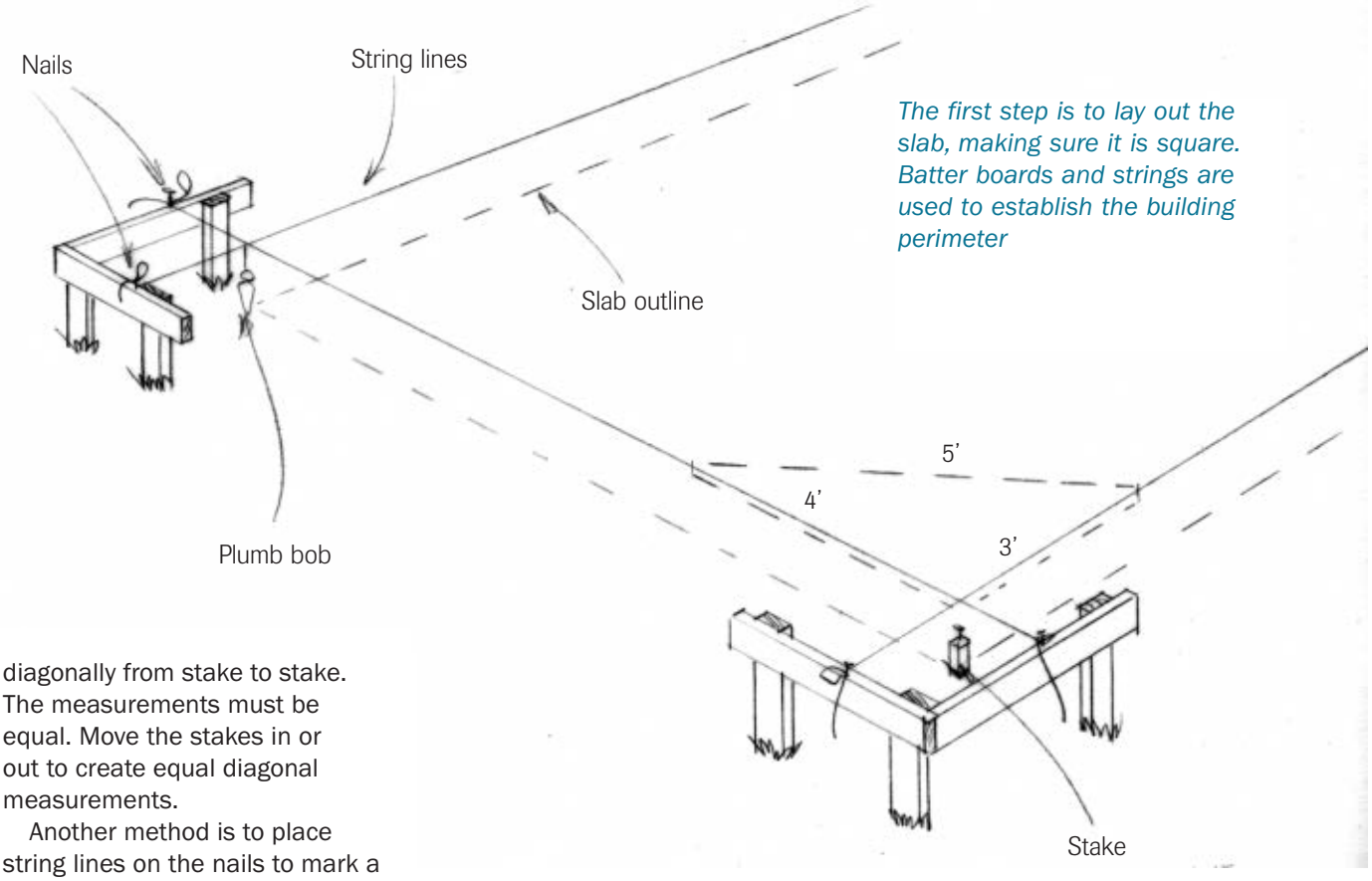
Concrete floors are a major component of many buildings, from homes and garages to shops and sheds. Pouring a concrete floor is hard work, and it takes skill, strength and tools. You may wish to have this job done by a pro, but you can do it yourself. The tools can be rented at many rental places, and the skills are not very difficult to learn. If you're undecided as to whether to do it yourself or have the job done by a professional, the following steps on pouring both a slab or in-foundation floor illustrate the basics and may help you decide.

A concrete slab on which a building is erected is a fairly simple concrete pour, but it takes more work in creating the forms needed to hold the concrete. A pour within a foundation requires little in the way of forming, but in some cases can be a bit more difficult to pour, especially on larger projects. Regardless of the type of pour, or whether you do it yourself or have the job done, the first step is to check with local building codes and regulations, and acquire any permits needed.

CREATING A SLAB

First step is to lay out the slab. Take your time with this step and make sure you get it right. Lay out the slab incorrectly, and the building can be a nightmare. The slab must be square. Mark the outline of the building with stakes at each approximate corner. Drive a nail into the top of the stake and, using a tape measure, measure

POUR A CONCRETE FLOOR



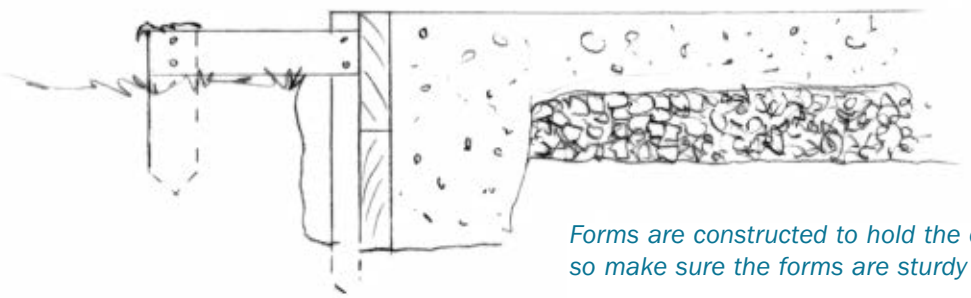
The first step is to lay out the slab, making sure it is square. Batter boards and strings are used to establish the building perimeter

diagonally from stake to stake. The measurements must be equal. Move the stakes in or out to create equal diagonal measurements.

Another method is to place string lines on the nails to mark a rectangular perimeter. Measure and mark 3 feet on one string and 4 feet on the adjoining line. The distance between these two marks should be 5 feet. Again, move in or out as needed.

After the corners are determined and the building laid out square, batter boards are used to create a permanent perimeter mark at all corners. These will stay in place until the forms for the slab have been constructed. Two-by-4 stakes are driven solidly in place and boards nailed to their outer edges. The batter board tops should be level with each other. A string line and string level or laser level can be used to make sure all boards are level with each other. Once the boards are established, a string line is run for all sides of the slab. A plumb bob is used on the intersection of the strings to position their crossing points, or the building corners, directly over the nails on the original stakes.

Mark the outline of the slab with lime, following the string lines. Then dig up the area and remove sod and debris. The area is normally recessed slightly, but the top of the slab must be well above ground level or fill level. In many instances the slab is raised and soil filled in around it to create a slope to drain rainwater away from the slab. In some instances local



Forms are constructed to hold the concrete. Concrete is heavy, so make sure the forms are sturdy and well-constructed.

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codes may require a footing be poured before the slab. In other cases,
a "stiffener" method may be used, digging a deeper area below the frost line around the perimeter of the slab.

The entire area should be well compacted and of a uniform depth. Keep the ground slightly moist as well. The form is then constructed using 2x6's. Stakes are driven into the ground on the back (outside) side of the forms every 3 or 4 feet apart to support the form boards. The stakes should be driven or cut off flush with the tops of the form boards. The stakes are fastened to the form boards using duplex nails or nails with double heads so they can be pulled out after the concrete sets. The forms must be level and at the proper grade or height. A carpenter's level can be used for small projects, a string level for longer runs, but a builder's or laser transit is best for larger pours.

A uniform grade is then established using fine gravel 1 to 2 inches deep. The best choice in gravel is called base rock. This has gravel and fine particles that pack down smooth. Once the gravel is in place, tamp it down smoothly.

If the pour is large you will need to divide it into smaller, easily worked sections using interior forms held in place with stakes. Pour one area, remove the forms and stakes and pour the second or third areas.

Floors should be reinforced according to local regulations. In the case shown, wire was used as reinforcement. Rebar may be used for slabs requiring more support. Garage floors are usually poured 4 to 6 inches thick.

You must also install all waste and supply lines for bathrooms, kitchens and so forth, leaving stub pipes. Close these pipes off to make sure nothing gets into them until you're ready to connect them. In many instances you will also wish to install a plastic vapor barrier over the gravel.

DETERMINING THE AMOUNT NEEDED

Concrete for a slab or floor is commonly ready-mixed and

delivered in large trucks, although you can mix your own for very small jobs. Ready-mix concrete is sold by the cubic yard. To order the correct amount, tell the concrete supplier the width, length and thickness of the slab or floor you intend to pour. They will calculate the quantity needed, and in most instances supply slightly more than needed. You should have a place to dump a small amount of leftover concrete. They will normally add 5 to 10 percent for losses due to uneven subgrade, spillage and so forth.

MAKING THE POUR

Concrete should not be poured on extremely hot, dry days as the material will dry out before it can cure properly. Concrete should also not be overworked. If the pour is overworked, too much water will be floated to the surface, which can cause scaling after the concrete dries. The material should be spread evenly and quickly once the pour begins, slightly overfilling the forms.

Pouring a floor—even a small floor—takes manpower. Pour when your best buddies are available and equip them with rubber boots, safety glasses and rakes. Once the pour has started, the liquid material should be evenly spread over the area using the rakes. Make sure all corners are filled. Leave the concrete slightly higher than the top edges of the form boards.

The next step is to use a screed board to drag off the excess concrete. The screed board is rested on the form boards and must extend past the form edges at least 3 inches on each side. Screeding is a two-man operation and at best is hard work on a large

Begin the pour in the back corner of an in-foundation pour. As the liquid material is poured, use rakes to pull the material toward the building opening or door.

pour. Beginning on one end of the pour, place the screed board over the form boards with a person on each end of the board. Using a side-to-side motion, and at the same time pulling the board, sweep it across the form boards to the opposite end. Screeding levels the concrete with the tops of the form boards, pulling off excess concrete. Any low spots will be visible and should be immediately filled and the area rescreeded. A jitterbug or tamper should be used to settle the concrete and remove air pockets around the edges.

In standard construction, anchor bolts are needed to anchor the walls to the slab. These can be placed in holders nailed to the form edge, or pushed in place as the pour is made. The first method is more precise. The anchor bolts must always fall between the stud locations. If you locate one under a stud, you've got problems.

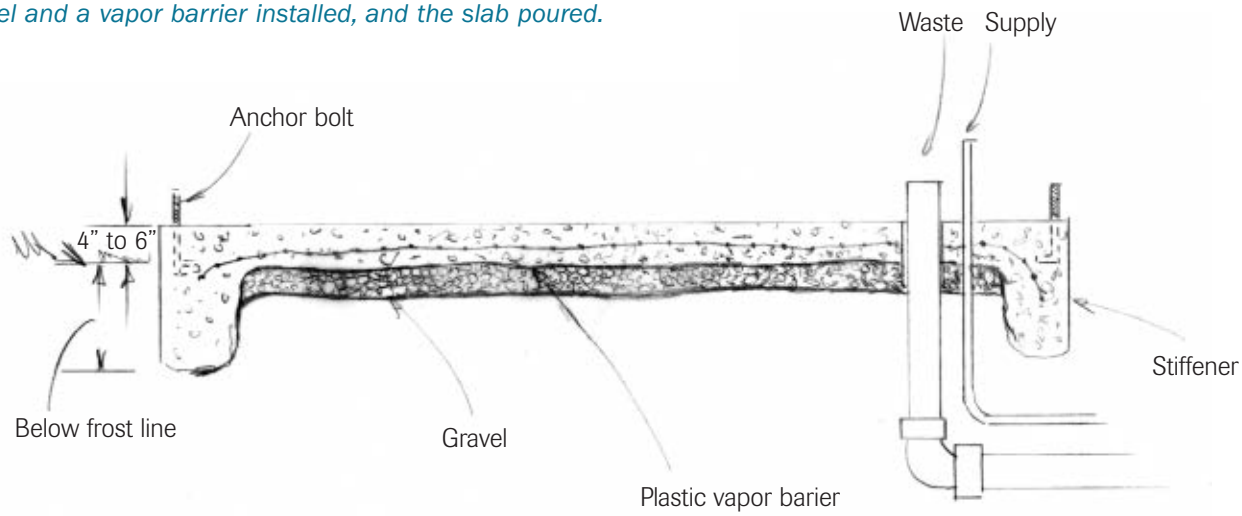
Use a screed board to level the concrete between the forms or guide boards.

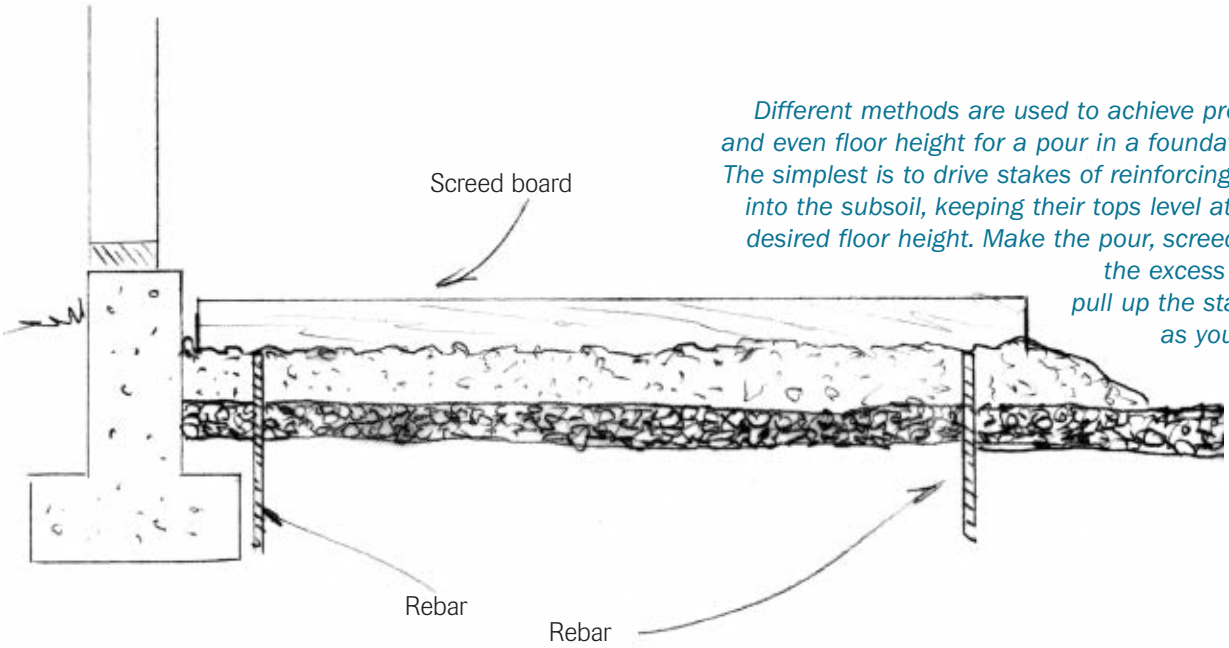
FLOATING AND EDGING

The third step is to float the surface, which will take away some of the roughness. This also helps fill any small voids and works the aggregate slightly below the surface. Do this immediately after screeding. A bull float is used for most floor pours. These are wide magnesium tools with a smooth flat surface, and handle extensions that can be used for a long reach. The float is pushed away from you across the surface with the rear edge slightly raised to prevent the float from digging into the concrete. The float is then pulled back at an almost flat angle. Once the float has been worked across one area, it's moved to the adjoining area, and the steps repeated, slightly overlapping the first area edge. The Marshalltown RotaLeveler bull float bracket allows for easy and automatic changing of the float angle on the push and pull strokes.

The edges around the form boards should be separated using

All supply and waste lines are stubbed, the subsurface prepared, gravel and a vapor barrier installed, and the slab poured.





Different methods are used to achieve proper and even floor height for a pour in a foundation. The simplest is to drive stakes of reinforcing rod into the subsoil, keeping their tops level at the desired floor height. Make the pour, screed off the excess and pull up the stakes as you go.

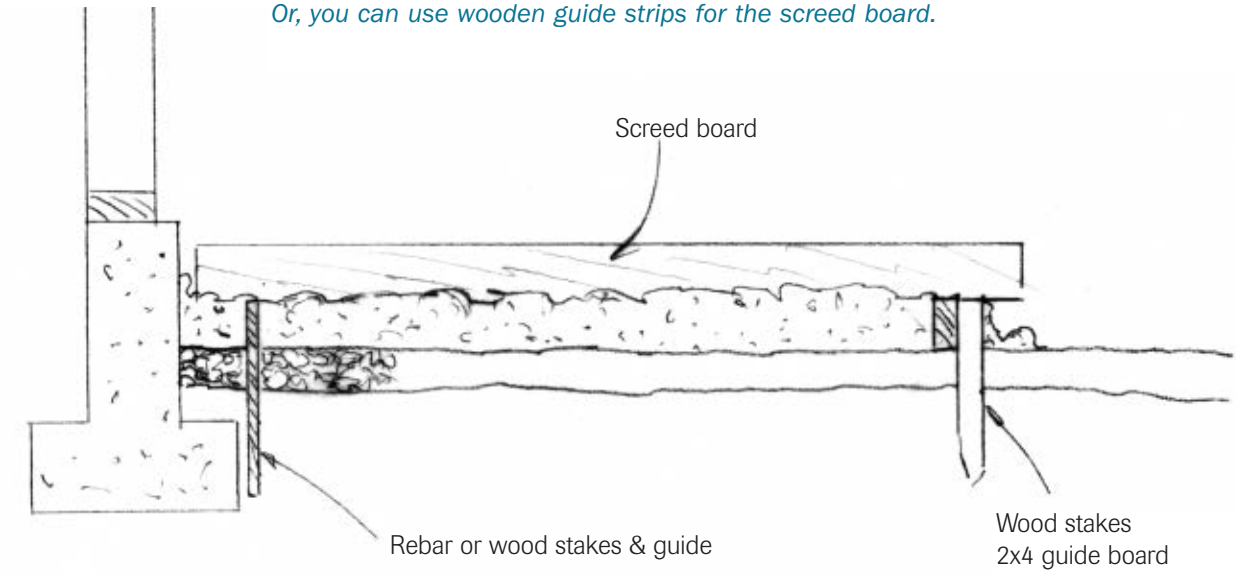
a pointing or margin trowel. Then use an edger around the top edge of the form. This creates a rounded edge that won't chip off when the form is removed. The edger should be held fairly flat, but keep the front tilted up slightly when moving forward and the rear tilted up slightly when moving backward.

TROWELING

The final finishing is troweling to smooth the concrete. Troweling provides a smooth, hard and slick surface, with the amount of smoothness depending on the amount of troweling, as well as the timing. Again, it's easy to overwork an area. Small jobs can be hand troweled using a 14-by-4- or 16-by-4-in. finish trowel. It does take some skill to hand trowel a surface, especially a larger area. Troweling should begin when the sheen of water disappears and a footprint leaves less than 1/4 inch of depression. Several trowelings will result in a smoother, hard surface.

The first troweling is done with the blade held down flat on the surface. Use the trowel in an arc, overlapping each previous arc by about 1/2 inch. Allow the concrete to set slightly between trowelings. The final troweling should be done more vigorously and with the trowel tilted up slightly, pressing down with the edge. Concrete can set up quicker than you can hand trowel, so if you're hand troweling, you may wish to enlist a buddy to help. A power trowel, available at most tool rentals, is the best choice for large slabs. In most instances floors are left hard

Or, you can use wooden guide strips for the screed board.



For an inside pour, prepare the floor with gravel, guide stakes or boards, a vapor barrier and any necessary reinforcement required by code. In the project shown, wire was used.

and smoothed, not broomed, although you may prefer a light brooming in sheds and garages.

Keep the concrete damp for five to seven days after pouring. Do not allow it to dry out. Cover it with plastic sheeting and dampen down the surface every day or so.

POURING AN INSIDE FLOOR

Making a pour inside an existing foundation or walls is easier in some ways, because you don't have to create the form, except to block off doorways. In other instances it's a bit harder, because you may have to drag the materials further during the screeding process, say from the back of the building to the openings.

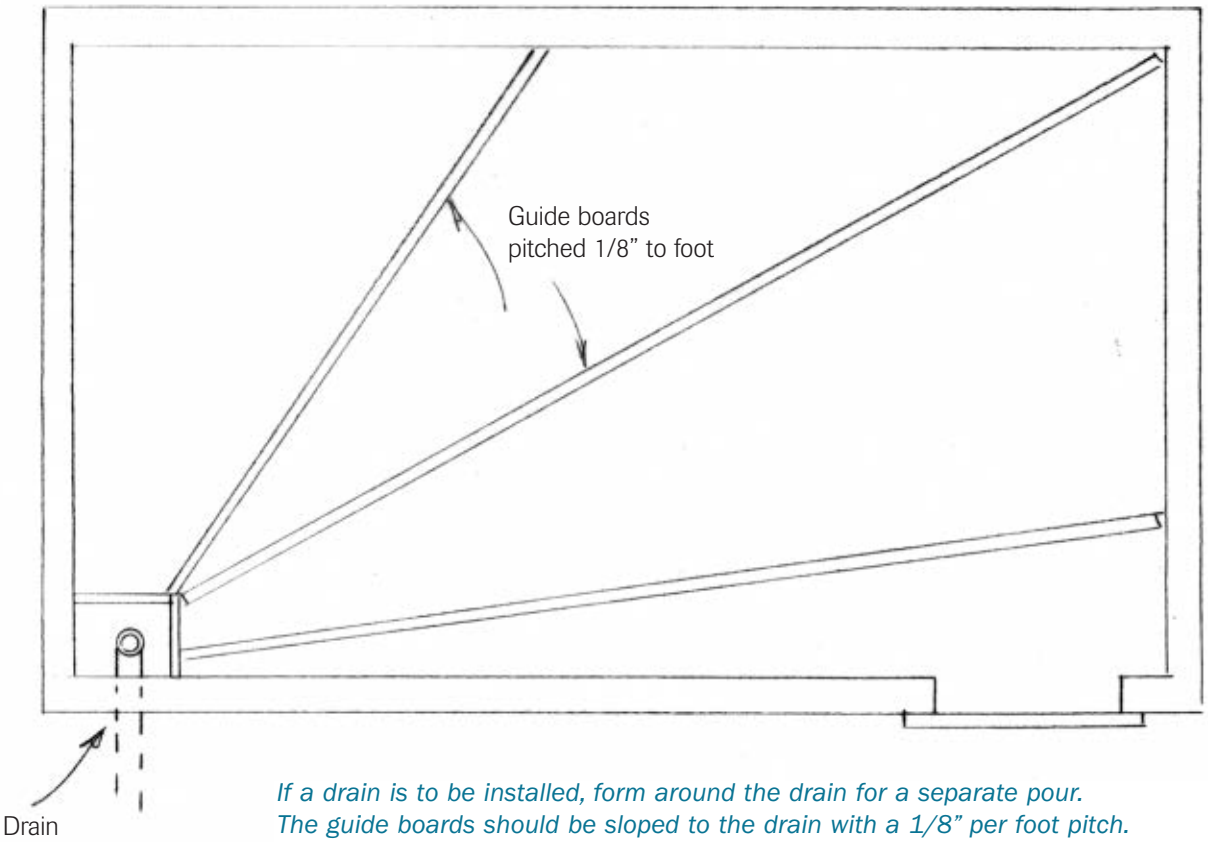
The subsoil surface should be prepared in the same manner as for a slab. In the instance of a floor inside a building that requires a drain pipe or sump-pump location, the drain pipe and drain must be installed and formed first as a separate pour. The floor must also be pitched to the drain in all directions, normally 1/8-inch to the foot.

Several methods can be used to establish the height and level surface of the pour. On small pours, such as a shed or single-car garage, experts often simply use 1/2-in. reinforcing rod cut into 2-foot lengths. These are spray-painted a bright fluorescent orange and driven into the subsoil at 3-foot intervals around the perimeter of the building and down through the center. The liquid concrete is poured to the approximate height of the rods, then screeded, pulling up rods as you screed past them. Using this method you can screed one side at a time as you make the pour, or screed one side, then go back, fill and screed the opposite side, but still making only one pour.

An alternative method, especially when using a vapor barrier, is to install screed guide boards on wooden stakes driven into the subsoil. The guide boards are created level or sloped to create the pitch desired. When making the pour, begin at the rear of the

A bull float is used to smooth the concrete and settle the aggregate below the surface. Push the float across the surface to the back of the pour with the back of the float tilted up slightly.

Then pull the float back across the surface with the float flat on the surface. Repeat, overlapping the strokes.



If a drain is to be installed, form around the drain for a separate pour. The guide boards should be sloped to the drain with a 1/8" per foot pitch.

building and screed toward the door or openings, removing the guideboards and stakes as you go.

Another method is to use 4x4's as guide boards. Make sure the subsoil surface is flat, smooth and level (or at the correct pitch) and lay 4x4's on the vapor barrier. Make the pour, again starting at the back and working toward the door, removing the 4x4's as you go. Some like to leave the guideboards in place until the concrete just begins to set, then walk across it, remove the boards and fill in the spaces with fresh concrete. But this requires having enough fresh concrete on hand to fill in.

If the pour is fairly large, say a two-car garage, another method is to create three separate pours. Divide the building into thirds lengthwise and install guide boards on stakes. Make a side pour, make the opposite side pour, then remove the guide boards and make the center pour.

Wet down the foundation before starting the pour and be careful not to splash concrete up on the walls of the building during the pour. When you reach the door forming, smooth the opening edge with an edger and remove the form board. **EHT**

TIPS & TRICKS

If making small pours, say for a shed, and mixing your own, a Crete Sheet, the world's simplest concrete mixer, can be used to mix pre-mixed concrete. It easily and quickly mixes an entire 80-pound bag per use, but is a two-man operation. Fore more information, visit www.cretesheet.com.

Edge around any openings or forms. The final step is to trowel the surface. On large pours, the best bet is to rent a power trowel.

DIY GARDEN STORAGE SHED

By Kevin Hayes

Being of sound mind and body didn't stop me from bragging to the entire neighborhood, family and co-workers that I could build an APA Handy Plan project in one long weekend. I chose the Garden Storage Shed, an 8-by-12, 96-sq. ft. potting shed with four walls, three windows, two roof lines and a sliding barn door. (See sidebar on pg. 44 for downloadable plans).

On paper this looked like a fairly easy build for a person with my skill set. I framed the exterior walls of my own home using structural insulated panels (prefabricated wall panels that join together in a mortise-and-tenon

A Tale of Extreme Procrastination

fashion). I've built decks and fences, laid roofing and tiles, run electrical and even assisted on a retail store remodel installing slot-wall panels, carpeting and fixtures. My weekend warrior paraphernalia was solid: circular, chop and jig saws; framing and speed squares; framing and torpedo levels; variable speed drill; hammers, wrenches, caulk, measuring tapes, chisels. I had other reasons for overconfidence: The contractor who built my house lived across the street; the guy who built the original APA Garden Shed prototype several years ago, still

The author's sons and big Mikey (center), dig out the ground for the shed's gravel foundation.

worked at APA; and my brother, who is chronically short on spending money, was my hammer on-call should I need an assist. And what dad could pass on the chance to introduce his two sons to the building craft?

"GameBoy be damned, we're going to build the most enviable shed in the 'hood, boys," I told them.

Finally I had to tie my wife into the project. The shed was her belated Mother's Day present. In our house, all Mother's Day presents are belated. The boys and I put the finishing touches on her 2005 flagstone patio present in March 2007. And so, with all the bravado only a PR specialist can muster, the shovels broke dirt on the four-day Memorial weekend.

MAY
SITING THE SHED

There aren't many flat spots on my highly sloped lot. I chose an area that abutted the property line fence to the southeast and an old 40-in. stump to the northwest. This tight location would prove nettlesome. After watching the boys chip through the Northwest glacial hardpan for an hour, I realized that we needed to get that stump out of our way. The Stump Guy could not come until Tuesday. Before a hammer was even lifted, my get-er-done-in-a-weekend-timeline was kaput, finito. Whew, that was a relief. Now I could build at my own pace—glacial, just like the rock-strewn soil.

After spending $262 for the stump removal, I brought in a gravel base of 1-1/4-in. minus to a depth ranging from 4 to 8 inches. I used a rented plate compactor to apply the finished grade. It was mid-June before the first lumber hit the ground.

JUNE
FLOOR INSTALLATION

Going with the gravel base meant I'd be using a plywood floor

All the wall sections were constructed in the garage starting with the two rake walls. The author used a combination of dimension lumber and LVL studs.

Looking northeast to the left side wall. There was about 18" of clearance between the fence and the eastern wall. It would become a problem during the paint phase.

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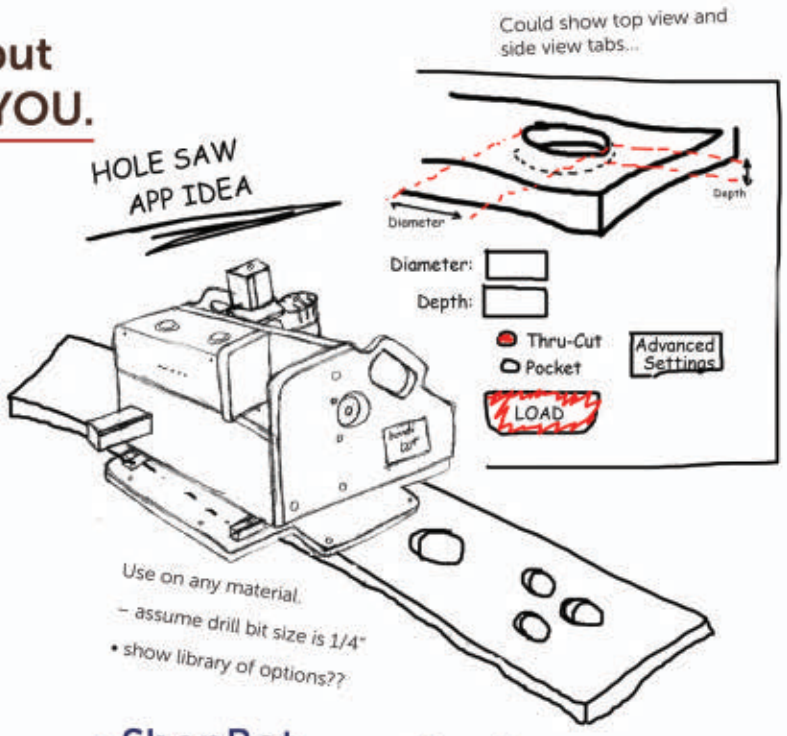

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Only one month into the project and two walls are standing. The earth is warming up faster than this project is coming together.

on treated 2x4 framing. I had the luxury of laying out all the main components in my garage. The flat surface helped telegraph any imperfections. Sure enough, one of my 12-footers had a nasty bow, which meant either halt work and roll back to the lumberyard or deal with it later. I told myself the weight of the shed will surely flatten this section down, so I moved on, paneling the floor with 3/4-in. square-edged plywood. Later I would learn two lessons: Warped studs usually don't flatten out by themselves, and if you can't shim, hide it with trim.

WALL CONSTRUCTION

I opened my plan to page six: the right and left side walls. I cut all the panels and then laid out the studs. In hindsight I should have laid out the frames and then cut the panels to fit the frames. The boys were very excited to get started with the chop saw. They argued over whose turn it was, so we set up the alternating cut plan. They cut the studs, I watched their fingers, and our progress was slow. This was a learning experience for all of us.

The intersecting rake walls found on page 16 looked pretty straightforward. I laid the bottom plate out and cut the end studs and center stud to length and tacked them to the sole plate. I then placed infill studs 16 inches o.c. (on center). Using the top plate as the guide, I ran a pencil line across each of the infill studs, cut them to fit and nailed it all together. The plan called for galvanized nails as required. Once those are sunk, they are hell to get out, an exercise I repeated near daily. My builder neighbor finally brought over some vinyl coated sinkers and that sped the reconstructs up quite a bit. The overhangs were pre-drilled and screwed together. I did not want to split the small block that formed the end.

The author's son gets into the act applying T1-11 siding to the front wall section.

An elaborate attempt to plumb and level the left corner involved this rope and pulley system. Note the handy shovel for gravel in-fill where needed.

This drop-in header was a marvel of craftsmanship. The cripple studs only vary by 1" from one side to the next.

The roofing crew installed filler strips to the skylight roof. Note the mondo gap where the walls meet. Would 1x4 trim be large enough?

When applying my pre-cut T1-11 siding to the frames, I found the fit was not picture perfect. As my brother would say many times throughout the project it was, "Good enough for the girls we go out with." His other favorite: "We ain't building a Swiss watch." I embraced those phrases with great vigor as the project wore on. By the end of that first day, we had one wall sheathed and ready to stand. However, after one day of work with dad, the boys were already tired of the "shed." Even though I was paying them by the hour, the shed had become another one of their chores that devoured precious goof-off time with their friends.

One of the walls called for an aluminum casement window, which I could not find so I bought vinyl sliders from the local big box. (All three windows were nailed to the exterior siding, flashed, trimmed with 1x3 white-board and caulked.)

After the two end walls were standing, I tackled the rear wall. I reviewed pages 12-15 and 17-18 to get the clear picture. There is a double top plate underneath the skylight, which is also right above the outward swinging doors. The rest of the framing was single top plate with 16-in. o.c. studs. The actual skylight framing would come later—much later.

With three walls in place I could get an idea as to how the skylight roof lines were going to match up. They weren't. That bowed floor stud started to bite the project. I

The author's brother (with ladder) and the roofing pro put the lipstick on this pig, four days after their estimated completion. Nonetheless, the shed is starting to look acceptable.

was about 1-1/2 inches low on the window side. After much laughter my neighbor, the builder, brought his expertise into play. We lifted one corner of the shed with a shovel until our string line across the back was level. I wedged a piece of treated 2x4 under the floor joists and filled in around it with extra gravel. You couldn't even see it. The floor felt solid and level. All well and good ... for now.

JULY
FRONT WALL AND TRACKING DOWN THE BARN DOOR

The front wall is shown on pages 9, 12 and 13 of the Handy Plan. I built mine in two sections and dropped in my version of a header. I screwed strap ties to the 2x6 LVL header and cripples, and then nailed through the trimmer into the header on each side using 3-in. sinkers. This wall could certainly be framed as one unit and stood in place. I did not know where my next help would come from, so I chose smaller sections to work with.

The author installs folded composite shingles opposite the wind direction to finish the front shed roof.

I changed the clerestory layout to accommodate the two 12-by-18-in. sliding windows. I cut and nailed the siding in place, leaving the bottom nails out so I could slip the 6-in. metal roof flashing underneath when the time came. I would install the windows after the roof was on.

Sliding barn doors are expensive and not as easy to find as one might expect. Forget the local big boxes in urban settings. I knew I'd have to go out where the lettuce grows so I called several stores about 10 miles out of town, and finally found one with the kit. Upon arrival, I was told they were out of rails, so they sent me to another location even further out. This place only had 10-ft. rails and I needed an 8-footer. I bought a metal blade for my chop saw. The door kit, gas and saw blade came to $120.00. In the end it was well worth the time and expense.

The clerestory required some adjustments.

ROOF ERECTION, CLERESTORY DECONSTRUCTION

The shed went into hibernation for about three weeks while I debated my next move. I had four walls standing, but I knew the roof was not going to be easy, given the fact my earlier jiggering with the floor had fixed only the skylight roof line. It was about this time

HANDY PLANS FOR BACKYARD PROJECTS

This project was built using instructions in APA's "Garden Storage Shed" Handy Plan. For a printable, downloadable 23-page instruction manual complete with materials list, step-by-step procedures and detailed diagrams, visit www.apahomeprojects.org.

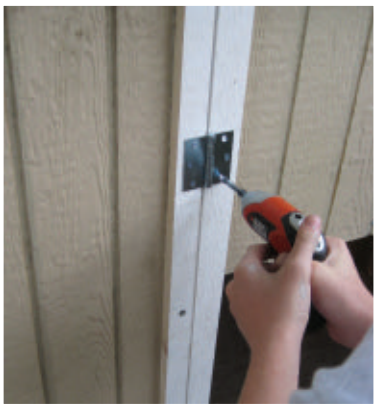
Working through the rain, the author's brother begins the first course on the back shed roof.

that my brother called, wondering if I had any work around the house. I told him about the project, and he mentioned his roofing partner was looking for side money. Bring it on, I told them. The beer-drinking saviors arrived in late July. They looked over the work and declared, "We should be able to bang this out in a day or two." Get-er-done must run in the family. We donned our tool belts and hit the ladders. The first order of business was to remove all the siding from the clerestory window section. The rafters had to tie into the studs, not the siding. Later we could recut the panel sections to fit the revised layout.

The roofing pro and my brother started measuring the rafters on the skylight side, and that's when their pace went glacial on them. They had different cuts from one side to the other. My neighbor had forewarned me that if you are out of whack on the floor, you're going to chase it all the way to the top. The chase cost a couple hundred bucks and a half-rack of beer, but the saviors were able to sheath

Step flashing the skylights went smoothly. Once the windows were in place the author applied a peel and stick membrane that capped the skylights.

The author missed the bottom of the frame. The Plexiglas was later cut right about where the sealant ended.



1x2 trim was glued and screwed to the door frames, and the hinges were fastened to a piece of 1x3 trim nailed into the siding.

both roof lines and shingle the front section before I left on vacation in August. Another plan difference was my use of composite roofing instead of cedar shakes. I wanted to match the roof on my house.

AUGUST

Vacation. I still had the whole month of September to install the clerestory windows, shingle the rear, install the homemade skylights, trim out the walls, install the doors and hardware, build my countertops and storage bin and paint the thing. Piece o'cake.

SEPTEMBER

Did I mention that we usually get nice long Indian summers and the rains don't really start pouring until late October? September was not a total waste. My football teams stink to high heaven this year so rather than watch their disgusting play, I installed the barn door and studied for my upcoming skylight exam.

OCTOBER

Now it was go time. The Indian summer lasted about 36 hours. I called for my brother, the hammer, and he came in for a $150 stretch of labor that saw us install the clerestory windows, roofing and most of the siding and trim. We got the skylights framed in. For the window flashing I used a peel-and-stick rubberized aluminum roll flashing. I cut the 6-in. material in half and pressed it into place all around the flanges. Though not a typical window flashing material, I liked the adhesion to both wood and plastic. (We've already had several wind-driven monsoons, and the windows are not leaking yet.) Bro and I were on a roll. He left late Sunday night after we had planned out the final week of action. It would be the last time I saw him.

Without going into the whole story, he would be hamstrung with legal and municipal matters for a little while. It was not a good time for either of us. I had failed the skylight exam. The 1/8-in. Plexiglas panels sit in a 3/4-by-1/8-in. channel that runs along the perimeter of the skylight framing. The top header is a 2-by-6 notched at the ends and in the center where it slides over the center rafter. Along the sides are 2x2's, each with the

Author and sons enjoy calm before the paint storm.

The hinged doors still need the hardware and a bit of paint.

same 3/4-by-1/8-in. channel. They are nailed to the roof sheathing and line up with the ends of the top header. The middle stud is a flatwise 2x4 channeled with the grooves running down each side. A 1/2-in. filler strip is nailed beneath the center stud so that all the channels are at the same height along the perimeter. My heights were perfect, the openings were surprisingly square and one dry fit showed the grooves were deep enough. I caulked the groove with a urethane sealant and set the windows. Crap, too long. They stuck out about 2 inches beyond the rafter tails. Then it hit me. I forgot the bottom of the window frame.

The oldest son had to step up, and he did. He helped remove the gummed-up windows. We cut 2 inches off the Plexiglas using my circular saw with a fine-tooth blade running backwards. The saw slowly melted the plastic. The technique worked better than I expected. I nailed a 4-ft. piece of 1x4 trim to the ends of the rafters and reseated the windows. I then cut and beveled four pieces of 1x2 trim. These were glued and nailed above and below each window for stabilization. Finally, I installed the trim and caulked all the joints. Another ugly win was in the books.

HOME STRETCH

I started on the interior storage and countertops, working through the long rainy weekend. The punch list was then down to about 14 items. The shed appeared to be nearing the end. The rest of the family, including my wife and one of my son's friends, pitched in to paint the exterior walls and trim, while I banged away at the punch list. The DIY Gods had given us three consecutive days of 50-degree temperatures. Our paint would adhere just fine.

Shown are the interior countertops and the top to the outdoor storage bin (trimmed in red).

The cabinet was a gift from the builder neighbor. The plan could not have been built without the trusty shim.

Working to the last minute, the author snapped one last shot of his project before hanging the tool belt for the night.

Miraculously, the weekend project was finally over. (Okay, I have about three tiny items to finish.) It had consumed an entire summer and half the fall. It provided comic relief for the neighbors, friends and co-workers. Eleven people had a hand in the construction including my wife, who rarely complained. In the final review, this plan is written for an advanced DIY'er. A person with framing and roof construction experience should have no problem building this project.

I, on the other hand, spent far more than I should have—nearly $3,000 dollars. I had built a Swiss watch.

But it was good enough for the gal I married. Happy Mother's Day! **EHT**

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SHED SOME LIGHT

By Larry Walton

Wiring a Garden Shed

When is a shed a shed, and not a shop or a barn? Sometimes the answer to that question is a technical one and determines whether or not you need a building permit. Most of the time, however, it's up to you. Location, purpose and size of your outbuilding determine the fit and finish, but one thing I try to do if possible is get some lights in there.

Some sheds need lights. Many of us leave for work when it's dark and get home when it's dark during those short days and long nights of winter. So if you're going to use a shed to store tools, toys or supplies, then you'll be using it in the dark for much of the year.

I've had my share of trips to sheds with a flashlight, so when we planned a new garden shed I started with looking for the best way to get some juice to the location. An outlet on the outside of the house provided a source for power, so we dug a ditch from that location to where we would build the shed.

Check your local codes, but the basic requirements are (1) adequate gauge wire and breaker, (2) GFCI protection on the circuit, and (3) special underground wire or conduit.

You can run your wire underground in sealed PVC conduit or you can use type UF underground cable, as long as the wire is protected with conduit wherever it is exposed.

We elected to us type UF and PVC conduit. I figured the wire could use some extra protection

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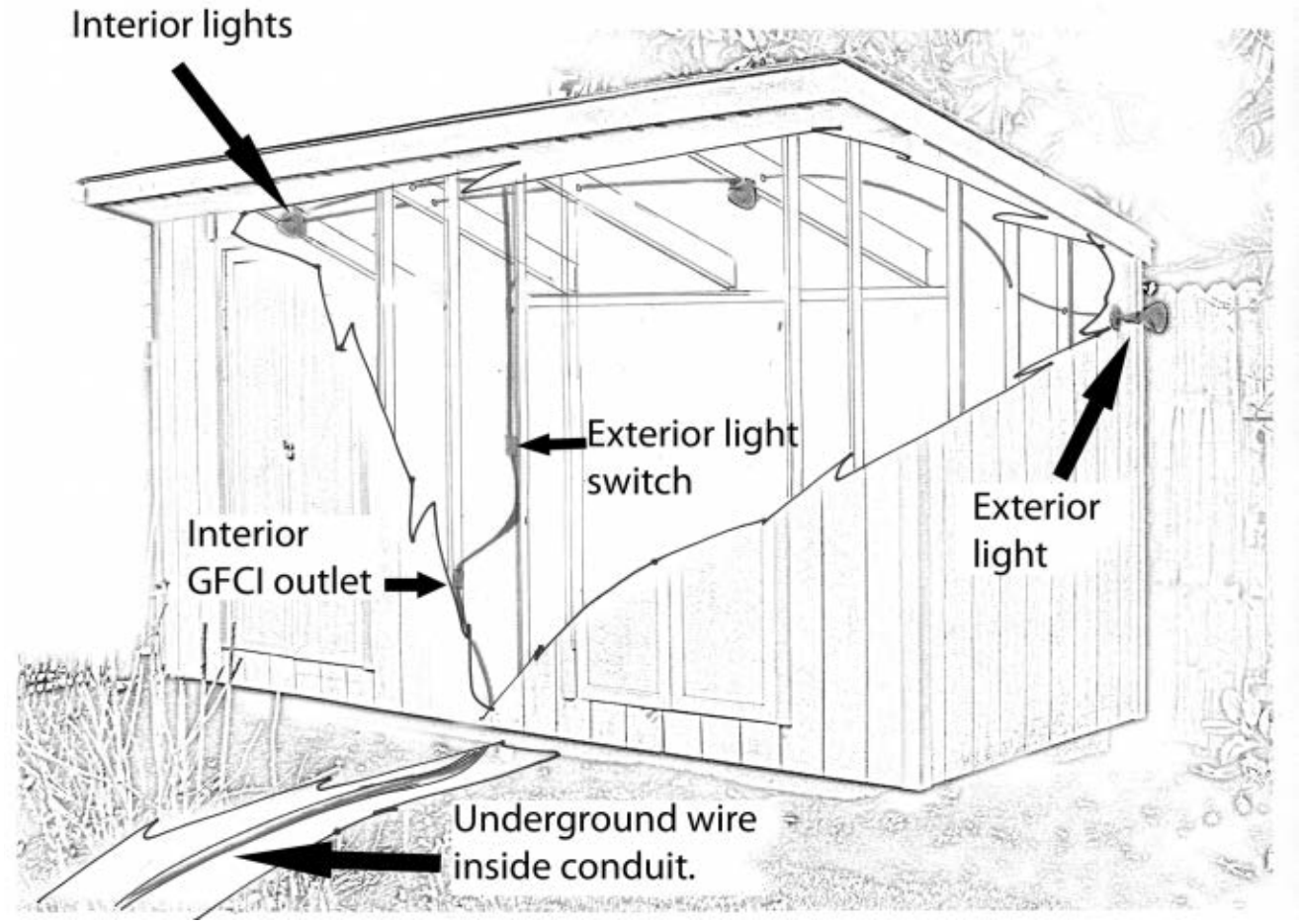


in case I get the idea to build an alligator pit and forget that the shed wiring is there. However, the type UF cable we used was a pain in the butt for stripping the insulation to make j-box connections.

Here's how we got it done:

Once we knew where the shed was going to be located, we dug a trench from an existing exterior junction box (j-box) to the new outbuilding.

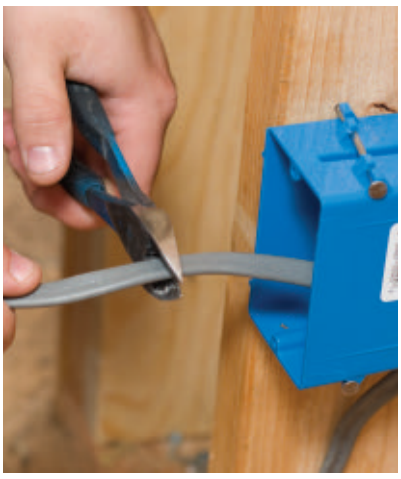
We ran PVC conduit to protect and route the wire underground, leaving enough extra length for us to decide where to place the first outlet to be installed in the shed.

We added extra pieces of conduit to protect the wire against puppy teeth between the ground and the shed floor. We then drilled a hole through the bottom plate of the shed framing and through the

floor, and threaded the wire from outside into the shed.

We set an outlet j-box about a hammer length off the floor. With the j-box elevation set, we attached the box to a stud using the supplied nails.

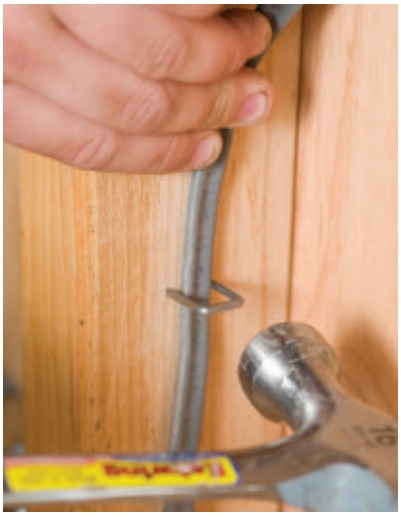
We snaked the wire through one of the openings in the j-box. We then secured the wire to the framing with a wire staple. Be



sure to drive the staple in without damaging the insulation around the wire.

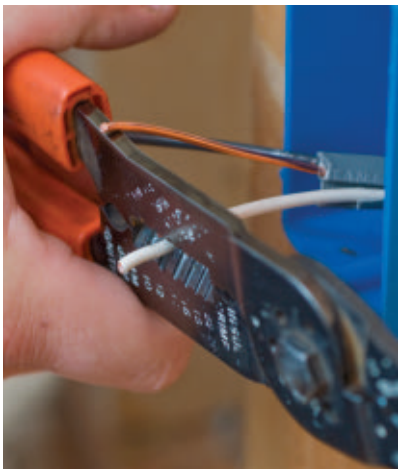
We tried several methods to strip back the outer shielding of this underground wire. The added challenge is because the outer insulation is not just a sleeve like regular romex, but fills all of the space around the individual 12-gauge wires as well. Be careful not to cut the inner insulation around the individual wires.

Wire strippers have gauge-specific notches so you can find what works for the wire you are using. Remove 1/2-inch of



insulation from the wires to prepare for installing the outlet.

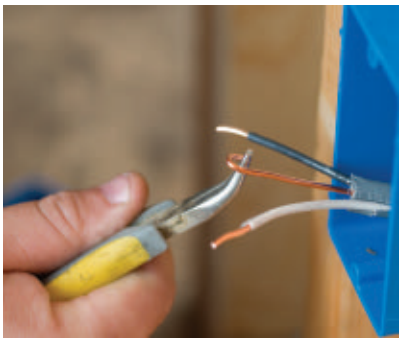
There are usually two ways of attaching wires to common household outlets: screws on the sides or holes in the back. The ground



wire, however, is usually fastened only with a screw, which means you'll need to bend a small loop for connecting it. Needle-nose pliers work well for this task.

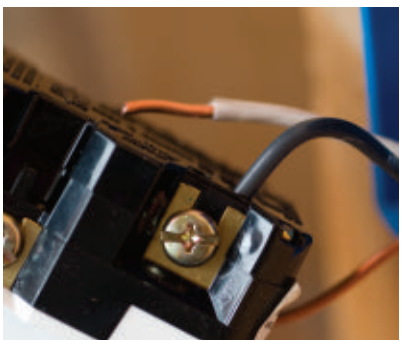
Bending the hook clockwise helps keep it in place when you tighten the screw.

Insert the remaining wires into their proper terminal holes (white



to silver and black to gold) and tighten the screws to hold them in place.

We decided to make our light switch accessible from the outside of the shed so we could turn on the lights regardless of the door we used, and so we could turn on an exterior floor light without going into the shed. We used the switch



j-box as a template to mark the opening so we could cut it against the stud from inside the shed.

If you are experienced with a reciprocating saw you can make a plunge cut, but it's usually safer to drill a hole to get started.

Cutting from the back works well because the saw teeth are

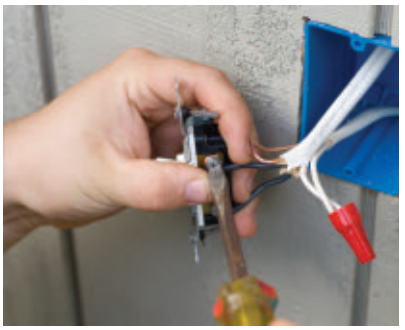
cutting on the return stroke, which helps prevent tear out.

Because this j-box wasn't really designed for this application, we pre-drilled on the stud side of the box and fastened the box to the stud with screws.

We used a 3/4-in. spade bit to drill holes through the studs to route our wire from the GFCI outlet to the light switch.

We again attached the wire to the framing using wire staples.

We attached the light fixture j-boxes to the ceiling joists and ran wire from the left light to the light switch.



We connected the black wires and the ground to the light switch, and connected the white wires together inside the switch j-box using wire nuts.

We cut about an 8-inch section of romex and stripped the outer insulation so the individual strands could be used for pig tails to connect to the light fixture.

Three black wires are connected together at the first light j-box (feed, pigtail and the line to the next light in series). The same goes for the white wires. Remember, the power pigtail wire

(black) goes to the brass/gold terminal on the light fixture, and the neutral pigtail wire (white) goes to the silver terminal.

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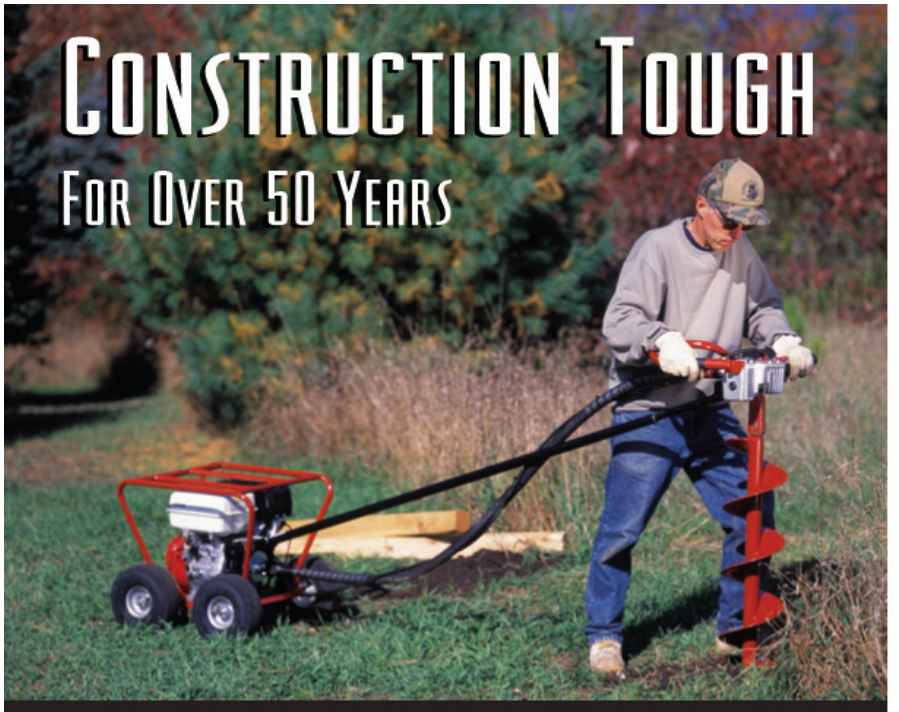

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SHED SOME LIGHT

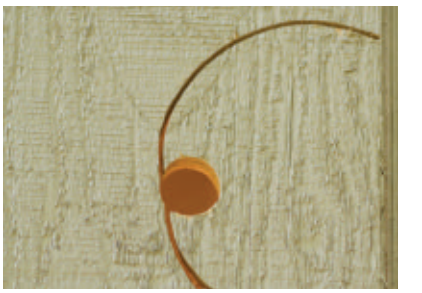
Once you have the wiring finished, tuck the excess into the j-box and install the fixture. A drill is handy for this, especially when working on ceiling-mounted units.

Our final light fixture in the series was an exterior flood light. After marking the j-box location on the inside, we drilled partially through with a spade bit. Drill

until the tip of the bit can be seen from outside.

To prevent blow-out (splintering the siding), finish drilling the hole from the outside.

We used a jig-saw to cut all of the circle we could from the inside. This gave us enough of the circle to finish marking and cutting the j-box opening from the outside.



The wires on the floodlight fixture were multi-strand, so we wrapped them around the 12-gauge wire and bent the larger wire back over the multi-strands before covering the connection with a wire nut.

Remember to install the supplied weather seal gasket between the exterior fixture and the j-box.

Before connecting our new shed wiring to the house, we tested the circuit to make sure we had tripped the right breaker.

Finally, some creative conduit work allows us to use a pre-existing hole in our power source exterior j-box keeping everything properly sealed. EHT

Heavy Metal

Recycling the last of your parts car

By Larry Walton

If you do much wrenching on a budget, the odds are pretty good that you will end up with some scrap parts and maybe even a "parts car" somewhere along the line. Growing up in the country, I was used to having a disabled vehicle or two around the house. In fact, almost everyone I knew had a junk car or two out by the barn—not exactly the décor I want now.

When our son, Tim, brought back his highly modified Subaru 2.5 RS after it was totaled in an accident (not his fault), he pulled it into the garage and pulled every conceivable part he could to put on the stock car he bought as a replacement.

Of course, the main project was to salvage his race-tuned turbo engine and transmission, but because the wrecked car was newer and had a preferred interior color, he stripped many more parts off of it as well. He removed the sub-frames and suspension systems, dash, steering wheel, seats—you name it.

What was left was a non-rolling hunk of scrap metal that had outlived its welcome in the garage. We sometimes dispose of vehicles by calling a wrecking yard to come and get the car at our location. We save the hassle of hauling off the car, and they benefit by selling car parts and scrapping the rest.

However, this car body was so stripped that it wasn't worth much to the junkyard—plus, it was in the garage without a single wheel on it. Besides, we kinda like winching and hauling stuff.

Here's how we disposed of the remainder of the infamous junk car to keep our place from looking too "down-home:"

First we stopped by Bee Hive Rental to pick up a tilt-bed trailer. Because our car had no sub-frame, no axles and no wheels, we needed a unit with a very thin lip at the bottom of the ramp.

The next order of business was to get the car rolling so we could get it out of the garage without destroying the concrete floor. Years ago, I made a dolly from two layers of plywood and some casters to move my wife's 1907-built piano. Over the years we have moved lots of heavy stuff around the property (engines, transmissions, etc.) with that piano dolly. We figured we could use casters to make a simple dolly for moving the parts car as well.

We used a chainsaw to cut 4x4 cross beams for the car dolly. My son thinks I try to use a chainsaw on every project. I figure if the best tool for the job is a chainsaw, then why not?

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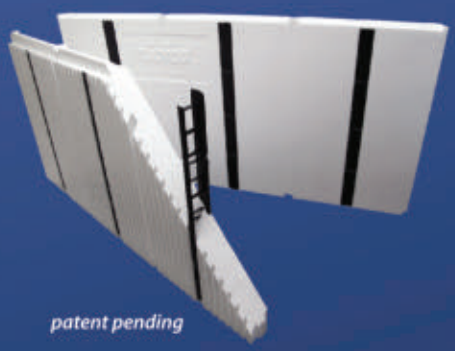

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The length of the beams was determined to extend a few inches past the reinforced seam (or "pinch weld"), where the pan meets the body, and still fit between the trailer's fender wells.

We picked up four casters at the home-improvement store and used one as a template to pre-drill holes into the 4x4s for lag bolts. Out of habit, we grabbed a cordless impact drill to drive the lags. After thrashing the socket-driver bit we woke up and started using the automotive air impact driver, which has a much heavier drive. Duh!

Caution: Before attempting any of the following stuff, hire an engineer to spec out load ratings, angles of approach and avenues of escape. Seriously, don't trust the floor jack, the casters, a home-made dolly or winch line. Stay out from under a vehicle that is being jacked and/or moved. Assume that heavy, elevated objects will drop.

After jacking up the car's front end, we removed the jack stands and positioned the front dolly

beam. We decided to leave the beams separate until they were positioned under the car because we had only one floor jack on site and could lift only one end of the car at a time.

We used the chainsaw (yes!) to cut some heavy wood wedges to fill gaps between the dolly beams and car body.

Jack points are hard to find with so many parts missing from the car. We needed an extra wood block to get the rear of the car off

the jack stands. We agreed before we started that under-the-car was strictly off limits during this entire operation.

We used a circular saw to cut plywood gussets to attach the front and rear dolly beams. These plywood pieces do not provide

structural support and are intended only to maintain spacing between the dolly beams and to keep the beams from twisting.

We used several 2-in. wood screws at each end to attach the plywood gussets to the dolly beams. Placing the screws at an approximate 2-in. pattern helped stabilize the beams from twisting.

A pin at the front of the trailer released the tilt bed from the subframe. With the trailer deck tilted, we were ready to move the car out of the garage.

Once on the dolly, the stripped car was easily moved by one person out to the waiting trailer. We attached our Warn PullzAll winch line to the front dolly beam and the tail hook to the front of the

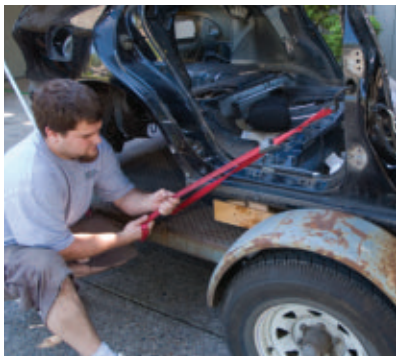
trailer deck. Using a section of chain at each end of the winch operation avoided kinking the winch line.

We took our time winching the car onto the trailer, paying attention to the position of the dolly, the car body and how the trailer was reacting to the added load. At one point, we put a floor jack under the rear of the car to keep it from gouging the driveway.

With all of the caster wheels on

the trailer deck, we reattached the winch line at the gearshift opening and brought the car forward as far as possible on the trailer.

With the car in position and the trailer deck tilted and locked back into the drive position, we used tie-down straps to secure the car to the trailer. With the load



secured, it was time to head to the scrap yard.

We stopped at the scales on the way into the scrap yard so the scale operator could record our loaded vehicle weight. The equipment operator at the scrap heap used an excavator with grapples to lift the car off the trailer and onto the heap.

We stopped on the scales on the way out of the yard so the scale operator could record the unloaded weight of our truck and

trailer combination. We then presented the slip to the cashier to get a little cash on the way out of the yard. **EHT**

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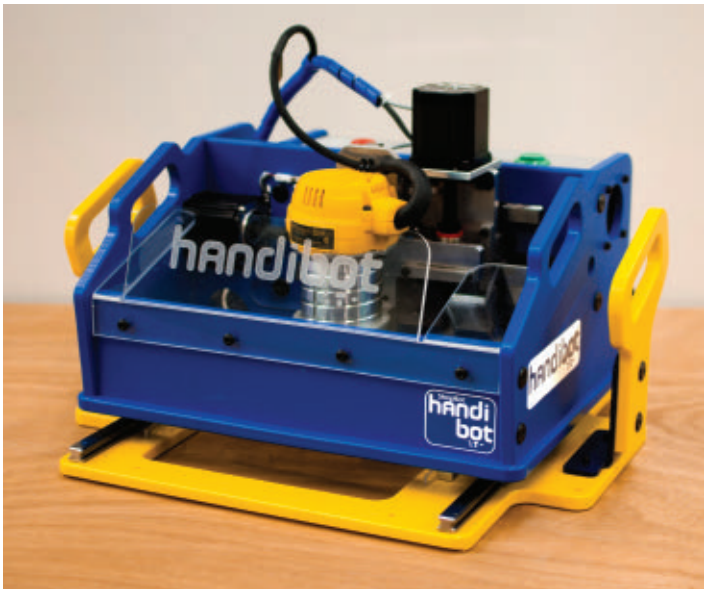
SHOPBOT OPENS "HANDIBOT APP HQ"

ShopBot Tools has opened up Handibot App HQ, an online forum to submit ideas for software applications for ShopBot's revolutionary power tool, the Handibot Smart Tool. The Handibot is a portable robotic power tool designed to enhance creativity and productivity at construction and remodeling jobsites, in rapid prototyping, and in countless DIY projects. The tool features an App-Driven, one-button “Start"; it can be run from a smartphone or tablet, as well as from PC's. According to ShopBot President Ted Hall: "Handibot Smart Tools have amazing cutting and machining capabilities, yet their potential to empower the widest utilization will depend on the availability and convenience of a range of software apps. This summer we crowd-sourced funding via Kickstarter to develop the tool, and on the heels of that success we're now crowdsourcing ideas for apps to help grow its potential." As a simple example, imagine an app for cutting holes of any size. You might need to cut a specific size hole in a board, the floor, or the wall: (1) open the app on your phone; (2) enter settings for diameter and depth; (3) select whether you want to “pocket-out” the area of the hole (rather than cutting through the material); (4) click the “Load” button to send the cutting information to your Handibot; and (5) position the smart tool and squeeze the “Start” button. The Handibot App HQ gallery makes it inviting and easy for you to put up your ideas. Learn more at www.handibot.com.



INSOFAST UX 2.0 AND EX 2.5 PANELS

InSoFast UX 2.0 and EX 2.5 panels comprise a complete wall solution that eliminates the need for 2x4 framed walls with cavity insulation. The panels are designed for use in the challenging, moisture-laden basement environment. I-beam style plastic studs are injection-molded in place with closed-cell polystyrene foam. The studs have a heavy front face that's rated for attaching anything from 1/2-in. drywall to 2-1/2-in. thick stone facing. The InSoFast panels are installed by applying adhesive on the back face of the stud. This stud is engineered with hundreds of interlocks that fill with adhesive and mechanically lock the stud in place with a strength that can outperform concrete screws spaced 4-in. apart. (The panel can also be fastened with concrete nails and screws.) The panels also feature continuous foam insulation with built-in multi-directional electrical raceways for easy wiring. Built–in alignment notches ensure the studs are always straight, true and exactly 16 in. apart. Even a novice DIY’er can get superior professional results. Learn more at www.InSoFast.com.

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THE 2013 INCUCTION CEREMONY

FRIDAY, OCTOBER 18,2013 7:00 PM

2013- INDUCTEE

JEFF BURTON

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At the Talladega Walk of Fame Davey Allison Memorial Park, in Talladega AL

DIRECTIONS AND THE HISTORY OF THE PARK

CAN BE FOUND ON THE WEBSITE WWW.TALLADEGAWALK.COM