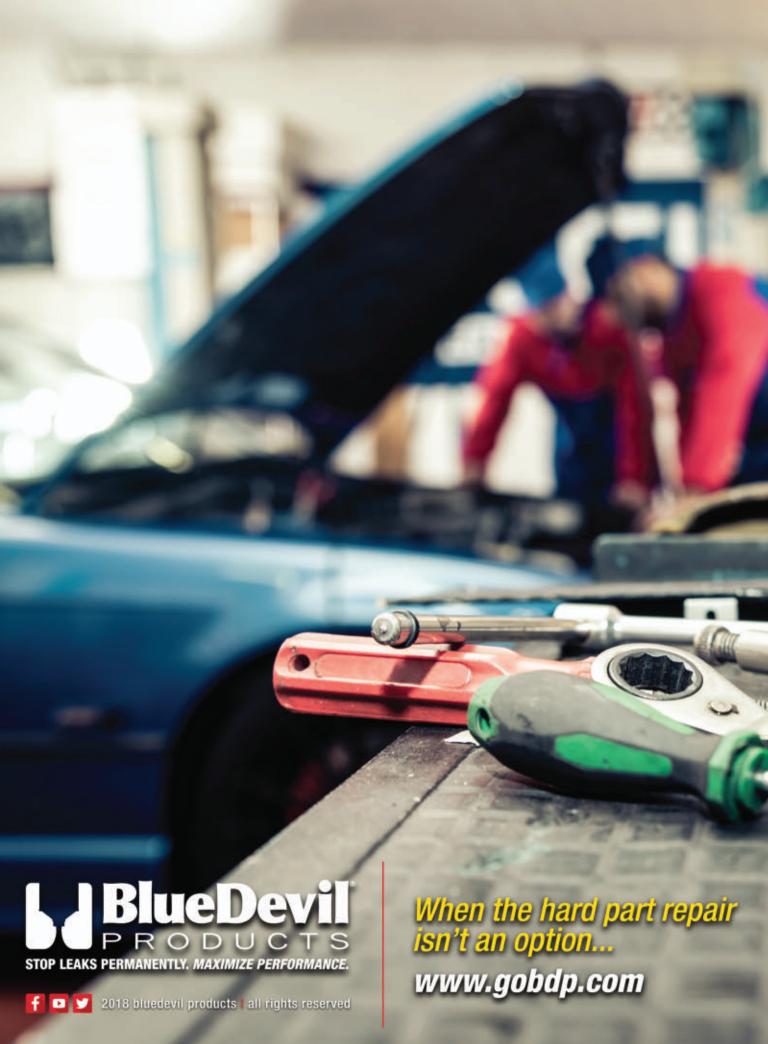


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Cover photo courtesy Viance





From The Editor-In-Chief

s my family has grown in number, I've been thinking about how houses sometimes grow along with the families that occupy them. In my search for a new home, I always consider the design of a house in relation to how it can be improved upon. But what type of houses are best suited for future expansion? And I'm not speaking of outdoor additions like a deck—which is already a prerequisite for a guy like me—I'm talking about creating newly finished living space.

A house with an unfinished basement is the most viable contender. Finishing this space works best with a daylight basement (where one side is at or near ground level). Although you're not actually adding square footage, you can make the existing square footage usable in an entirely new way.

The next option is a room addition, and there are two ways to add a room to a house: horizontally or vertically.

Most additions are horizontal, expanding the footprint of the groundfloor level of the home. This is a major project that generally requires excavating equipment to dig out the the yard for construction of a new foundation or slab. Then, the new walls and roof of the addition are built before opening the existing exterior wall to connect the living spaces. One advantage of "building out" is that, of the two methods, it involves less disruption to your life and the existing home interior. Some smaller "bump-out" additions might not even require extensive foundation work.

The drawback to expanding horizontally is losing some of your yard. If you still have young children who like to play outside, you may want to hold off until they get older. You also need to check with local municipalities regarding zoning variances and "setback" lines, as well as any other code limitations.

Your other option is vertical expansion. To avoid expanding the house footprint, you can add another story, or expand an existing top floor by installing large dormers in a pitched roof. If you have an existing garage, sunroom or other one-story wing, you might add living space above it.

To expand vertically, construction will typically require exposing and then strengthening the existing foundation and wall structure to make sure it can support the weight of the addition. This means tearing apart the walls and ceilings in the space below to beef up the framing and feed in the electrical, plumbing and heating lines. Sound intrusive? With all the sawing, hammering, clutter and mess, it will be. Depending on the floorplan of your home, this high-impact remodel could be fairly torturous to suffer through. Furthermore, cities often limit allowable height for houses, so again, you'll have to check your local regulations.

There's a lot to think about when expanding a house, but if you're considering such a project for the future, it makes sense to factor it into your home purchase ahead of time.





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Extreme How-To is published by
LATITUDE3 MEDIA GROUP, LLC
2300 Resource Drive, Suite B
Birmingham, AL 35242
Phone 205.949.1600 • Fax 205.949.1601
www.extremehowto.com

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s there a way to rejuvenate old latex paint?

• You might be able to reclaim the old paint, depending on its current condition. First, open the container and remove any obvious skins, or hard pieces, but leave soft lumps in place. Do not pour off any of the liquid. This should be kept as part of the paint. The container should then be mixed thoroughly, preferable at a paint store. Or, use a paint stir-stick and stir each container thoroughly for 5 to 10 minutes. After the mixing, if the paint is free of specks smooth and uniform (not thin or runny), it should be okay. Check the paint by applying it to scrap material, and look for a uniform sheen and color.

: Is there an easier way to remove ice from car windows than scraping?

• Fill up a spray bottle with two parts rubbing alcohol and one part tap water. Keep the bottle in your house at room temperature. Spray the mixture on your icy car windows, and the ice should begin to melt immediately. The warm temperature of the liquid thaws the ice, and heat then transfers to the surrounding ice, melting it in a kind of chain reaction. The alcohol has a lower freezing point than water, preventing the mixture from freezing on the windows as plain water would do. Let it sit for a minute, then wipe off the melting ice (rather than scrape).



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: How do I anchor a handrail in concrete?

• Use a masonry core drill to bore an anchoring hole for the rail post 2 inches to 4 inches deep that is at least an inch wider than the diameter of the post. Increasing the embedded depth of the post will increase its pull-out strength. Mix up some Exterior Anchoring Cement following the manufacturer's instructions (i.e., adding about 5 parts Anchoring Cement to 1 part clean water). Use a margin trowel to thoroughly mix the material to a fluid consistency similar to syrup. The cement should be uniform and lump-free. Adjust the mix ratio to get the right consistency. (For vertical applications, add less water and mix to a heavy putty consistency.) Remove any loose debris and dampen the inside of the hole, but leave no standing water. Slowly pour the Anchoring Cement into the hole around the post to a level slightly above the surface. Allow it the cement to cure according the manufacturer's instructions.

What is the best way to paint a ceiling with "popcorn" acoustical texture that is discolored in some spots?

• First, clean the ceiling with a brush nozzle on a vacuum cleaner hose. To conceal the discoloration, you should apply a stain-blocking interior latex primer. Use a quality synthetic roller cover with a half-inch nap. Open a couple windows while applying the primer and leave them open to help it dry. Allow the primer to dry at least overnight, then apply a wall paint with a dead flat sheen using the same size roller nap.





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5 Types of Jobs a Multi-Tool Makes Easier



By Fran J. Donegan

f you're like many people, you won't know you need a multi-tool until you actually have one. They have dozens of uses for all sorts of odd jobs, some of which won't be apparent until you have the tool in your hand.

Multi-tools are hand-held, corded or battery tools that have oscillating heads. The head moves back and forth in a very tight arc. Fit a cutting blade or some other attachment to the head and you can cut, shear, grind and sand in a very small space. Its small size is one of the reasons it is so useful: It can fit in spaces where larger tools cannot. And the tools can cut through most materials, including wood, drywall, PVC, foam insulation, carpeting, metal and more. If

you have a favorite tool manufacturer, there is a good chance they make a line of multi-tools.

Here are some situations where you will find a multi-tool useful.

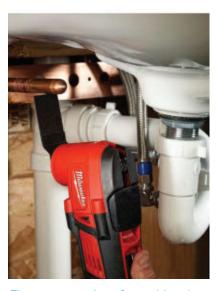
REMOVING HARD-TO-REMOVE MATERIALS

When it is time to re-grout a backsplash or a tub surround, use a multi-tool fitted with a grout blade to remove the old material. The thin, rigid blade will fit between tiles, and the mild vibration of the tool makes it easy to control.

To remove carpet adhesive or any hard-to-remove adhesive, use a multi-tool with a scraper blade. They also come in handy for digging hardened caulk from joints. The thin, rigid blade of a multi-tool can fit between tiles to remove grout.

WORKING IN TIGHT SPACES

The small handheld design of multi-tools can give you cutting or grinding power in cramped quarters. With a metal cutting blade you can trim copper plumbing lines with ease. You can also use the tool to loosen corroded sink nuts that you can't get to budge with a wrench. The tools also do a quick job of cutting through the nuts that hold toilets to the floor, as well as the nuts that attach the tank to the bottom part of the toilet.



The compact size of a multi-tool combined with its aggressive cutting action makes it a great choice for cutting pipes beneath sinks.

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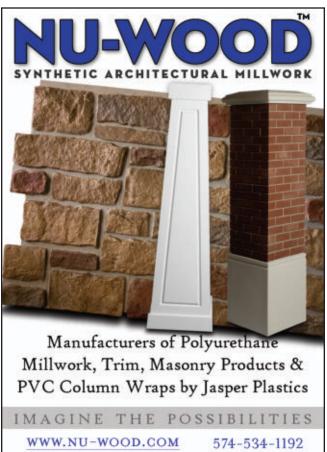
TOOL SCHOOL

MAKING PLUNGE CUTS

Whether you need to cut through drywall to install an electrical receptacle box or hardwood flooring to install a vent for ductwork, you can make clean cuts without marring the surrounding surface. By plunging the blade right through the face of the material (rather than approaching from an exposed edge), you'll save material, have less mess to clean up and fewer repairs to make.

The ability to make plunge cuts means a multi-tool saves time, reduces waste, and makes less of a mess than other cutting tools.







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TRIMMING DOOR CASINGS AND BASEBOARDS

Adding a new floor often means it is necessary to trim the door casings and baseboard to get a professional looking fit. Use a sample of the new flooring as a guide to

make the cut. The varying size of the accessory blades gives you the option of using a broad blade to make larger cuts or using a narrow blade for more intricate notches. Blades are available for cutting softwood, hardwood, and a wide range of other materials.



Flooring installation typically requires cutting door jambs to allow for the thickness of the floor material. A multi-tool can make flush cuts quickly—just use a scrap of the flooring as a thickness gauge.



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CARBIDE-TIPPED CUTTING BLADES FROM ROCKWELL

A good blade is the business end of any cutting tool, and Rockwell's new Sonicrafter Extended Life 1-3/8 in. carbide-tipped cutting blade takes oscillating tool performance and durability to new levels. This affordable, premium blade cuts the toughest materials, including ferrous and non-ferrous metals, hardwoods, tile, hardened fillers and more. The versatile new carbide-tipped blade is handy for making long or intricate end cuts, as well as plunge cuts up to 1-5/8 in. deep. It has a stepped profile for efficient flush-cutting, in contrast to flat blades that come at an angle to the work.

In addition, Rockwell offers the Sonicrafter 2-1/2 in. Carbide Grit Semicircle Saw Blade and Sonicrafter Triangular Carbide Grit Rasp Blade. Plus, all of Rockwell's new carbidetipped blades feature Universal Fit, which enables them to fit all other competitive oscillating tools. Learn more atwww.rockwelltools.com.





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TOOL SCHOOL

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You would not use a multi-tool on large surfaces, but you can accomplish detail sanding in very tight spaces. They are also good on narrow areas like window mullions. You'll find the same range of abrasive grits for multi-tools as you will for other sanding tools.

They've earned the name "multi-

tools" for the versatility they bring to any number of jobs. A multitool probably will not replace your other tools, but in some situations, you may find it is the best tool for the job. **EHT**

Editor's Note: Fran Donegan writes home- and garden-related content for numerous digital and print publications. He is the author of the books Pools and Spas and Paint Your Home. To see a wide selection of multi-tools like Fran described, check out Home Depot's website.





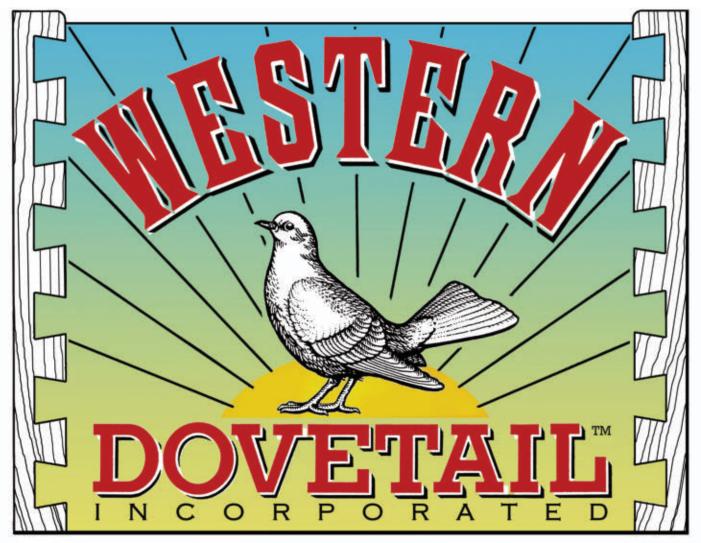


HEAVY-DUTY MULTI-TOOLS FROM BOSCH

For heavy-duty jobs, the new Bosch StarlockPLUS GOP40-30 oscillating multi-tool includes snap-in, toolless accessory attachment and no-touch blade change with auto-ejection that allows changeout in as little as three seconds. Weighing only 3.3 lbs., the tool offers 4.0-amp power with reinforced metal gearing for optimal force transmission. Its three-degree oscillating arc makes for better accessory utilization and increased productivity. The GOP40-30 accepts standard Starlock and StarlockPLUS heavy-duty accessory ranges.

The top-end, industrial-grade tool in the Bosch oscillating tool line is the GOP55-36. With a powerful 5.5-amp rating, reinforced metal gearing and a large 3.6-degree oscillating arc, this is the most powerful tool in the Bosch Starlock tool line. The GOP55-36 accepts all Starlock-family accessory ranges: standard Starlock, StarlockPLUS and StarlockMAX extreme-duty blades.

For maximum power transmission, the Starlock oscillating tool interface system found on both models was jointly developed by oscillating tool market leaders Bosch and Fein. The system is built around a three-dimensional interface created for high torque transfer and superior performance in the most challenging applications. Accessory changes are tool-free and don't require the user to even touch the accessory. (The life of the Starlock oscillating tools is maximized by allowing it to accept only the accessories that are suited for it.) Visit boschtools.com.



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Choose the Perfect Paint Color for Any Room



By Lindsey Schroeder

ou have finally decided to tackle that painting project and you couldn't be more excited. The living space is going to be completely transformed with this one simple color change. So you head to the store, ready to buy your paint, and then it happens: You are met with row after row and brand after brand of paint colors. There are so many options, from "Rhythm and Blues" to "Sounds of Nature" (yes, those are actual paint colors by Benjamin Moore, not satellite radio channels). How are you supposed to know which one will look the best in your room? Try out these tips and it will all be clear soon.

SAVE THE PAINT FOR LAST

The color you choose is the background for everything else in your home, so it only makes sense to look at your existing furniture and accessories for cues on what hue to paint your walls. Often, one of the accent colors in your area rug makes an ideal option. If you are painting an empty room, always wait to pick the paint color until you have chosen the sofas, wall art and area rug. Why? Because there may only be one rug or sofa that you like, but as you know, there is an abundance of paint colors. It's much easier to try to find a coordinating paint color than it is to hunt down a rug

with the exact shade of blue to match the paint you picked out.

GO BEYOND THE PAINT CHIP

It's not enough to take a paint chip home and hold it up to your wall to make a decision. For one, if your wall is white, it will make the color look darker than it really is, and you may end up with a shade that is too light. Secondly, is a square that is smaller than a credit card really enough to tell you if you want to be looking at that color in bulk for the next several years? No, it's not. Instead, take advantage of the sample paint cans so you can paint a

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large enough section on the wall to get a clear indication of how the color will look in your space.

OBSERVE COMPLETELY

Once the sample swatch is painted, sit on it for a few days, making sure to observe the color during all times of the day and with the windows opened and closed. After viewing it in several different types of lighting, you may realize that you need to adjust the intensity of the color, although you do love the basic idea of it. And don't be afraid to repeat this process with several paint colors over the course of a few weeks - or have them all painted on your wall at once.



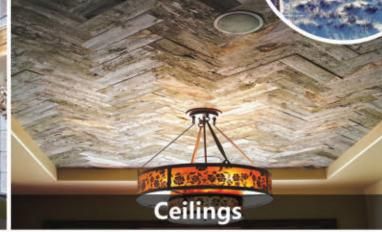


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SKILL SAVVY

REMEMBER THAT WHITE MATTERS

If you thought deciding on a color was hard, wait until you try to pick a shade of white, which is

recommended for trim because it makes your color pop. The basic rule of thumb is if you used a cool color for the walls (blue, purple, gray) then you should stick with a pure, bright white. On the contrary, if you opted for a warmer hue (red, yellow, orange), then you should choose a slightly softer, duller version of white.

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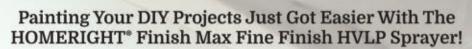
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SKILL SAVVY

SHEEN SELECTION TIPS

For DIY'ers, choosing the right paint sheen for the right application can be a confusing ordeal. To help clear things up, the Paint Quality Institute offers a few tips for your next project:

Flat. Paints with flat sheen are most common. They offer several advantages: being non-reflective, they tend to conceal imperfections in walls and other surfaces; they help to make uneven surfaces like poorly taped drywall look smoother and more uniform; and many hide the under-color well, since they typically contain a lot of pigment. "Flat paints are a good choice for just about any ceiling, and for rooms and spaces that aren't exposed to water, high humidity or heavy soiling ... such as bedrooms, home offices and living rooms," says Debbie Zimmer, paint and color expert at the Paint Quality Institute.

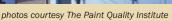
High Gloss. Being very reflective, gloss paints tend to highlight imperfections in walls and woodwork. But they are especially tough, durable and stain-resistant – and, they are much easier to clean than paints with less gloss. Zimmer advises that high-gloss finishes are ideal for use on windows and trim, children's rooms and playrooms. And since they have better resistance to mildew, they also are a great choice for bathrooms, kitchens and laundry rooms.

Semi Gloss. Paints with semi-gloss sheen are a smart compromise between the two sheen extremes, providing some of the benefits of each. Since they are not as highly reflective as gloss paints, they won't show surface imperfections quite as much; yet they still offer good stain resistance and are easy to clean. "Semi-gloss paints are extremely versatile, working well on windows and doors, trim, even cabinets," says Zimmer. "They can even be used on the walls of kitchens and baths, and various surfaces in children's rooms and playrooms."

Eggshell, Satin. Most lines of paint have at least a couple more sheen levels from which to choose. The descriptions vary, with eggshell, satin, and low luster sheen being the most common. Again, the best way to think of these sheen levels is in terms of their performance: Being less "shiny" than either gloss or semi-gloss paints, they won't highlight nicks and surface imperfections quite as much, but since they have at least a little gloss, they'll be easier to clean than flat paints. According to Zimmer, paints in these sheen levels pretty much have the run of the house, working well just about anywhere you need the blend of performance attributes they offer.

For more info on choosing the right paint sheen, check out the Paint Quality Institute at www.paintquality.com.







THE PERFECT WHITE PAINT FOR YOUR WALLS

Designers and homeowners continue to love the look of white walls for kitchens, dining rooms and living spaces. Dunn-Edwards Paints has more than 100 shades of white in its color palette. But, choosing the right white is important to get the dramatic look you want

"You'll want to consider three key factors when choosing the perfect white," explains Sara McLean, color expert at Dunn-Edwards. "Number one is your home's lighting, second is where you live, and third is the architectural style."

She points out that north-facing rooms don't tend to have as much natural light and thus need warmer whites to give the space some life. Warm whites are those with yellow, brown or even red undertones.



Conversely, south-facing rooms get more sunlight, so cooler whites—those with subtle gray or blue tints—can help add balance. "Be sure to paint large samples on the walls and live with them for a couple days. You'll be able to see how the light reflects off each color at different times of the day."

Where you live has a big influence on which whites to choose for your home. Warmer whites work well in northern climates, which have cooler, bluer natural lighting. Whereas southern climates have warmer, natural lighting, so cooler whites can help create a clean, cool look.

Your home's architectural style can help narrow down your choice for whites. Warmer whites are ideal for traditional Spanish-style and desert ranch and Craftsman homes. Tropical designs come alive with tinted and warmer whites that reflect the natural elements in the room, such as wood and bamboo. Mid-century modern homes and Scandinavian designs tend to favor neutral and cooler whites. Learn more at www.dunnedwards.com.



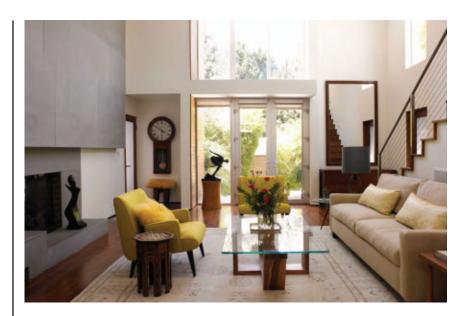


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RELAX, IT'S NOT PERMANENT

Even though it may seem like one of the most important

decisions to make for your home, remember, paint can always be redone. If you take a little of the pressure off, you will be able to

easily decide on a color to complete the room. So, while you don't want to just pick a random paint color at the store and buy several gallons haphazardly, you don't need to stress about it either. This should be an exciting renovation project that is transforming your home, so have fun with it and you are sure to be satisfied with the results.

Editor's Note: Lindsey Schroeder is the voice behind all social media accounts and blogs for Archway Construction, home renovators and remodelers that have served Metro-Chicago for over 27 years. She loves working with homeowners ensuring that the ideas in their heads make it into the final product in the best way possible.







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By Matt Weber

deck can be constructed as a simple wood platform, or it can be designed as an elaborate outdoor entertainment center with artistic styling, ample seating and modern amenities. As long as decks are in demand, builders will strive to build them better than ever and add an original spin to their projects. Here are a few different takes on traditional deck building for you to consider the next time you tackle the job.

BENDING DECK BOARDS

The ability to bend deck boards allows for creative deck designs that would otherwise be impossible to build. This process involves heating boards made of cellular PVC or plastic composite until the material is soft enough to shape into a radius. After heating the boards, they can not only curve like a ribbon but also arch laterally like a rainbow.

I recently saw this application demonstrated at the Remodeling Show/Deck Expo in Nashville, TN, by Jason Katwijk of Deck Builders Inc. (My apologies for the crummy phone photos from the show.) I'd only heard of this process and was fairly amazed when I saw him lift a heated board, and it drooped over his arm like a long stretch of taffy.

Katwijk used the Heatcon bending system, which utilizes 10-ft. heating blankets. He would sandwich a deck board between two 8-in. wide blankets that are wired to the Heatcon control unit. A small probe, which is also connected to the control unit, is inserted into the board's edge to monitor its internal temperature. The blankets and the board are then wrapped in a batt of fiberglass insulation. The heating elements gradually warm the board to the target temperature— 220°F or higher—then an alarm beeps to signal it's ready to bend.

To shape the flexible boards, you'll need to construct a shaping jig prior to heating the board. Similar to a concrete form, this will be a temporary construction (usually made of wood) designed to hold the board in a particular radius until it cools and becomes rigid, retaining the new shape. The flexible board is basically pressed into the shaping jig and clamped as needed.

TRENDS IN DECK BUILDING

According to Katwijk, cellular PVC is the easiest deck material to bend, although some plastic composites can be bent to a lesser degree. Deck boards can be bent to create curved or wavy inlays for

deck floors. Or, construct a ribbonlike fascia for the edge of a curved deck—and then build a curved bench to match. Bending the deck boards opens a whole new world of design possibilities.



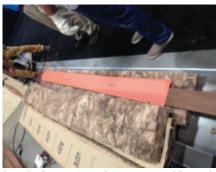
Boards are heated with these mats.



A temperature probe is inserted.



Heatcon units control the temperature.



Insulation wraps the mats and board.



The flexible board is removed.



The board is placed in a jig to give it a new shape.



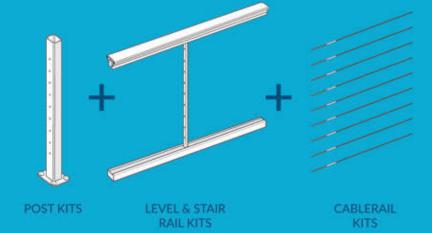
Here's an example of deck-board artwork from Deck Builders, Inc.



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TRENDS IN DECK BUILDING

ARTISTIC BOARD PATTERNS

Treated wood is still the most widely used material for decks, and most deck floors consist of straight linear board patterns that

square with the rectangular deck. It's easy to see why this layout is popular; the similar shape of the decking and framework make it a natural fit, so such a pattern is easy to design and install.

However, deck designers with more ambition might opt for a different geometric design to give the walking surface a more distinctive look.

Much like tile or brick pavers, deck boards can be installed in different orientations to adopt various patterns. Angled boards with end-joints that meet in a



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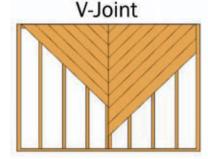


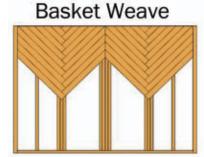
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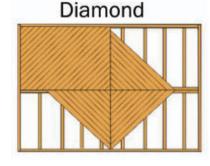
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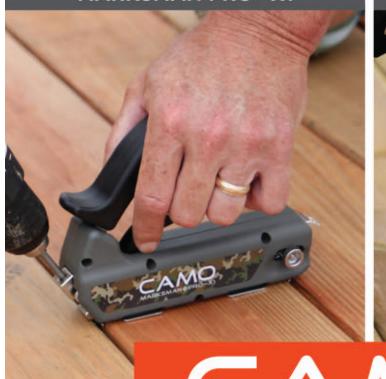




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TRENDS IN DECK BUILDING

stair-step design can achieve a basket-weave pattern. Or, cut 45-degree miters on the board ends so they butt in a continuous straight line and form a V-shaped pattern. Other popular deck board patterns include diagonal installations, parquet patterns, angle-cut herringbone, diamond, perimeter trimmed, and straight-row installations with deck boards of alternating widths.

Note that, depending on the pattern you select, additional framing support might need to be installed beneath the decking. In particular, it's important to have a solid nailing surface beneath all edges of the board ends.

DECK BOARDS AS CLADDING

Many homeowners choose wood alternatives for their home exteriors, as seen with the popularity of synthetic decking. Recently, that trend has extended to other aspects of the house.

AZEK Building Products is the first deck-board manufacturer to announce their leading decking product can also be used for



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K Body REVO (KRE) adds a handle with built-in hex head socket for applying clamping force when desired and, a new

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TRENDS IN DECK BUILDING

cladding, allowing for resistance to mold, mildew and moisture damage on the home's exterior.

AZEK Deck features a natural, wood-like aesthetic and also won't splinter, rot or warp. Plus, its stain, scratch and insect resistance make it an ideal, low-maintenance cladding alternative. The material requires no painting or sealing for protection. It's scientifically engineered to last because it's protected with Alloy Armour Polymer Technology, with a 30-year Limited Fade & Stain Warranty.

"There's a very strong exterior design trend of architects and homeowners incorporating wood planks as accent walls on homes to add a warm visual," says Patrick Barnds, General Manager of Decking at AZEK Building Products. "It's really a natural progression for us to make our premium decking available as cladding. It's the same beautiful look as exotic woods such as Ipe and Mahogany at a very attractive price. And, with our advanced technology, the product will stay beautiful for decades to come."

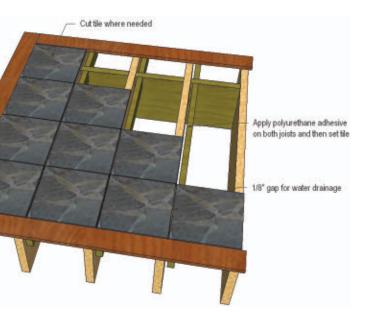


TILE FOR YOUR DECK

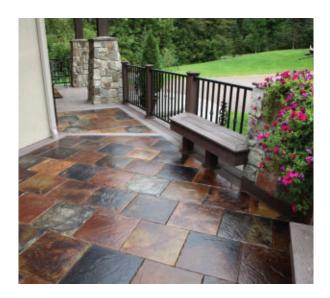
For the stately look of tile, DekTek Tile is a concrete decking material that provides a new way to add class to outdoor living areas: porches, patios, balconies, outdoor kitchens and concrete steps. No expensive substrates or heavy-duty framing are needed. Standard framing is

usually sufficient, with only minor modifications (the addition of lateral bracing and sister joists coupled to the existing floor joists).

DekTek Tile is designed to be the same 1-in. thickness as traditional wood/composite decking

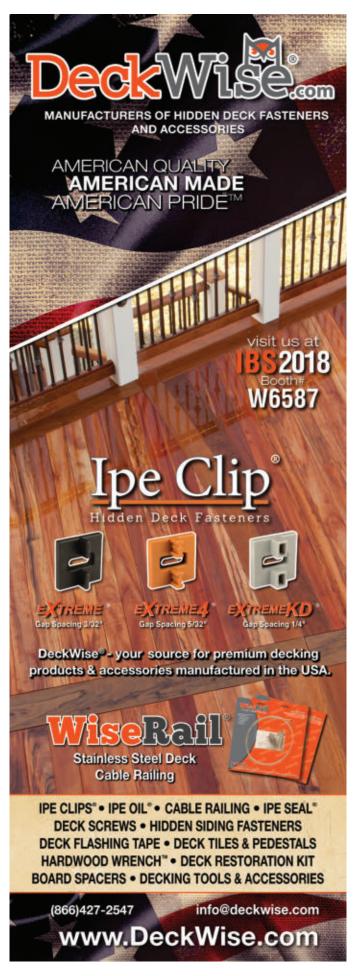


to make beautiful accent decks, edge trims, or for mixing and matching. The material is building-code approved and structurally engineered to hold over 1,000 lbs. per tile. Plus, the concrete tile requires much less maintenance than wood decking, which means no more mold, rotting wood, chipping and peeling, or the upkeep of scrubbing and staining the deck.



SNAP-DOWN DECKING

DuraLife Decking brings something new to the deck-installation game—a snap-down fastening system. The patent-pending Step-Clip system is easy and fast to install, cutting installation time in half. The system works by nailing down the Step-Clip strips to the tops of the joists. Then, simply step on the deck boards to snap them into place. The flexible clips integrated into the Step-Clip strips will grab and hold the DuraLife decking along its grooved edges. No special tools are required; the strips install easily with a roofing





TRENDS IN DECK BUILDING

nail gun or hammer. This means less kneeling or bending up during installation, and there's no need for spacing or grabbing for fasteners. If a deck board should be damaged, the Step-Clip systems makes replacing damaged boards much easier than other decking methods.











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TRENDS IN DECK BUILDING

PERMANENT DECK SEAL

It almost sounds too good to be true: a permanent deck seal? The company PermaSeal offers a "permanent" seal for wood and concrete, and frankly the *EHT* staff wouldn't have much faith in the claim if it weren't backed by a 25-year guarantee. This is not a do-it-yourself product; the service

comes directly from the company and involves a thorough cleaning, a careful rinse, and then application of a silicone-based sealant. A non-toxic, biodegradable product, the PermaSeal process gets its permanence from the penetrating nature of the sealant, which penetrates 3 to 5 inches into the wood, according to a company

spokesperson. This prevents rotting, decay and further damage to the wood from moisture. It also prevents mold, mildew and fungus growth, and restores wood to its original natural color. Find out more at www.permasealusa.com. **EHT**





ARTISTRY IN DECKS

Special thanks to Kim and Jason Katwijk of Deck Builders Inc. for sharing their photography and insight on designing curved deck boards.

Kim Katwijk is an internationally known deck designer and builder, with 45 years of construction experience from heavy commercial building to log home construction. However, his true love is designing and building decks—which he has done for the past twenty years. Kim is known for his articles in *Professional Deck Builder*

Magazine as a contributing editor for the past 11 years. Kim and his wife Linda have also had feature articles in *The Journal of Light Construction* and *Fine Home Building*. He teaches The Deck Clinic at Deck-Expo and JLC Live shows and has taught several "how to" classes in South Africa, Canada, Spain and other national trade shows. Kim established Deck Builders, Inc. in 1996. He lives in Olympia, Washington, has been happily married for 38 years, and is the father of 10.

Jason Katwijk is one of the top young professionals in the industry, quickly becoming a deck board bending master in his own right. With an astonishing eleven years experience in bending, his work is featured in the book, *Stanley Decks* by David Toht. Jason is an owner and production manager of Deck Builders, Inc., who enjoys motorcycle riding, playing soccer, competing in Frisbee Golf tournaments, and spending as much time as possible with his wife and two daughters.

Check more of the Katwijk's deck designs online at www.artistryindecks.com, where you'll find articles and videos on deck building.

TREATED WOOD: ABOVE GROUND (AG) VS. GROUND CONTACT (GC)

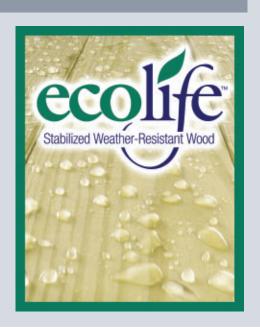
There are still misconceptions about the use of treated wood for AG versus GC applications.

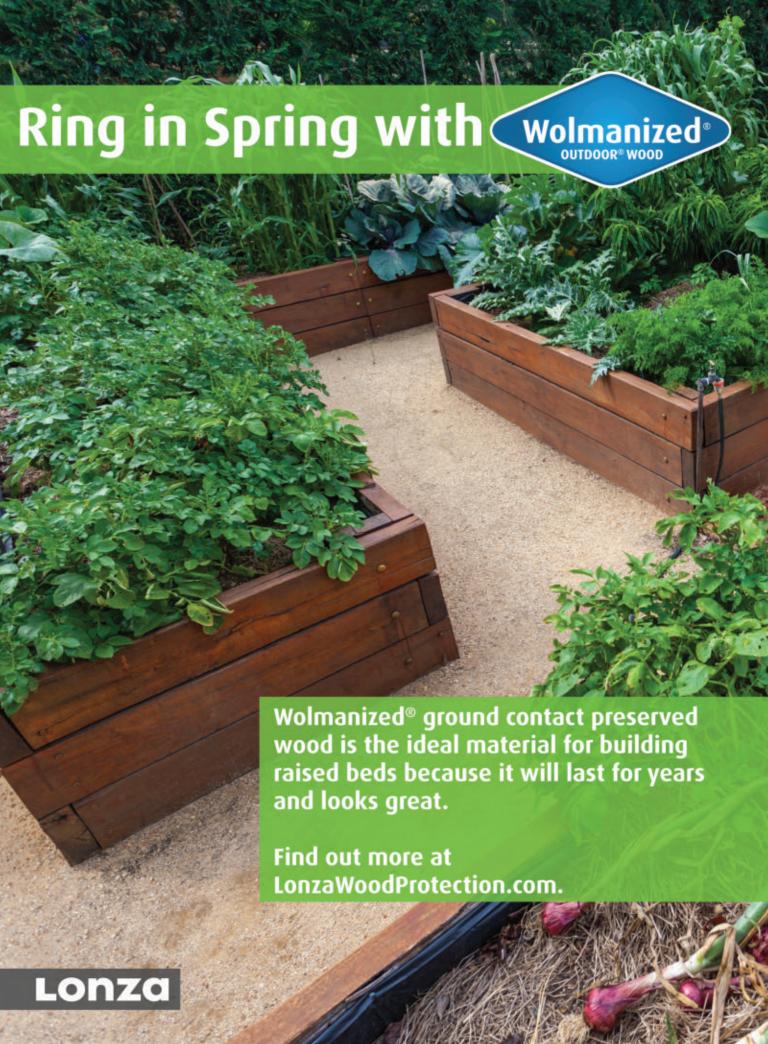
Wood treated for AG is intended for above-the-soil applications that aren't subject to the aggressive decay conditions at ground level. Wood treated for GC, on the other hand, is intended for applications that are resting on or buried in the ground.

Ecolife® wood preservative for AG is formulated with a water-repelling stabilizer that helps wood stay straighter and reduces surface cracking, checking and splitting by up to 50 percent. Its advanced protection system utilizes a non-copper wood preservative for maximum protection. Ecolife products are less corrosive to fasteners, compatible with aluminum products, and warranted for use as above-ground joists/beams and above-water decking for docks.

Using wood treated with Ecolife for AG applications is more cost-effective than using only material treated for GC. It eliminates the unnecessary costs associated with the use of additional chemicals, with generally the same warranty. Ecolife is AWPA standardized and IBC and IRC compliant.

Have more questions on AG and GC and need more details? Check out www.treatedwood.com and get all the information on this and everything treated wood.





CABINET POSITION

Installing
Stock Kitchen
Cabinets to
Save Time and
Money

By Matt Weber

By installing stock kitchen cabinets, DIY'ers and pro remodelers can get stylish, high-quality cabinets on a tight timeline. Styles and materials vary, but many stock cabinets are made of solid wood with a beautiful finish, and they're available for instore pickup or delivery within a week. You'll find a number of options at your local big box store, as well as a wide range of choices online.

DO IT YOURSELF

Once your cabinets arrive, inspect them for any damage and confirm you've received what you ordered. Double-check your kitchen measurements to make sure your cabinet design will work for the room.

Draw level lines for top and bottom of wall cabinets

Mark level lines for top and bottom of base cabinets

High point

Floor is not level

Corner is not square

To install the cabinets yourself, first remove any baseboards or other objects on the wall area where the cabinets will be installed. Use a straight edge and a level to find the high point in the floor along the cabinet wall. From the high point, mark a level horizontal line on each wall where the cabinets will be attached. These lines represent the bottom of the base cabinets. From those lines measure upward and draw new level parallel lines to mark the top of your base cabinet. Draw additional parallel lines to mark the location of the top and bottom of your wall cabinets.

The traditional tools for marking cabinet layout are a straight edge, hand level, measuring tape and pencil, but these days I prefer using a Laser Line Generator instead. These cool

> self-leveling laser tools project bright red plumb and level laser lines in a crosshair configuration on the wall, giving a quick, accurate visual display of your layout lines. The model we used for this project is made by Bosch and mounts to a standard camera tripod.

Establish the high point of the floor, and from that point measure and mark level layout lines for the tops and bottoms of the base and wall cabinets.



CABINET POSITION



cabinet and potentially tearing the screws out of the bottom hinge.

Mark the studs to show where the cabinets will be installed. Don't assume all the studs are on 16-in. centers; use a stud finder to confirm their location.

Before installing the cabinets, remove all the doors and drawers from the cabinets. Note: Whenever removing a door, unscrew the bottom hinge first and then remove the top hinge. This will prevent the door from falling away from the

HANG 'EM HIGH

Start hanging the wall cabinets in the corner along the reference line you marked. The cabinets are heavy, so use an assistant or a cabinet jack to help you handle the weight. We used a T-Jak, which has a threaded shaft to make easy height adjustments when hanging



Begin installation of the wall cabinets in a corner. A cabinet jack or brace like this adjustable T-Jak will hold the cabinets while you adjust their position and fasten them in place.

Make sure the cabinets are both level and plumb to the wall.

A self-leveling laser line generator saves time on cabinet layout by projecting level and plumb lines onto the wall in a crosshair pattern.

a cabinet. You can also make your own T-brace from scrap 2x4s and 1x4—just place a piece of scrap carpeting over the 1x4 to protect the cabinet. Alternatively, you can screw a temporary ledger board to the wall and use it to support the cabinet bottom.

To install the cabinets, measure from the corner to the first wall stud you marked. Transfer this measurement to the inside of the wall cabinet and mark the stud location. Either use self-tapping cabinet screws, or drill pilot holes through the wall cabinet back into the studs with a 3/32-in. diameter drill bit, approximately 2 inches deep.

Note: The fastener holes should be positioned 3/4 inch from the inside top and bottotm of the cabinet but should come no closer than 2 inches to any inside vertical edge of the cabinet. This is because stock cabinets generally have reinforced fastening strips along the top and bottom edges that have wood blocking for a strong, secure hold. These strips should be the only areas where you place fasteners, since the cabinet backs are usually made of thin plywood insufficient to hold the cabinets to the wall, meaning the cabinets could tear away from the fasteners if driven into the wrong spots.

SCREWING UP

When mounting into wood studs, we recommend hanging cabinets with #10 x 2-1/2-in. screws. Choose a screw with a

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CABINET POSITION



A temporary ledger board screwed to the wall along the layout line can assist in holding the cabinets while you install them.

washer-head to press against the cabinet surface for the best holding power. We used cabinet screws from GRK Fasteners, which have a Zip-Tip to eliminate the need to predrill pilot holes.

Mounting cabinets in cement, block, brick or tile walls will require toggle bolts or anchors for the screws.

Insert the screws into the holes until they are nearly tight (but not fully). Don't tighten the screws until you've finished all final leveling and shimming. Check the front, sides and bottoms of all wall cabinets with a level. Use wood shims wherever needed between the cabinet and the wall to stabilize the cabinet in position. After the cabinet is level and plumb, tighten the installation screws.







In this photo (left), we've moved to the opposite wall to complete installation, The wall cabinets should be positioned at a consistent height on all walls throughout the room.

(Right) The rear of the cabinets have a reinforced fastening strip atop the top and bottom edges.



Products (search "Model FB2632")



CABINET POSITION

Continue by placing the next cabinet on the wall along the reference line. Use clamps to hold the cabinet face frames together firmly. Be careful to line up the bottom horizontal edges, and make sure the seam between them is flush. With a 3/32-in. bit, drill starter holes through the face frames near the top and bottom.

Insert #8x2-1/2-in. trim head screws, that will leave only a small hole to fill.

Check the cabinet with a level on the cabinet front, sides, and bottom. Shim where necessary. Once the cabinet is level and plumb, tighten all the installation screws and remove the clamps. Continue installing the rest of your wall cabinets in the same manner.



To mount the cabinets, drive cabinet screws only through the reinforced areas of the cabinet, typically 3/4" away from the top and bottom edges and 2" away from the side. The screws must be driven into the wall studs by about 2".



For stud-mounted cabinets, we recommend using #10 x 2-1/2-in. screws with washer-type heads. The Low-Profile Cabinet Screws we used from GRK Fasteners feature a self-drilling Zip-Tip that eliminates the need to drill pilot holes.





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Connect the cabinets by clamping the face-frames together and closing the joint using $\#8 \times 2-1/2$ " trim head screws.



Filler strips that fill gaps against the wall attach the same way as connecting two face-frames. Make sure the joint is flush at the top and bottom edges as well as the seam along the cabinet face.



With the wall cabinets in place, begin installation of the base cabinets, ensuring they're installed level and plumb. Use shims as necessary.





CABINET POSITION

Start installing the base cabinets in the corner. Using clamps, align and join the cabinets together at the face frames. Make sure that the face frames align both on the face and vertically. You might have to use shims beneath the cabinets at low spots in the floor. Remember, the cabinets must be level even if the floor is not. Shims placed along the floor or wall can be concealed later with molding. Make sure the cabinet is plumb and level before tightening the mounting screws.

DOORS, DRAWERS AND DETAILS

When the base cabinets are securely installed to the walls,

reinstall all the doors and drawers. Always attach the doors by screwing on the top hinges first and the bottom hinges last.

On rail-and-stile doors, the handles are typically installed in the center of the vertical stile opposite the hinge side of the door (a couple inches from the bottom). The most important aspect of installing the door handles is to maintain a consistent position from door to door. Rather than taking repetitive measurements for every handle (which can lead to mistakes), make a simple jig for the corner of the doors. We used scrap wood to cobble together a simple L-shaped bracket that fit over the



The base cabinets must be leveled even if the floor is not level. Any necessary shims can be cut flush with the cabinet and concealed later with molding.

This photo shows two base cabinets that project into the



kitchen as a bar. Note the 2x4 framing we installed where the corner cabinet meets the wall. Flush with the backs of the cabinets, the rough framing provides a solid nailing surface for a finished panel that will cover this area.



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CABINET POSITION



Planning to add a granite countertop to the base cabinets? These metal countertop brackets provide the support necessary to carry the stone projection beyond the edge of the cabinet.

door corner with predrilled holes at the locations for the door screws. We then made a pencil mark at each screw location to maintain consistency among the handles. The jig also saves lots of time compared to measuring each handle. Drill pilot holes for the handle screws, then attach the hardware.

Add a finished touch to your new cabinets with trim details. Cabinet manufactures typically offer matching crown molding for the tops of the wall cabinets, as well as matching floor molding for the base units. In some cases, the new cabinets might not fill the entire void left by the old cabinets. But filler strips are usually available from the cabinet makers, which can be cut to a custom size to fill any





With all the base cabinets installed, replace the doors and drawers. When hanging a door, install the top hinges first and then the lower hinges. Test the swing of the doors and adjust the hinges as necessary.



Increase your accuracy and speed when installing the handles by using a jig to mark the screw holes on the corners of all your doors.



CABINET POSITION

gaps with a matching color and finish.

With careful design and smart installation, you can install a new set of stock cabinets with a custom-built look, and do so in less time while saving money. **EHT**



Here's a look at the finished bar cabinets, complete with hardware, countertop and trim.

DESIGN & ORDER CABINETS ONLINE

Professional installers as well as DIY'ers can now conveniently order cabinets online. The *EHT* staff spoke to Bill Johnson of Flex Cabinets about the process.

EHT: What services does Flex Cabinets offers to the kitchen remodeling industry.

Johnson: FlexCabinets.com wants to be your One Stop Source for all your cabinet needs. With over 10,000 products offered on www.flexcabinets.com, there is no need to go to multiple places to find everything you need for your kitchen. Cabinets, molding, lazy susans, drawers and more—we have it all, saving you both time and money.

EHT: What are some common mistakes homeowners make when designing their new kitchen cabinets?

Johnson: Always measure twice, and design once. When it comes to kitchen design, every inch counts. In fact, every 1/16 in. counts! Inaccurate measurements are one of the most common design mistakes. If you don't double-check your measurements, it's possible that your cabinets, appliances or even the sink will not fit when you're ready to install. Inaccurate measurements can cause delays to the project



as well as unforeseen expenses. Flex Cabinets supplies a Design Team to make sure all concerns in your cabinet design are addressed at the beginning of your project.

Also—storage, storage, storage! When designing a new kitchen, it's important to consider where small appliances will be stored and used, because there's a tendency for appliances to accumulate, taking up precious counter space. Add storage solutions near your work area to organize the small appliances.

EHT: What are some common installation mistakes you've seen from inexperienced cabinet installers?

Johnson: Once again, the biggest mistake comes from inaccurate measurements. Another common mistake is forgetting to leave room for the crown molding to be installed on top of the cabinets, as well as allowing proper distance around doors and windows. Let our Design Team make sure the kitchen design will look fabulous.

EHT: What are some of the newest trends in kitchen cabinet design?

Johnson: Design is always an evolution, but whites, grays and natural wood colors are always leading the way in customer preference.

EHT: Anything else you'd like to add?

Johnson: I'd like to stress that when Flex Cabinets says "best pricing," we mean it. For years, Flex Cabinets has been supplying builders, remodelers, builder developers, and multi-family builders of town homes and condos with a tremendous volume of cabinets. Orders of 50 or 100 or 200 kitchens are not unusual for Flex Cabinets.

Because of this huge volume, www.flexcabinets.com has tremendous buying power, which translates to extremely low pricing on our website. We also have pricing for every budget and offer "buyer's choices" from manufacturers at every price point. (Good, Better, Best).

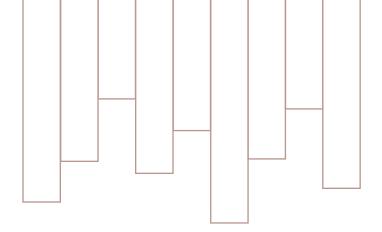


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BOARD METING

By Matt Weber

ears ago, my parents had oak hardwoods installed on the foyer, staircase and top landing of their home. During a recent remodel, they decided to expand the hardwood floor into the living room. Like any remodeling project, the job came with its own unique set of problems, such as discrepancies in board size and uneven subflooring. This article shows the challenges we faced and how we overcame them to achieve a beautiful new floor.

FLATTEN THE SUBFLOOR

The living room we planned to re-floor had been covered with carpet. When coupled with an underlayment pad, wall-towall carpet does a nice job of concealing uneven spots in a floor. The trouble comes when you rip up the carpet padding and expose those hidden problems. Maybe you've heard that tongue-and-groove hardwoods aren't quite as forgiving as a rug. The oak boards don't easily flex to fill dips or bend to cross high spots, and such problems can make connecting a tongueand-groove joint very difficult. Nope, the subfloor beneath hardwoods should be as flat as possible, and ours had significant issues. Although we found particleboard subflooring beneath the carpet, it had notable low spots (possibly from the house settling), and its thickness also caused a height discrepancy between the new hardwoods and the existing ones. For this reason (and also because particleboard does not provide enough grip for floor fasteners), we pulled out the old subfloor and replaced with new plywood.





BOARDMEETING



But before we could lay the new plywood panels, we had to shim the floor beneath them. This proved to be a big job with the wavy subfloor of this old house, which changed elevation in several different spots throughout the room. To establish a control point to measure the subfloor elevation, we ran taut string lines across the floor from wall to wall and measured down from the string. The

Using a level string line with a wood block that represented the finished height of the new floor, we found low spots in the subfloor.

As it turned out, this subfloor had lots of low spots. We used several level string lines as reference and built up the low spots in the subfloor using asphalt shingles, roofing felt and sheets of luaun.

results weren't pretty; we found several dips across the floor. And, when we re-located the string to different spots of the room, we found different elevations in different locations.

One way to address an uneven subfloor is to use a liquid floor leveler, but those products come



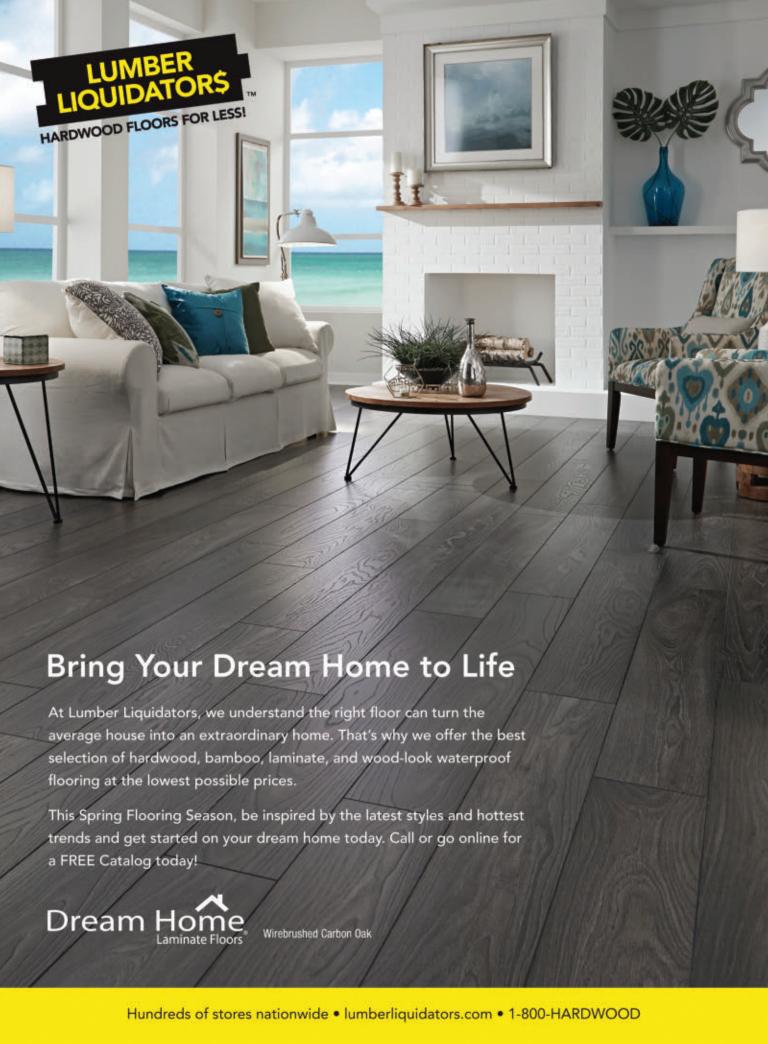
The old particleboard subfloor didn't provide the grip required for our flooring staples, so we removed it, revealing the membrane beneath.

with their own messy drawbacks, and we had a large area to flatten. The job would require a lot of leveling product, would be difficult to screed perfectly flat, and would create a huge mess inside the home. Instead, we opted for a "multimedia" approach.

My dad handled the grunt-work of leveling the subfloor. He strung several level lines across the floor at the same elevation in a crisscross pattern between opposite walls. He used the string as a reference point for measuring the low spots. He then filled all the low spots using asphalt shingles, roofing felt, or sheets of luaun until the room was reasonably flat (measuring the same distance down from the string). This provided an even surface for the new plywood subfloor, which we screwed to the floor joists in 4x8 sheets, staggering the joints between panels.

Note: The hardwood floor in





BOARD MEETING

this article was installed on the upper level of the home with an air-conditioned room beneath it, reducing concern of moisture problems. Nevertheless, we still found a damp-proof membrane beneath the subfloor. When laying hardwoods, it's always a good idea to cover the subfloor with a damp-proof membrane—and it's absolutely critical with first-floor installation.





Once we had a level foundation, we covered the subfloor with staggered plywood sheets for a secure nailing surface.



We snapped square chalk lines to guide the board installation.

ACCLIMATIZE THE NEW FLOORING

Speaking of moisture, hardwood flooring (or any wood product) expands and contracts in response to changes in temperature and humidity. For this reason, it's important to allow your new wood flooring to be conditioned to the environment where it will "live" prior to installing it. Store the boards in the room for at least 48 hours before laying them.

FLOOR SELECTION

The search for matching hardwoods presented another hurdle. The existing flooring in the home had held up well and looked just as good as the day it it had been installed, making a good case for

using more of the same on this new project. However, finding a matching size became a challenge. At Lumber Liquidators, we found a board with a matching finish and almost the same dimensions. The Builder's Pride 2-1/4in. hardwoods are sold with a beautiful Classic Gunstock Oak finish virtually identical to the older boards. The only hitch was that the new boards from Lumber Liquidators measured slightly wider than the older flooring, so the new ones would not fit seamlessly into the existing rows of tongue-and-groove hardwoods. Even when separated by a dividing strip, the joints



It's important to allow the wood flooring to acclimatize in the new environment for a few days before installing. For this project, we chose the Builder's Pride brand 3/4x2-1/4" hardwoods from Lumber Liquidators in a Classic Gunstock Oak finish.

between the old rows and new rows would be visibily mismatched.

We liked the appearance of the Lumber Liquidators flooring, so we devised a workaround. Rather than continue the layout of the existing hardwoods, we decided to break the pattern along the old carpet transition line and turn the flooring 90 degrees, installing the living room's floor separate from the adjacent hardwood landing.

MAKING THE TURN

To make the 90-degree transition from one hardwood floor to the other, we had to carefully establish a neat and orderly joint between floors. First step was to

"gang cut" the ends of rows all at once. Using a track saw to ensure a smooth, controlled cut, we removed only enough material to ensure we established a smooth, even line at a perfectly square

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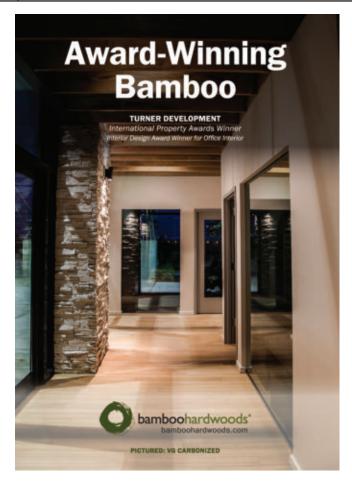
BOARDMEETING

angle. Our plan was to begin a new perpendicular row of hardwoods butted against the ends of the intersecting flooring.

This plan, however, didn't leave us a standard tongue-and-groove joint to interlock between the two floors, which would help close that transitional seam. But fortunately, we were facing the "starter" end of the existing floor, so we had some end grooves to work with but no tongues. And

Our plan was to install the new flooring in the living room perpendicular to the existing oak floor of the stair landing. This first required us to make a perfectly square cut to the ends of the oak boards using a track saw.







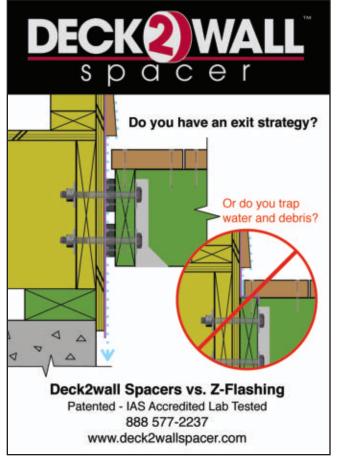


The cut ends of the existing boards presented us with square cuts and a few grooves. The adjacent new board, when positioned alongside the old floor at 90 degrees, would meet the old floor along its own groove.

To connect the wood flooring where the grooves met, we cut tongues or "biscuits" to bridge the joint between the old and new boards, which will help ensure the floor surface remains even with no lippage between the two.







BOARD MEETING

the mating edge of our new flooring also had a groove. How could we connect the two grooves?

Dad's solution: Cut custom wood biscuits (or "tongues") to bridge the joint of both mating

floors. On a table saw he sliced up some scrap pieces to the exact width, length and thickness to fit inside all the abutting grooves. Bridging the joints ensures the boards remain locked in an even plane so there's no lippage along the joint that can catch a toe or wear away. I thought this was a smart solution.



The Builder's Pride flooring had T&G joints on all edges and ends, which had to be tightly connected for proper installation.



One option for fastening is to blind-nail the boards at a 45-deg. angle through the tongues with a pneumatic finish nailer.



To cut the boards on-site, we used the Skil Flooring Saw. With the capabilities of a standard miter and table saws, the compact Skil flooring saw lets you cut flooring right where you're installing it, making the job faster and easier.





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When installing subsequent rows, avoid lining-up board ends and spacing boards closer than 6".



To help close joints along board edges, we used a variety of clamps.



Once we had room to use a pneumatic flooring stapler, it became our tool of choice for fastening the hardwoods.



When a bar clamp would no longer fit the job, we used the Bessey SVH Flooring and Clamping System, which utilizes a strap with ratcheting action to close the board joints.



We top-nailed a transition strip across the kitchen doorway to give the first row a firm hold.



BOARD MEETING

FASTEN IT DOWN

Thanks to having a nice, flat subfloor, the remainder of the installation went closely according to plan for nail-down hardwoods. The basic idea is to tightly close the tongue-and-groove connections while staggering the end

joints by a minimum of 8 inches.

To speed up the fastening process, we used a Duo-Fast pneumatic flooring stapler. With the tap of a mallet, the FloorMaster 200-S drives a 2-inch, 15-gauge wire staple into the subfloor for a rock-solid connection. If

you don't want to invest in the cost of a floor stapler, most rental outlets have them available.

The design of a flooring stapler requires some clearance to use the tool, meaning you need room to stand behind the stapler as well as room in front to swing the mallet. In some cases, this makes it tough to use the stapler. For one example, the starting row of our new floor ran along a ledge above the foyer, leaving no place for us to stand. Another example is when you approach the wall of your last row and run out of room to swing the mallet. In these situations, a stapler isn't practical, leaving

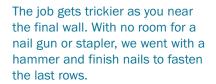
An oscillating multi-tool is handy for making cut-outs and undercutting floor jambs.











8 KIK Forstner



When installing the wall, another handy tool from Bessey is the Adjustable Flooring Edge Spacing Tool, which has a threaded screw handle to fine-tune the lateral clamping action. This gadget provides an easy way to close board joints as well as to establish a 1/2" expansion gap along the wall.

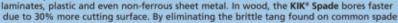


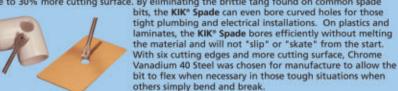
The KIK® H5 Brad Point Bit has a unique tip design allowing it to bore wood, plastics and sheet metals exceptionally fast, clean and easy. The tip contains 20% more cutting surface. To accommodate the speed with which this bit drills, the flutes have an additional extraction ridge to clear the bore con-tinuously and efficiently. The tip design permits plastics, laminates and even acrylic sheet to be drilled without melting, clogging or melting. Sheet metals are drilled with no burr left behind. KIK* HS Brad Point Bit are available in standard jobber lengths and 8-1/4 extended length. The extended lengths have a hole near the tip for pulling wires through the hole with the bit that made the hole!



TG Tools Spade Bit

Conventional spade bits can only drill holes in wood and can only go in a single direction. The "revolutionary" design of the KIK® Spade bit from TG Tools allows it to drill, wood,







Forstner Bit

Made from 60 Carbon Steel and Titanium-coated, the KIK® Forstner Bit from TG Tools drills, routs and channels wood, plastic, acrylic and more. The bit operates smoothly in any direction-even curves-making it easy to control. Bore the hole the way the conduit or pipe bends. Correct

misaligned inlets. Bore blind holes without piercing thin laminate. It's a great bit for hinge or anchor inserts. Plus, the open cap design prevents clogging, and the three-flat shank means less chuck slippage. Also, the bit includes a free heavy-duty protective case.



BOARDMEETING

Here, we're using Bessey's Edge Spacing Tool along with a few makeshift shims (okay, eight).

you the option of face-nailing or blind-nailing.

If you have room to access the T&G joint with a finish nailer, you can drive a finish nail at a 45-degree angle through the exposed tongue to fasten down the board. For the last rows, you won't be able to fit a nailer, but you can usually fit a hammer. Face-nails on the boards located against the

wall can often be concealed with baseboards and shoe molding.

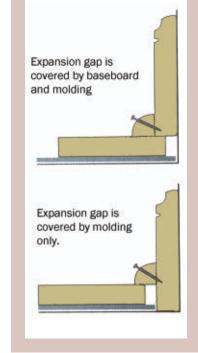
Once the floor was fully installed, it completely changed the look and feel of the living room. Everything appeared much more refined and stately, and the new hardwoods from Lumber Liquidators complemented the old flooring perfectly. Mission accomplished. **EHT**

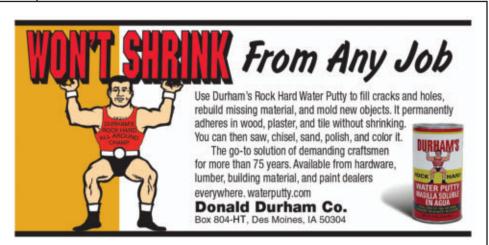


In the end, the floor installation was a huge success. The new Builder's Pride hardwoods greatly enhanced the décor of the home and blended wonderfully with the existing floor boards.

HIDING THE GAPS

Wood floors require an expansion gap of 1/2 inch along the surrounding walls to accommodate expansion and contraction with changes in moisture and humidity. You have two options to hide the gap. The first option is to remove any existing floor trim (such as baseboards) before installing the floor, and then replace the baseboards over the expansion gap. The second option is to leave any baseboards in place, install the flooring, and then cover the gap along the baseboards with additional floor molding.







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Noise Pollution

"Why is there noise when turning my steering wheel?"



an you describe the noise? Is it a clunk, crunch, screech, squeal, whine, hum, clicking, grinding or popping? As mechanics, we regularly get people asking for advice about their car, and usually when it is "making a funny noise." I've gotten pretty good over the past few years discerning the noises people describe and matching them with likely failing components, but a front-wheel drive car's front end is one of the most difficult places to do that. I've heard all of the above noises coming from a car's front end, and they usually indicated different problems.

The front end of your car really has quite a few different jobs that require a lot of equipment to be able to move in lots of different ways, while bearing the weight of your vehicle and still transferring power from the motor to the wheels. Moving parts mean there will be oil and grease that need to be changed (and often doesn't get changed), and it means parts will wear down and need to be replaced regularly.

The front end of your car needs to accomplish many different tasks:

- Carry the weight of your car in a straight line and in a turn
- Allow the tires to move up and down for suspension
- Keep the wheels tracking straight ahead normally, but still allow them to turn for steering
- Transfer power from the engine to the wheels, while allowing the tires to steer and the suspension to travel

With all of these moving components, there is a lot to wear out.

Luckily, as these components wear out, many of them start making odd noises alerting you that they need to be replaced. However, by the time they start making noise, they are usually very near failure, so it is better to have your front end routinely inspected by someone you trust.

The following is a list of the noises your car may make and possible problems. This is a place to start, and is not a conclusive list, so we always recommended having your vehicle checked by a qualified mechanic.

FRONT END NOISES AND POSSIBLE PROBLEMS

Clunk, squeak, click or creak:
These noises usually indicate worn shocks, suspension bushings, ball joints or tie rods. These noises can also be accompanied by wandering, poor ride quality or vibrations.

Metallic grind or ring: These noises usually are from worn brake components. Look into replacing either your pads, shoes or rotors soon!

Crunching or clicking while turning sharply: Your CV joint has likely gone bad and should be replaced.

Hum: A hum usually indicates the wheel bearing is going bad. This should be checked out by a qualified mechanic as soon as possible.

Screech, squeal or whine: These sounds usually indicate a problem in your power steering system,

either a lose belt, bad pump or low power steering fluid.

Your power steering system is a relatively simple system in your vehicle. It usually consists of the pump, usually driven by a belt on the front of your motor, the rack or steering gear, tie rods to connect the rack or steering gear to the knuckles where your wheels are attached, and hoses or hard lines to connect the pump to the gear



or rack. Over time, some of the seals that contain the power steering fluid can wear down from normal use and cause small leaks. As the power steering fluid leaks out, your power steering pump can start to whine when you turn the steering wheel, letting you know it's low on fluid.

To quickly stop any leaks in your power steering system, use BlueDevil Power Steering Stop Leak. You don't need to spend the time crawling around under your car or in the engine bay with a flashlight trying to determine where your leak may be. Simply add BlueDevil Power Steering Stop Leak to your power steering fluid reservoir and top it off with the recommended power steering fluid. The leak will be sealed as you drive! BlueDevil's unique formula will soften and expand the seals in your power steering system, stopping your leak, guaranteed. With your leak stopped, your power steering system will work like normal again, leaving you with a quiet ride. **EHT**

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Editor's Note: This article was sponsored by BlueDevil Products®, manufacturers of quality sealants for the Automotive Aftermarket industry. The company currently supplies over 400 distribution centers across North America, South America, Europe, Asia and South Africa. For more information visit: www.gobdp.com.



What are the Symptoms of a Blown Head Gasket?



here are some makes or models of cars that have a reputation for blowing head gaskets. If you happen to own one of these vehicles, don't worry! It does not mean that you have a bad car or that you are going to spend lots of money.

The head gasket forms a seal between the engine block and the cylinder head. This seals both the combustion chamber and the coolant passages in your engine. This means your head gasket has to seal both extremely hot high pressure combustion gases as well as engine coolant which can

be anywhere from cold ambient temperatures to the normal operating temperature of your engine. Due to the wide range of temperatures and relatively large surface area, it is not unusual for head gaskets to develop leaks over time.

Since the head gasket seals the coolant passage both from the atmosphere and the combustion chamber you can't see too much of the head gasket on a vehicle. Because much of the gasket can't be seen without disassembling the engine, it can be very difficult to diagnose a head gasket leak.

Since a visual inspection usually will not prove a head gasket leak, it is important to know the other symptoms so you can accurately diagnose a head gasket problem.

Blown Head Gasket Symptoms:

- Coolant leaking externally from below the exhaust manifold
- White smoke from the exhaust pipe
 - Overheating engine
- Bubbles in the radiator or coolant overflow tank
 - · White milky oil
- Significant loss of coolant with no visible leaks

The only externally visible sign of a blown head gasket would be coolant leaking from the head gasket. The head gasket will be below or inboard of the exhaust manifold. Most head gasket leaks will be between the combustion chamber and the coolant passage in your engine. On the intake stroke of the cylinder closest to the leak, coolant will be drawn in under the vacuum created along with the intake air charge. Upon combustion, the high pressure will force exhaust gases past the head gasket into the coolant passage. This process will repeat itself for every revolution the engine makes.

As coolant is pulled into the combustion chamber it will cause your engine coolant level to drop. This can cause a low coolant light

and overheating, if the cooling system on your vehicle is not continually topped off. Also, once your engine is turned off the coolant still left in the engine cylinder will seep past your piston rings into your engine oil. Coolant mixed with oil will make a white milky substance. You may see this on your engine oil dip stick or on a ring around your oil cap.

If your engine is running the small amount of coolant that is in the combustion chamber will turn into steam and white smoke upon combustion. If you are checking your exhaust pipe for signs of white smoke, make sure your vehicle is fully warmed up and idling during a warm part of the day. A cold engine on a cool day will produce a small amount of water vapor which will look like white smoke from your exhaust pipe. If the exhaust has a sweet smell to it then it most likely is a head gasket problem.

Lastly, during the combustion process the high pressures in the cylinder can push exhaust gases past the head gasket into the engine cooling system. The exhaust gases will be trapped in the cooling system and will be circulated through your engine and into the radiator. During normal operation your engine's cooling system remains under pressure, so never remove the radiator cap while the engine is operating or still warm. If your vehicle has a coolant overflow tank you can check that for the presence of bubbles. To be certain, you can purchase a block dye test kit from your local auto parts store that

will chemically check your engine coolant for the presence of exhaust gases.

Usually one of these symptoms by itself is not enough to prove you have a head gasket leak, but if you have multiple symptoms at the same time, it is likely that you have an issue. It is important to drive your vehicle as little as possible if you have a head gasket leak. The hot gases and cold coolant moving through the hole in the gasket can quickly erode or warp the metal head or engine block, leaving you with costly machining bills or even having to purchase new heads or a new engine.



To quickly and permanently seal your blown head gasket, go to your local auto parts store and pick up one of BlueDevil's head gasket sealing products. If you have a small leak, or 4- or 6-cylinder engine, pick up BlueDevil Pour-N-Go 16-oz. Head Gasket Sealer. Simply add it to your radiator and your head gasket leak will be sealed as you idle the engine! For larger leaks or 8-cylinder engines, use BlueDevil Head Gasket Sealer 32 oz. BlueDevil Head Gasket Sealer requires the removal of the thermostat and a complete cooling system flush, but is guaranteed to fix your blown head gasket!

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PRODUCTS



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Atlas Survival Shelters' new NADO series of small nuclear fallout shelters can be retrofitted into existing homes. The new collection includes three shelter types that start from \$9999 and even include a NBC air-filtration system to protect inhabitants from nuclear, biological and chemical gases. The units are designed for new home construction but can be disassembled to insert into a garage with some excavation of



the garage floor. "Bombnado" is designed for a secret hatch in the floor of a new home's closet, available in five sizes (1- to 6-man models), all less than \$20,000 including freight and installation. "FallNado" is a handicap accessible walk-in shelter at ground level, framed within the walls or simply bolted to the garage floor for retrofits (14 sizes available). "Garnado" is the most popular of the three models because of its adaptability, making it easier to install under a driveway with the hatch hidden inside a garage door, so you may come and go as you want without anyone seeing you enter it. The Garnado also installs easily in the backyard with usually just one day's worth of digging. Learn more at IWANTTHATSHELTER.com or call 1-855-BUNKER.

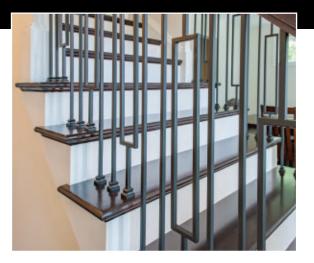


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CONTEMPO COLLECTION FROM L.J. SMITH STAIR SYSTEMS

L.J. Smith has launched the new Contempo Collection of iron balusters. The durable iron balusters come in multifunctional styles with straight lines and open spaces. Available in either a low sheen black or matte nickel finish, the iron balusters come in four different styles: straight line, rectangular vertical feature, oblong vertical feature, and ladder design. The stylish balusters can be installed with complementary newels and rails. Started in 1885, L.J. Smith is the largest stair parts manufacturing company in the country, including wooden and ornamental iron balusters and newel posts, hand rails and accessories. Visit www.ljsmith.com.



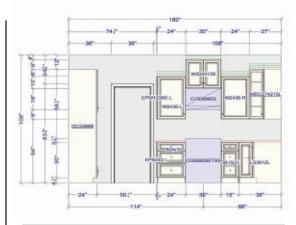
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PRODUCTS





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STUDMARK STUD FINDER

A great example of improving on an existing tool is the Studmark stud finder. Calculated Industries has two models, the Studmark and the Studmark+. They work similarly, using only magnets to detect screws or nails to help locate a stud behind sheetrock and other building material. Their compact design incorporates powerful rare-earth magnets located at each end of the unit's base, which enables users to locate studs quickly and mark them with ease. Visit calculated.com.





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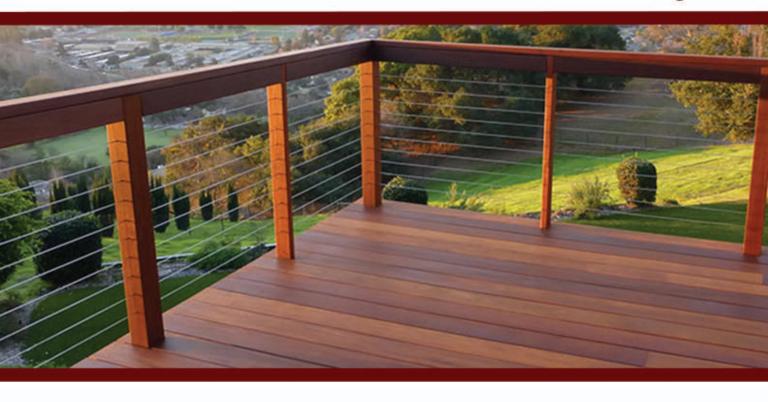


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