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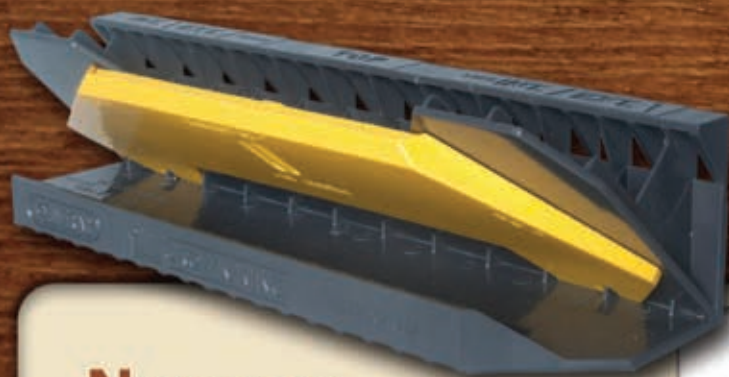
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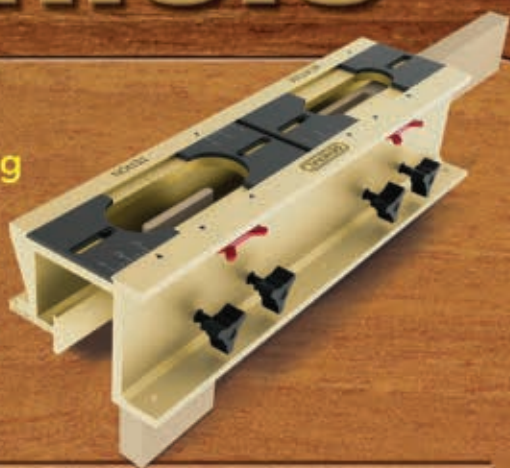
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Welcome to the 100th issue of *Extreme How-To*. Since its founding in 2002 by our executive vice-president and fearless leader Chad Gillikin, this little magazine from Birmingham, Alabama, has focused on professional-grade projects for the do-it-yourselfer. For more than a decade we've brought our readers in-depth "how-to" features, skill building columns, new product coverage, and tips and tricks from the pros. And it takes a strong team to make it all happen.

The publisher of *EHT* is the esteemed Jeremy Hollingsworth. He heads our crack sales team consisting of the inimitable Jan Logan, the unstoppable Marty Smith, and newcomer Jason Holsomback. These folks work behind the scenes, but they represent the engine that powers our production. Not only are they responsible for the interesting ads that populate our magazine, but their efforts achieve great things, such as keeping the lights on at the office.

Our production unit is lean and mean. Wesley Glassco is our creative director, graphic artist, ad designer and probably does a number of other jobs that I don't understand. Wes is responsible for the slick look and cool design of *Extreme How-To's* print vehicle—and he does a stellar job of it.

Once an issue rolls off the newsstand, the electronic files land at the feet of Sonia Griffin, our online media specialist who turns our paper magazine into archived internet stories for you to peruse until you're old and gray.

Sitting at the top of the tower is Trent Boozer, President of Latitude 3 Media Group, LLC, which is the company that owns the magazine. Helping Trent run the business is his right-hand lady, the unsinkable Dusty Statham, who manages our office and makes sure everyone gets a birthday cake.

I've been the editor of *EHT* for more than 10 years, but I could never have done it without a reliable stable of contributing writers. I'd like to thank Monte Burch, Larry Walton, Mark Clement, Rob Robillard and Clint Thomas for their excellent work over the years. These guys know

the meaning of multitasking, as they are not only skilled builders and remodelers but also talented writers and photographers.

Magazine production is a team effort with a lot of moving parts that have to work together like cogs in a machine. I'm proud to be part of this finely tuned machine, and with any luck we'll crank out another 100 issues in the years to come.



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Q: I'm trying to find a replacement valve stem for a shower faucet but can't figure out what manufacturer made the stem. I can find no name brand on the faucet, only the symbols UPC and CSA. How can I identify the part?

A: It's common for "no name" manufacturers from overseas to mark their products with logos for the Uniform Plumbing Code (UPC, the American standard) and Canadian Standards Association (CSA) to mislead consumers into thinking the symbols are legitimate product trademarks, when in fact they are not. These marks simply indicate that the product has been tested to a U.S. or Canadian standard and it meets the requirements. Although you may not be able to find a brand-name replacement for the valve stem at your local hardware store, the part should be marked with patent numbers that you can use to search online for a suitable match.

Q: Why is brick mortar available in different types?

A: Masonry mortar is used for brick, block and stone construction. The prime function of the mortar is to bond the individual masonry units into a consolidated mass. The three most commonly used types of mortars are designed as Type M, Type S, and Type N. Type M has a compressive strength of 2,500 psi; Type S 1,800 psi and Type N 750 psi. Type M is used only in special applications requiring high-strength mortar. Type S is the most versatile and cost-effective and can be used both above and below grade. Type N is limited to above-grade construction.



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Q: What's the best way to remove duct tape residue?

A: To remove adhesive residue ShurTech offers the Duck brand Adhesive Remover that is formulated specifically for the task. The product is a heavy-duty solution that assists with the removal of Duck Tape, masking tape, carpet tape, weather-stripping, mounting tape, stickers, tar, gum and more. Plus, it's safe to use on all types of hard surfaces, including walls, floors, doors, furniture, cars, metal, plastic, glass and wood. (It's not recommended for fine fabrics and furniture, or absorbent surfaces.) Another option for adhesive removal is WD-40, a petroleum-based household lubricant that most EHT readers probably already have in their tool box. Rubbing alcohol also works for removing light adhesives, but evaporates quickly. Remember to always test solvents on a small, inconspicuous area to make sure it won't damage the surface.

Q: What are the pros and cons of installing a natural stone countertop?

A: As far as "pros", natural stone countertops present a luxurious option in a wide range of colors and patterns. Natural stone such as granite and marble add value to the home and are a sought-after feature for many new home buyers. However, stone slabs are heavy and must be professionally installed. The material is very difficult to cut, requiring special tools, and even transporting the heavy slabs can be difficult, requiring specialized equipment, since breaking one of the quarried slabs can be a very expensive mistake. Therefore, the cons typically relate to price because you will not only pay for the high cost of the material but the labor as well. **EHT**

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Tools Unplugged



By Matt Weber

Power tools are nice, but once America's grid collapses in the wake of an electromagnetic pulse attack, how are you going to add tasteful wainscoting to your doomsday shelter if you don't have quality hand tools? The *EHT* staff has rounded up some of our toolbox favorites that we'll use to fortify our homes after the apocalypse. These tools require no gas or electricity and can serve double-duty as bartering items when the food supply dwindles.

IRWIN FK SERIES UTILITY KNIVES

The proprietary design of the Irwin FK Series utility knives addresses the most frequently cited user frustration—when blades accidentally pull out of the handle during use. The new BladeLock Technology improves safety by providing the user with the ability to change blades only when the release button is

engaged and the blade holder is in the 45-deg. open position. Each of the new folding utility knives has a liner lock for safe, one-handed operation and a 16-deg. cutting angle for ultimate comfort and control. Designed with a rugged and robust feel, the Irwin FK100 features a compact, durable body design that is lightweight and compact. Comfortable in the hand, pocket or on the belt, the FK100 has a built-in wire stripper, cast finger grooves and trigger-grip handle for greater control. The new FK150 has built-in blade storage that holds up to two blades for quick, on-the-job blade changes. For the tradesman who needs a superior utility knife and quick access to his most commonly used screwdriver bits—without the bulk of a multi-tool—Irwin integrated a foldout screwdriver for 1-in. insert bits into the new FK250. For added convenience and customization, the FK250 includes

built-in blade storage and an additional insert bit storage compartment. All the new FK Series handles are backed by Irwin's Lifetime Guarantee. Learn more at www.irwin.com.

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tures a 1/4-in. hex shaft, and the 28-tooth ratchet provides 225 inch/lbs. of torque with fast, two-way operation. The handle features a comfortable dual-composition grip and a slide-out storage compartment for easy bit retrieval. Learn more at www.channellock.com.

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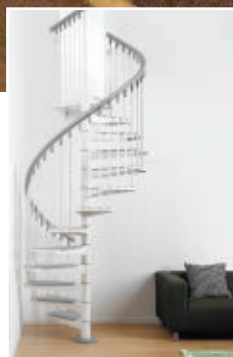
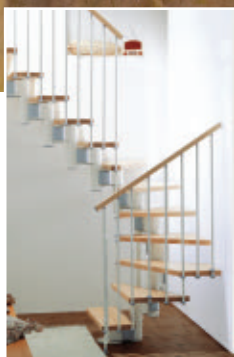


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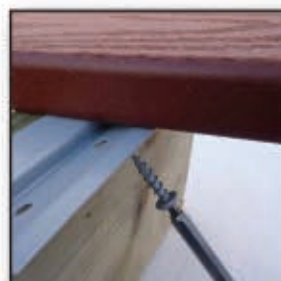
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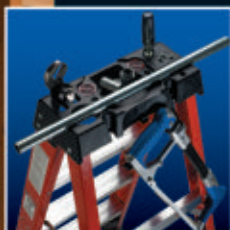
holding power. To suit a variety of applications just replace with other sliding arm variants. Three sizes are available with clamping capacities from 39-1/2 to 79 inches. The Bessey MorPad on the clamp is designed to reduce friction at the point of contact, which can lower applied clamping force and extend tool life. Learn more at www.besseytools.com.

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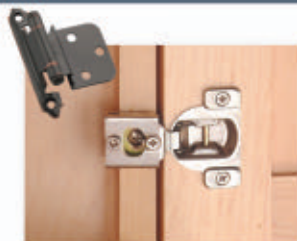
small wheel blades, it also cuts curves in drywall easily and accurately. Learn more at www.goldblatttool.com.

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Stand out is the ability of the blade to maintain a semi-rigid profile for long lengths. This is important during the measuring process to allow unassisted determination of lengths over extended distances. Learn more at www.starrett.com.

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The Savage Folding Jab Saw/Utility Knife simplifies life for drywall installers and construction pros by combining their most used tools. The jab saw works with any standard reciprocating saw blade, and blade changes are quick with a simple twist-open design. The jab saw locks into two cutting positions—straight and angled—and three blades are included for cutting wood, metal and more. The



integrated utility knife comes with a lock-back feature and is design for easy blade swaps. The Savage Folding Jab Saw also comes with a

convenient belt-mountable carrying case that holds the tool and extra blades. Learn more at www.savageunleashed.com. **EHT**

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Focus on the Fireplace

Upgrading an Old Wood-Burning Stove with a Stylish, Efficient Gas Fireplace



By Stuart Hanson

When it comes to which type of fireplace is best, there has always been considerable debate. Many people lean towards the romance, smell and ‘crackle’ of a wood-burning stove, mixed among those seeking gas fireplaces that not only create warmth and comfort for the whole family, but also offer the finest in style, convenience and efficiency. While it’s true most people will always envision a roaring fire within the family room, the wood-versus-gas debate still continues.

While both types have their advantages with staunch defenders on both sides of the gas-versus-wood conversation, the real winners are today’s homeowners as modern fireplaces truly are a

Thanks to modern design and styling, many of today’s fireplaces are a far cry from their unattractive predecessors of the past. Maintaining architectural consistency makes a great difference between a fireplace that looks like an inappropriate add-on and one that looks like it’s an original part of the home.

far cry from the unattractive and inefficient hearths of the past. Whether you’re designing your dream home or just looking for an easy way to maximize comfort and save heating costs this season, there are numerous considerations regarding this popular home upgrade as exemplified via one Pacific Northwest couple from Redmond, Washington.

Homeowners Steve and Tara Fries inherited a mid-70s free-standing wood stove when they

purchased their home in early 2000. Since then, an upgraded great room and kitchen outshined the outdated wood-burning appliance. With a baby on the way, they felt a safer, more-efficient change was needed.

“I remember sitting around a roaring wood fire when I was young so I have a natural affinity towards that, but we decided a change to gas was more appropriate with a baby on the way,” says Steve Fries, a long-time media sales

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professional. “We’re both so busy and about to become even busier, so the overall efficiency, look and convenience of a gas fireplace really felt like the right choice.”

As the Fries’ found out while going through the process of upgrading to a new gas fireplace, there were many aspects to research and consider before

they upgraded their inefficient wood stove with a ‘hot’ new home appliance.

CONSIDERATION #1: DETERMINE THE BEST FUEL SOURCE

Selecting the most appropriate fuel source is often the first step when deciding which direction to go. For more rustic or rural home settings, wood is the preferred fuel source for its classic “crackling” sound, and its low-cost and availability. Natural gas is a convenient way to have a warming fire at the flip of a switch or remote control, and is readily available via the local power/utility company (less so in remote areas). Additionally, there are many cities and states that periodically limit or prohibit the usage of wood-burning fireplaces because of environmental conditions—so warming the home with gas eliminates that potential circumstance. That was an important consideration for this family since they’re located in the greater Seattle area where burning bans occasionally occur.

CONSIDERATION #2: PROPER STYLING IS ESSENTIAL FOR ARCHITECTURAL CONSISTENCY

Thanks to modern design and styling, many of today’s fireplaces are a far cry from their unattractive predecessors of the past. Maintaining architectural consistency makes a great difference between a fireplace that looks like an inappropriate add-on and one that looks like it’s an original part of the home. Simply put, it’s a matter of replicating the particular architectural style in other finished materials throughout the space for an overall, cohesive look.

Visiting the local hearth retailer will quickly show any would-be buyer a nearly endless selection



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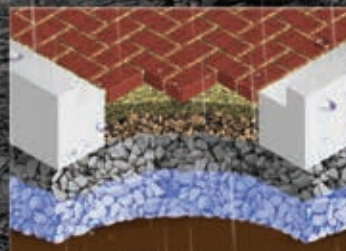
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of faceplate designs and material choices. Brushed nickel, wrought iron, antique gold and hand-rubbed copper are just a few of the options designed to provide a cohesive, luxurious look unifying the home's architectural style. The Fries' selected Kirkland Fireplace, a nearby fireplace retailer supplying the Seattle area with gas, wood and electric fireplace products, including installation services and maintenance. They eventually decided

on the Winthrop GreenSmart high-output gas fireplace by Avalon, a brand known for its beautiful wood, gas and pellet fireplaces, stoves and inserts

featuring organic styling and natural design.

"The Winthrop's size and proportion just looked right for our great room setting while providing



Homeowner's Steve and Tara Fries decided on the Winthrop GreenSmart high-output gas fireplace by Avalon for its realistic yellow-flame appearance, heating performance and stylish design options.

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ample heat output throughout our entire 2,520 square foot home,” says Steve. “And we—as in my wife—decided the Avalon Bungalow face, weathered-brick

fireback, accent lights, wrought iron andirons and GreenSmart remote were the best appearance and functional options for our situation ... and I of course agree.

It looks great and heats even better.”

“The combination of the Bungalow face and the other options really made the fireplace ‘pop’ while still looking like it belonged in the space all along,” explains Tara, a coffee shop owner by day and loving Mom by night. “The overall selection and available options from Avalon were all very stylish and really high-quality, and it certainly shows in our fireplace. I’m so happy in how it came out.”

CONSIDERATION #3: NEW DEVELOPMENTS IN EFFICIENCY, REALISM AND ‘ZONE HEATING’

One of the most critical performance measures of any heating appliance is the overall efficiency. This important data tells you how much of the generated energy is turned into useful heat—and is especially important with rising fuel costs nationwide.

“Heating appliances these days are no longer the fireplaces of old,” says Kurt Rumens, president of the Avalon fireplaces. “If you have an older fireplace, the efficiency difference can be drastic when compared to newer models. You can easily get more heat for your money and help avoid high-energy bills by upgrading an existing fireplace.”

For example, the Avalon gas fireplace within the Fries’ residence is powered by the GreenSmart system featuring an innovative collection of components, controls and technology that when combined provides an elegant, smarter and greener way to heat the home. Features such as accent lights, flame adjustments, blower control and a choice of pilot ignition modes, when combined with the GreenSmart remote, allows



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The Avalon Winthrop is powered by the GreenSmart system featuring an innovative collection of components, controls and technology that when combined provides an elegant, smarter and greener way to heat the home.

homeowners to run the fireplace in "Smart Thermostat Mode" that automatically adjusts the split-flow burner system. The rear burner will turn off leaving the front burner on for an attractive flame appearance when less heat is desired. This mode maximizes the viewing pleasure of the fire, as opposed to simply shutting the entire unit off—and a smarter, greener way to enjoy the fire.

Also, the GreenSmart system conserves fuel throughout the entire year. As one cost-savings example, GreenSmart Pilot mode uses an intermittent pilot (IPI) spark to light the pilot flame which does not run continually, therefore conserving energy when the appliance is not being operated. On many lower-quality gas fireplaces, a standing pilot light is standard and uses roughly .552 therms of gas each day. The average therm of natural gas is \$1.10, or \$0.60 to run every day—no matter if the

appliance is on or off. An entire year, or 365 days, of standing pilot usage roughly equates to 201 therms of gas or \$219. GreenSmart helps save on both energy usage and the annual heating bill.

In addition to new developments in energy conservation and efficiency, gone are the days of small blue flames within a black box known as a gas fireplace. "Homeowners are becoming 'smarter' about fireplaces as they look for an efficient heat source that creates comfort for the entire family and look great as well," says Rumens. "These days, gas fireplaces meld luxurious design with performance so realistically that it's almost difficult to tell apart from a wood-burning fireplace with the gorgeous, dancing yellow-flame fire and flickering embers."

Furthermore, Avalon fireplaces emit warmth directly into the living

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space needing heat, or through optional heat ducts that direct heated air into adjoining rooms thus heating only the areas used most. Whereas forced-air heating systems distribute heat from a central furnace unit through ducts to all areas of the home—even unoccupied rooms, thus wasting money—by contrast, this method directs heat only into the living spaces needing heat. This approach known as “zone heating” further reduces household energy usage, while increasing ambience and comfort levels to the areas used most.

INSTALLATION

For DIY'ers looking to upgrade their home with a fireplace, the surrounding rockery/tiling and mantle is certainly within the parameters of what can be done by yourself; however, the actual fireplace installation is not. Fireplace dealers are trained and certified to provide the best service as possible, and have gone through training programs regarding the installation of direct-vent gas appliances. These trained specialists ensure flawless and safe operation, a very important aspect when dealing with maneuvering gas lines and setting pilot lights so the appliance conforms with local construction codes. Failure to follow all the installation specifics and requirements could result in property damage and/or bodily injury, so hiring a trained installation specialist is paramount for a safe installation.

In the end, the Fries' were extremely happy with their decision—and more importantly—the final outcome. “We learned there are many options, designs and things to consider before venturing towards updating a fireplace,” added Steve. “We couldn't be happier with the performance and

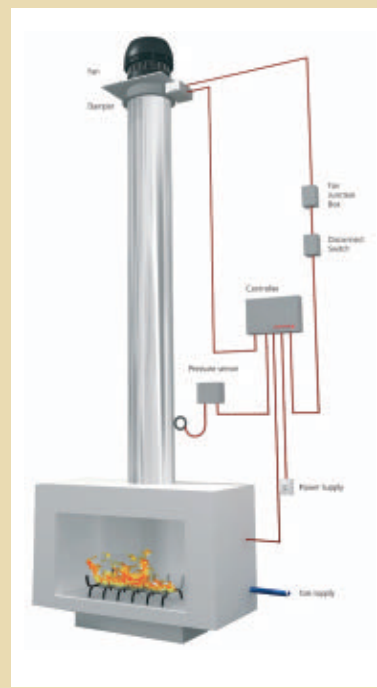
look of the final product, though. It's perfect for our situation.”

In short, today's high-quality fireplaces have never been “hotter”. **EHT**

Editor's Note: Stuart Hanson is principal at Hanson Communications. For more information on making the proper fireplace decision, visit www.AvalonFirestyles.com or call 1-866-492-7169.

INTELLIDRAFT AUTOMATED VENT CONTROL

The new IntelliDraft system from Enervex is the first completely automated venting control system used with gas fireplaces and other gas-fired, decorative appliances. Designed specifically to maintain proper draft condition and air for combustion, IntelliDraft provides safe operating conditions ideal for single-family dwellings and multi-family buildings. The system allows freedom to integrate almost any fireplace design and eliminates the need for glass doors. By saving energy and eliminating unnecessary emissions, IntelliDraft is a truly green solution. For more information, visit www.intelldraft.com.



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(NOT) A LOT OF HOT AIR

By Mark Clement

How many of us really think about our HVAC system and its optimum performance? I mean really think about it.

Sure, we change the filters, although not as often as we should, but as long as the air comes out, we're comfy, and the utility bill is less than outrageous, then we focus on our crown molding, decks, landscapes and cabinets. Those are the things we can see, touch, cut and care for.

But the reality is we all have to think about it at some point. Lots of people have to think about it during an "oh crap!" moment, when the weather is snowing or searing, and there is no air coming out. That happens all the time. With a system so important, panic is not the proper ingredient for making good decisions. Stuff will go wrong.

What's more, the "oh crap!" moment is usually followed with an "it costs how much?!" moment. That's why this isn't one of those seasonal "save money on your energy bills" articles.

Nope. This article is a check-down of how to prevent that aforementioned—and usually unbudgeted—moment. The payoff is that in the process, you'll be able to see the signals and plan ahead. Oh, and I love this one: You can find out how much money your old system has been burning and sending up the chimney.

(NOT)
A LOT OF
**HOT
AIR**



Signs of age: This unit's blower motor has chunks of plaster inside it. The blower is often the first piece to go when a system starts to fail. It is replaceable, but replacing it generally means the rest of the unit is on borrowed time.

LIFESPAN

The heart of the HVAC system is the furnace or air-handler which, where we live, is typically in the basement. Its burners provide the heat and its blower motor pushes and pulls the air (hot or cold) through the house's circulatory system.

Like any person's heart, this unit—which should be 80,000-100,000 BTUS for a typical 2,500 square foot home—has a lifespan, which is somewhere around a quarter century.

You can check, or at least try to check, the age of your system by removing the cover plate and looking at the labels. There may be an indication of an installation date or a service call that can guide you. If there's no labeling or the

ink has faded, you can probably bet that when this unit was being installed in your basement you were in high school, going on your first date, or learning to ride a bike.

One way to equip yourself with some data—labels or not—about your system is to check the heat exchanger, right above the burners. With the faceplate removed, shine a flashlight and look for rust. Rust is a sign of age and decay.

Most of the action in the heat exchanger happens right above the burner, so this is a big wear area. And since the unit can be rusting from the inside out—and the outside in—don't be fooled by “a little rust” on a three-decade old system.



Wrong: Condensate, drain and power lines literally run to the unit on the ground, making them fresh meat for lawn equipment.

EFFICIENCY

A unit that's 20, 30, or if you're very lucky, 40 years old was designed to deliver at best 70-percent efficiency. That means for every dollar of natural gas you purchase to power it, 30 percent goes up the chimney—under perfect conditions.

Problem is, the science of air movement, nevermind building

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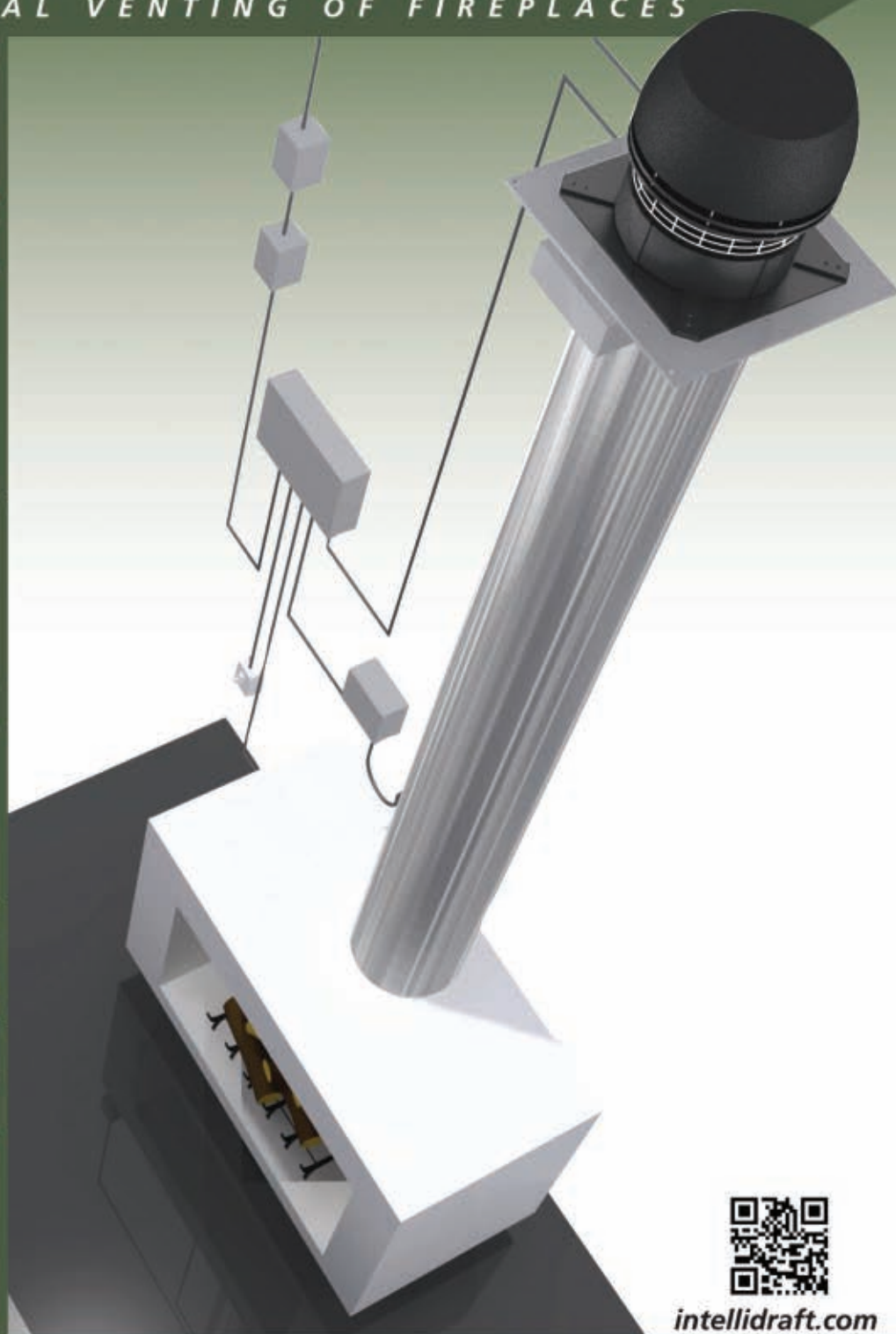
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(NOT) A LOT OF HOT AIR

codes, government regulation and developments in technology, those conditions are rarely ideal. So assuming the unit is Goldilocks-ed (not too big, not too small, but just right for the house), under-sized ducting could be throwing away even more energy, taking a 70-percent efficiency unit down to 50 percent. Not only does this shorten the life span of the unit, but you're literally burning 50 cents of every dollar you spend heating and cooling.

Here's the situation. Ducts can only hold so much air. But that won't stop the unit from trying to meet the demand of the thermostat, and it'll run as hard as it can until the thermostat shuts it off. In other words, when a duct is undersized it's like trying to blow out a candle through your kid's

juice box straw. You blow until your head's about to burst and you've turned fire engine red, but only so much air passes. Just like your furnace's blower motor, you're working way harder than necessary for flickering results.

Properly sized ducting means your furnace has a better chance for working at peak efficiency. For example, on our recent HVAC upgrade, our 8-by-12-in. ducting was grossly undersized for the 2,500 square foot home it services. It should start at 8-by-24 inches, and the return should be equally sized as well.

Under-sized ducts are a common problem in both old and new construction. A quality HVAC contractor will spot this from a mile away and be able to recommend ways to save your furnace and



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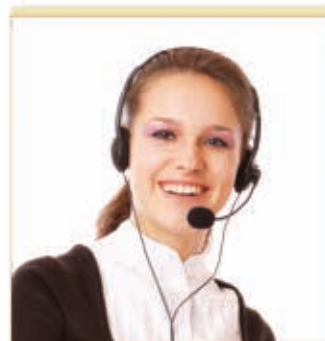
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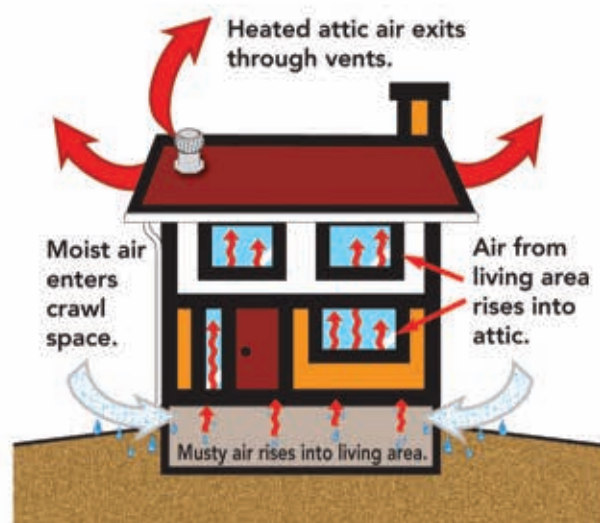
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Why close a crawl space? No amount of ventilation will solve the problems modern day air conditioning causes. Outside air entering through the vents can create condensation on any surface below the dew point temperature, such as floor joists, insulation and pipes and ducts. This constant condensation causes wood rot and mold, and attracts all types of insects, including termites.

Stack Effect



Closing a crawl space, which includes sealing the vents, insulating the walls, creating a vapor barrier and conditioning the air in the crawl space, is now considered the best practice standard. Leading research by Advanced Energy under a grant from the U.S. Department of Energy (www.crawlspace.org) identified the common symptoms of a crawl space moisture problem as mold or moisture damage in the crawl space or living area, musty odors and high humidity in the living area, condensation ("sweating"), buckled hardwood floors, insect infestations, and rot in wooden framing members.

Closing the crawl space creates a clean, conditioned space under the home, improves air quality throughout the home, saves up to 18% in heating and cooling cost in the Southeast,* reduces mold and wood decay on floor joists, reduces buckling of hardwood floors, creates warmer floors in the winter and reduces pest and termite pressure.

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This is a grossly undersized supply trunk. This system never had a chance to operate at peak performance—or anywhere near it.

save you some cash. This is typically not bogus up-selling. The dude to worry about is the one who doesn't see it.

THE RIGHT CONTRACTOR

Unlike a carpentry project where most non-experts can see expert workmanship just by looking at the finished project or operating it—the door swings like it's supposed, the deck doesn't wobble, etc.—a primo HVAC installation is much harder to detect, if it's even possible. Your best leverage for getting a quality installation is to choose the right contractor in the first place.

Numbers Game. Remodeling contractors, plumbers and electricians who try to impress me (or homeowners) with jargon-talk are lame. Sorry. Mrs. Jones doesn't

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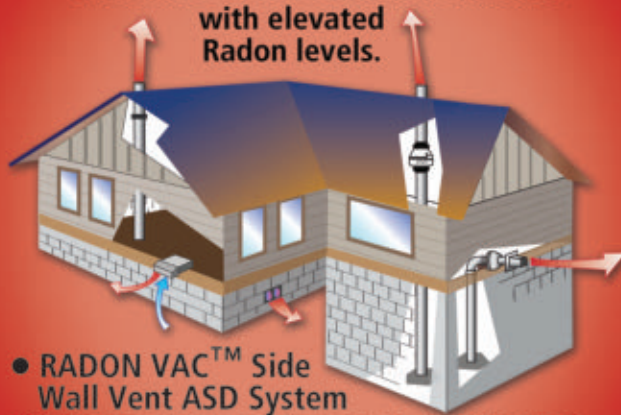
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care about “street bends” and “hanger brackets” or “sistering joists”, and all this talk just separates the contractor from the client. The jargon is not impressive unless it’s necessary, or if they’re hanging out with their contractor buddies.

However, when talking with an HVAC professional about investing \$15,000 on a system that moves the invisible, all I want to hear is jargon. Numbers capture the invisible. I want this information because that’s how I know an HVAC mechanic understands what he’s designing for my home.

To put a fine point on it, they don’t all understand. Lots of plumbers go to HVAC school, but really, they’re plumbers who sort of know how to do HVAC. HVAC is a specialty. A job that will serve you



...Aaaand that’s the inside of the cold air return. That dust was getting sucked through the house and collecting more dust, which was also getting sucked through the house.



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Work on the HVAC system may interrupt gas service. If you need it, work with your mechanic to time the outage.

There's a lot of steel and copper in an old system. Most contractors will take it away for you. Or you can take it and have it recycled yourself and help DIY-defray the cost of the system (Fair warning: not by much).

and your family for decades should be done by a specialist.

Terms. You want to hear your contractor talking about doing a “heat-load calculation” and to examine the size and shape of the ducting, even if the ducting is fine. You want them to talk with you—in a way that makes sense—about the efficiency of the unit they’re installing and why they chose this type of unit for the type of building you’re in. And when it comes to cooling, you want to hear them mention “tonnage”. Tonnage is the amount of energy required to melt 1-ton of ice (buildings used to be cooled

with ice). If the contractor doesn’t pull the faceplate off the unit, look inside and give you an opinion, then run the other way.

CONDENSER

A lot of mistakes get made with condensing units outside the house. Namely, they get placed too close to the home or an obstruction, or their supply lines get installed at ground level making them fresh meat for landscape equipment. In some cases, they get blocked by shrubs and fences that make it impossible to run a trimmer in there without tripping on stuff and risking

bending the fins on the condenser. Since this unit is essentially a radiator, it needs to breathe. A properly installed unit will be about 1 foot from the sidewall of the house with a minimum of 24-inches between it and any other obstruction. This provides air flow and room to pull weeds. I even like to give it more than the minimum because 24 inches really isn’t ample room for someone to work on it if it requires service for any reason. It also doesn’t provide enough room to easily access with a string trimmer.

QUIETWARMTH RADIANT HEAT

A popular alternative to central heating is electric radiant floor heat. QuietWarmth, from MP Global products, is a system of low-profile, electric underlayments for installation beneath finished flooring. *Extreme How-To's* editor-in-chief installed this system in his kitchen a few years ago, and his family still enjoys the pleasant underfoot feel of warmed porcelain tile every winter. The wire-embedded underlayment mats line the subfloor and are butted at the seams to function like a hidden electric blanket beneath the finished surface. The mats replace typical floating floor underlayments, making the total overall thickness from subfloor to floor surface only around 3/8 inch. QuietWarmth not only deadens impact sound from the hard surface flooring, but it also makes the surface warm enough for bare feet and does a great job heating the entire room. Learn more at www.quietwarmth.com.



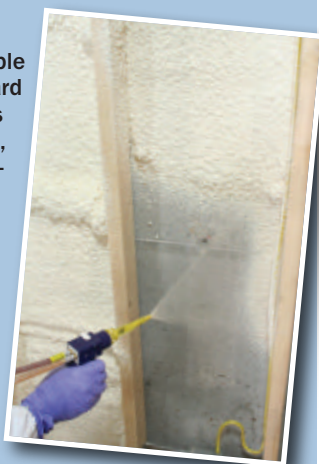
TOUCH 'N FOAM PRO SPRAY FOAM KITS

Attention "extreme" do-it-yourselfers and contractors: An effective method for keeping your house warm this winter is the flash and batt technique for wall cavity fills using Touch 'n Foam Professional two-component polyurethane spray foam kits in conjunction with fiberglass battings.

Touch 'n Foam Pro spray foam insulation kits are best applied in 1-in. layers. Flash and batt applications usually suggest 1 to 2 inches of spray foam. For energy-saving and investment purposes, spray foam stops the air leaks and seals out allergens and air pollutants that fiberglass alone does not.

Touch 'n Foam's Pro line offers portable and disposable kits in 15, 200 and 600 board feet options. Each kit comes with conical and fan nozzles, pre-attached hoses, an ergonomic foam applicator, disposable gloves, safety glasses and detailed instructions. Be sure to read these instructions before using the kits and wear proper protective clothing and eye protection.

Touch 'n Foam is manufactured by Convenience Products in St. Louis, Missouri. For available retail locations, please call 1-800-325-6180 or visit www.ConvenienceProducts.com.



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WORK NEATLY

Like any project, there are a million-and-one ways to make a good job a pain in the neck.

On this project, a new duct encroached on a door. Instead of

leaving a sharp corner and saying nothing about it, the mechanic installing the unit alerted me to the situation and together we worked out a way to ease the edge. By chamfering the duct, it



Work neatly. Penetrations in the trunks should be counter-bent so the duct can remain rigid with pressure changes. For this situation the return trunk was chamfered to maintain door egress. This is a smart solution delivered by a smart contractor.



cleared egress to the door opening so that neither the duct nor someone's head will get smashed when passing by.

When working in the finished living space, a dropped screwdriver or cordless drill can result in an expensive floor repair. Think ahead and lay out a drop cloth for the installer to solve this problem before it happens.

A well-designed and professionally installed HVAC system is hard to see. But you'll know when something is wrong, and then it's too late. Conducting a little routine maintenance and choosing a responsible, conscientious contractor will keep the air from escaping the balloon. **EHT**

Editor's Note: Mark and Theresa Clement host MyFixitUpLife.

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FILTERS

There are a lot of variables when it comes to recommended filter changes for your HVAC system, including the presence of pets in the house, number of people, heating/cooling days, and if there are allergies to consider. So I'm not going to tell you when to change your filters, except to say this:

We change them before and after every dust-creating remodeling project, whether it's in our home or a client's. New filters catch more dust than dirty ones, and if we create a lot of dust, we swap it out after the job is done.

Some filters catch so much dust that they restrict airflow on the HVAC unit. So if you don't need a super long-lasting filter to be healthy, they might not be worth it.

We've had great luck with woven nylon filters. Not only can we clean them with a hose, but when nailed to a piece of plywood, they make the best jobsite doormat ever. —M.C.

PROPERLY SIZED SYSTEM

Many homeowners believe that bigger is better when buying new heating and cooling equipment, but your system should be a custom fit for your home. An air conditioner close to your needed size does not have to overwork to meet your demands nor does it constantly switch on and off and waste extra energy. A knowledgeable contractor will follow a standard industry procedure to ensure your HVAC equipment is properly sized and that its duct system is properly sealed and balanced.

The HVAC professional should determine the square footage of the area the central unit will have to condition. The recommended air-conditioning BTU rating is then estimated using industry standards. For example, if the home is was 1,200 square feet you would need 22,500 BTU unit. To further calculate the required BTU's to condition the space the contractor makes adjustments according to the interior's exposure to sunlight and shade, amount of insulation, proximity to kitchens and boilers, number of occupants in the home, and other similar factors.



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THE LOW- DOWN ON CROWN

*The Basics of Installing
Crown Molding*



By Larry Walton

Crown molding can get type-cast in the role of decorative molding like butter-cream lattice work on a wedding cake. It's necessary to achieve a certain look, but not necessarily functional.

However, start looking for the crown around you and you will begin to see its many functions. For one thing, that ubiquitous wall-to-ceiling crown creates a transition that softens the harsh angle and hides irregularities. It makes the problems associated with that particular corner go away.

Crown also serves as a corbel to support cantilevers in many structures such as mantel tops and plant shelves. It functions much like a knee brace to provide vertical support for horizontal planes.

When it comes to interior finish carpentry jobs, the level of a project can almost be measured in terms of the amount of crown molding involved. Big projects often involve ceiling crown in every room and on every door and window header. Cabinets are topped with crown, open landings are girded with crown and mantel tops are supported by crown.

Crown is often used as an apron for window stools.

Photo copyright John Wollwerth/www.123rf.com

THE LOW-DOWN ON CROWN



Pre-paint or pre-stain the crown and allow it to dry.

Having said all that, one of the best ways to get started working with crown molding is topping a simple rectangular room.

Crown molding should be proportionate to the room. I recently installed crown in a house with only 7-1/2 ft. ceilings but it worked quite well because we used a very small 2-1/4-in. crown molding, which was just right for the application. Larger rooms with high ceilings can and should take a larger crown molding. For example, 4-1/2-in. crown is common for rooms with 9-ft. ceilings.

Crown is available in lots of different profiles. Some designers add extra trim details to the crown design by installing an extra piece of flat trim on the ceiling and/or the wall to add detail and strengthen the feel of the crown. Some crown

designs have space to add dentil molding while others have a built-in dentil detail, but the most common profiles are one piece with a large cove in the face and an extra ogee detail, which belongs at the bottom. I teach my crew to remember "detail down," which means the part with the most contour goes down or along the wall.

An important concept to understand when installing crown molding is that it must be oriented properly for the connections to work out. Crown molding is designed to transition between the wall and the ceiling at a specific angle. Because there is a void behind the molding, this angle is not always obvious and not always easily maintained during installation. To maintain the proper angle, which is essential for tight fits and proper joints, install the crown at a consistent distance from the ceiling at the point where it touches the wall.

Start by measuring the room to get the linear footage needed to go around the perimeter of the room. Preferably, you will get the crown in lengths that can be installed without splicing. Buy at least 1/2-ft. extra for each wall.

Pre-paint or pre-stain the crown and allow it to dry.



Read the scale on the framing square for the amount of wall and ceiling that is covered by the crown.

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THE LOW-DOWN ON CROWN

Measure the vertical and horizontal positioning of your crown molding. Using a framing square to mimic the ceiling and wall, position a short piece of crown so the ceiling and wall surface are flat on the tongue and the blade of the framing square. Read the scale on

the framing square for the amount of wall and ceiling that is covered by the crown.

Determine your backing situation. If you are using small (2-1/4 to 3 in.) crown, then the double top plate is probably reachable with finish nails. However, larger

sizes of crown molding bridge between the wall and ceiling leaving a gap that is too large to be spanned by a finish nail.

For larger crown, install backer blocks. Set the table saw at 45 degrees and rip triangular shaped strips out of 2x4. Chop the strips to 6-in. lengths and install at 2 ft. intervals around the room, staying about a foot away from the corners. Mark the wall with painter's tape a few inches below the blocks to indicate their position when you cover them with crown.

Measure from wall to wall for the first piece of crown.

Cut the first piece of molding square on both ends. Position the first piece with the detail down and the bottom edge at the top



Large crown molding profiles leave a gap at the rear that is too large to be spanned by a finish nail.



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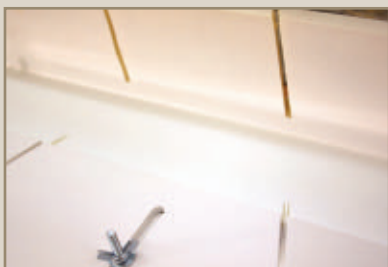
Make the backer blocks by ripping 45-degree triangular shaped strips out of 2x4.

Mark the wall studs with painter's tape and nail the backer blocks over the studs.



THE CROWN MASTER MITRE BOX

When crown molding slips out of position on a miter saw, the misaligned cut will not properly fit the joint, resulting in extra labor and wasted materials. The Crown Master Mitre Box (CMMB) is a miter saw jig that easily adjusts to securely hold any size crown molding up to 4-1/2-in. wide. It also easily adjusts to any angle of tilt for any particular molding. The CMMB easily provides the ability to cut mitered joints from 1 to 45 degrees in crown and other other types of moldings that sit at an angular tilt. It has integrated stops on the bottom allowing you to align the saw blade exactly every time. The CMMB also requires no mechanical means of attachment to the saw you're using, making it easy to use the same saw for other purposes, without changing any of the angles set up for your crown. Three kits are available. The Basic Kit contains one CMMB, allowing you to easily and confidently cut crown molding for most standard angles. The Pro Kit contains one CMMB as well as an Auxiliary Kit that allows you to cut angles steeper than 45 degrees—perfect for vaulted ceilings or coffered ceilings. The Pro Plus Kit contains two CMMB's and one Auxiliary Kit. Learn more at www.crownmastermitrebox.com.



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THE LOW-DOWN ON CROWN

of the masking tape marks. Nail at the tape marks, which indicate the backing locations.

Masking tape on the miter saw table and fence marks the location of the crown molding edges so it is positioned at the correct angle to the saw blade. Since the crown goes in the saw upside-down, put the ceiling mark on the table and the wall mark on the fence.

Begin a cope cut by setting the saw at 45-degrees back toward the length of the board. Position the crown molding in the saw upside-down with the edges at the tape marks made earlier. Make your miter cut.

With the crown molding face down, hook the tape at the longest point of the 45-degree cut and mark the same edge of the molding at the wall-to-wall measurement.

Turn the molding face up and use a coping saw to cut along the line determined by the intersection of the face and the cut area. Back-cut the molding by angling the coping saw handle away from the molding so the blade is perpendicular to the plane of the miter saw cut.

Fit the cope cut end into place against the adjacent piece then position the remainder of the piece and nail it into place.

Make a cope cut at both ends of the final piece of crown.

As you gain experience with crown, you'll get comfortable with different cuts. Crown can follow around the perimeter of room just like the base boards. You can go around columns, into alcoves and along walls that meet at 45 degrees. Measure and mark the part of the crown that touches the wall just as you would with base boards. Bisect angles with the miter saw (e.g. 45 degree corners require 22-1/2 degree cuts).

Finish your installation by filling nail holes, caulking the joints and applying a little touch-up paint. **EHT**



Install the blocks at 2' intervals and mark their locations with masking tape.



Measure the wall from corner to corner to determine crown length.



Use masking tape to mark the edges of the crown on the miter saw's table and fence so it is positioned at the correct angle to the saw blade.

Cut the first strip square on both ends and nail into the backer blocks.



Since the crown goes on the saw upside-down, put the ceiling mark on the table and the wall mark on the fence. Begin a cope cut by making a 45-degree miter back toward the length of the board.

Hook the tape at the longest point of the 45-degree cut and mark the same edge of the molding at the wall-to-wall measurement.



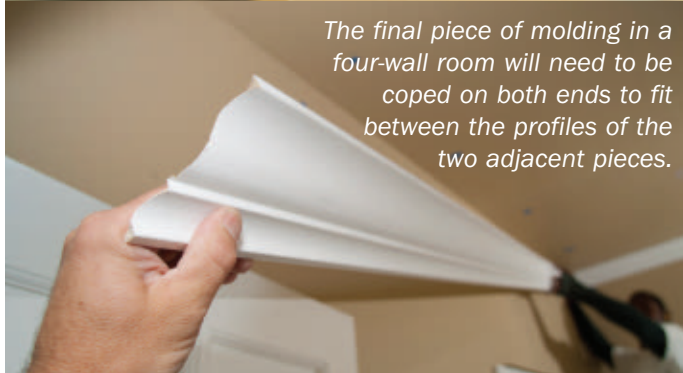
Back-cut the molding by angling the coping saw handle away from the molding so the blade is perpendicular to the plane of the miter cut.



Fit the coped end into place against the adjacent strip of molding, then position the remainder of the piece and nail it into place.



The final piece of molding in a four-wall room will need to be coped on both ends to fit between the profiles of the two adjacent pieces.



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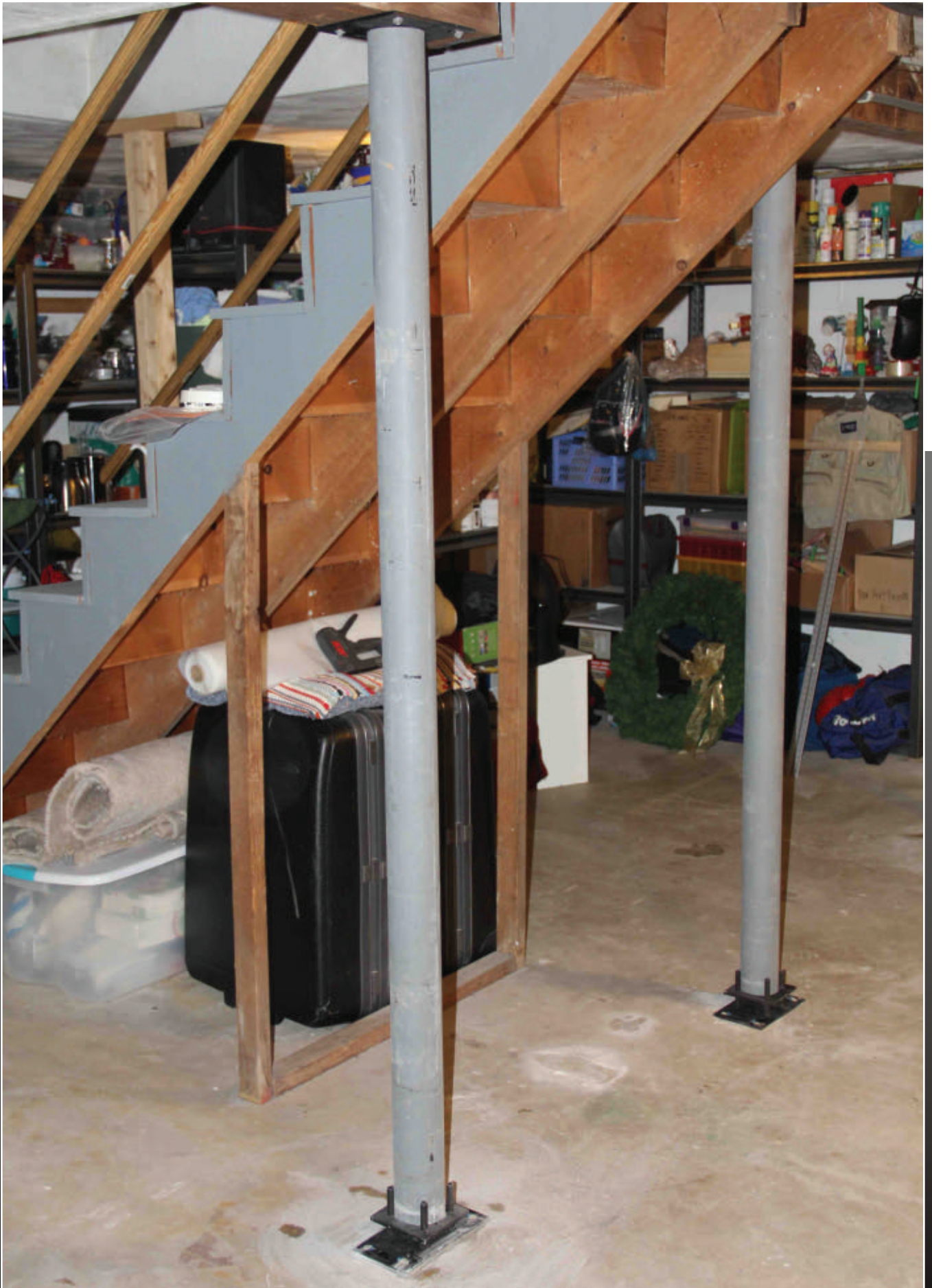
Lally Lock Structural Column Offers Code Compliance and Adjustability

I recently had a project where I had to cut and replace existing steel structural columns supporting a home's main girder. After boring the inspection holes we determined that there were adequate footings under the existing columns so we did not need to break up the basement floor to dig and pour footings. This meant the only issue was to figure out how to get a new column installed without jacking the whole house up 1/2 in. to do it. Both the kitchen and bathroom above had a fairly new tile floor, and we were sure it would crack if we jacked up the house.

INNOVATIVE SOLUTION

Luckily I had the opportunity to install the Lally Lock System in my own home a few years back. The Lally Lock is a fairly new and innovative type of structural column made by Dean Column Co., Inc. A standard lally column is the round thin-walled structural steel columns that provide support to beams or timbers stretching over long spans. The columns are filled with concrete to prevent buckling. Dean Column Co. has taken

By Rob Robillard





The old structural columns of the home were rusted and in need of replacement. We bored holes in the floor and determined that the footing were still in acceptable condition.

an old product and made it stronger, easier to use and code-compliant. The patented Lally Lock System is a complete column fastening system. Best of all, no welding is required. In fact, the Lally Lock System is the only code-compliant column that does not require welding.

Typically, lally columns are installed on top of a footing, and the basement floor is later poured to encapsulate the column. With my situation I already had existing footings, and the floor was in great shape. I only needed new permanent support columns.

The Lally Lock System consists of three components, the Lally Lock column, the Cap plate and a Base plate.

The Lally Lock structural column is a concrete-filled column made from 16-gauge tubular steel (available in 3-1/2 and 4 in. diameter)

with an embedded fastening unit in the top of the column. The fastening unit is made from a 6-in. anchoring bolt threaded into a 1-1/4-in. coupling nut and steel disc with a 9/16-in. hole that is welded to the inside of the steel tube.

The steel tubing is manufactured in the United States from low-carbon steel complying with ASTM A513 standards and has a yield strength of 32,000 psi / ultimate strength of 45,000 psi. Galvanized columns are also available.

The Lally Lock structural column is available in lengths from 6 to 14 feet. Longer or shorter lengths are available upon request, or you can cut them onsite.

The columns are made in 3-in. increments, and the Base plate is adjustable by 3 inches, so when measuring you don't have to worry



about getting your columns super tight or jacking up your structure to get them to fit.

TOP PLATES

The Lally Lock system features 3 different types of top plates: Lally Lock Beam plate, Lally Lock Saddle plate, and Lally Lock Cap plate. The different plates allow you to custom fit solid sawn lumber and LVL beam sizes. (Laminated veneer lumber is a material that uses multiple layers of thin wood assembled with adhesives. It's typically used for headers, beams, rimboard and edge-forming material.)

I used the Lally Lock Beam plate, which is made from 1/4-in. low carbon steel with exclusively



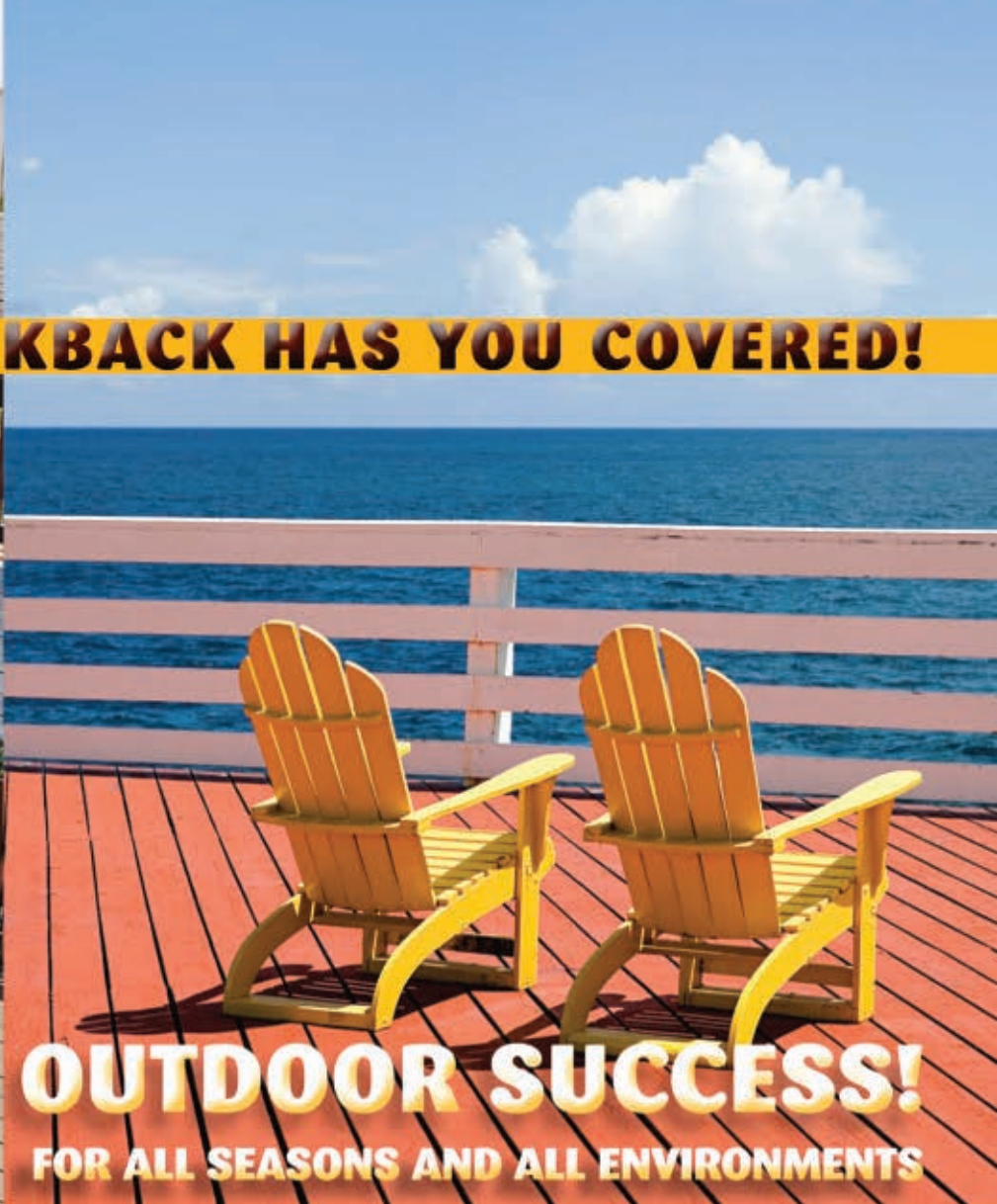
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SUPPORT SOLUTION

designed keyholes. The key holes allow one person to install the column by slipping the keyholes over pre-installed fasteners and temporarily hanging the column off the beam before permanently

installing the fasteners. The procedure works well.

The top plate also has two 3/8-in. holes and two smaller holes for fastening to the beam. The center of the plate has a 19/32-in. coun-

tersunk hole to connect the plate into the embedded fastening unit in the top of the Lally Lock structural column with a 1/2-in. bolt.

Lally Lock Beam Plate Sizes Available:

- 3- 1/8" x 8" x 1/4" for (2) 2x's
- 3- 5/8" x 8" x 1/4" for (2) LVL
- 4- 5/8" x 8" x 1/4" for (3) 2x's
- 5- 3/8" x 8" x 1/4" for (3) LVL
- 6- 1/8" x 8" x 1/4" for (4) 2x's
- 7- 1/8" x 8" x 1/4" for (4) LVL

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The beam of the house was temporarily supported with screw jacks. Screw jacks are handy tools for remodeling projects but are not meant to be used as permanent structural columns.



BOTTOM PLATES

Three styles of bottom plates are available (Adjustable Base Set, End plate and Lally Lock Base plate). I used the Adjustable Base Set for my installation. The bottom adjustable plate measures 4-7/8-by-4-7/8-by-3/8-in. with four 1/2-in. threaded holes and two 5/16-in. countersunk holes for securing the plate to the bottom of the column with concrete screws. Below this adjustable plate, a second bearing plate measuring 4-7/8-by-9-by-1/4-in. is installed. This plate has four key-holes for concrete screws, two 5/8-in. dimples and two 1/2-in. threaded holes that receive four 1/2-by-3-1/2-in. adjustment screws. These adjustment screws are rated for 55,000 pounds!



We used a grinder with a metal-cutting blade to cut the old columns.



The column must be cut out flush with the foundation floor.

OLD COLUMN REMOVAL

For my situation I needed to temporarily support the house beam while I removed the existing columns. To do this I used temporary screw jack supports, placing

one on each side of the column to be removed.

Using a grinder with a diamond blade I cut the column's metal casing and into the concrete core as deep as I could. A few solid raps



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The top of the old columns were installed with nails that were pried loose for removal of the column.

Use the grinder and a sledge hammer to flatten out the column location for easy installation of the replacement.

with a sledgehammer were all I needed to break the column. After removing the columns I used the grinder and sledge hammer to flatten out the portion of the columns still embedded in the floor.

LALLY LOCK INSTALLATION

To install, place the beam plate in the location where the column is to be installed. Two screws mount in the small portion of the keyholes, leaving a 1/16-in. gap between the plate and screw head.

Slide the plate off the two screws and screw the plate onto the embedded fastening unit in the column.

Next, Screw in the four 3-1/2-in. adjustment screws 3/8 of an inch into the 3/8-in. adjustment plate. The adjustment plate mounts to

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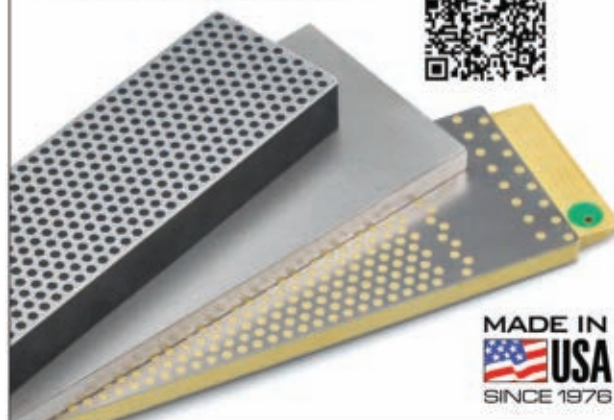
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the bottom end of the column, with countersunk holes facing outward.

Align the beam and adjustment plates so they are square. Using a 3/16-in. concrete drill bit, drill two holes 2-1/4-in. deep in the center of the two countersunk holes on the bottom side of the adjustment plate. The supplied Phillips head screws fasten into the two holes.

Use a pry bar as a lever to lift the column up to the beam where the first two screws were fastened.

The screws fit into in the large portion of the keyholes. Slide the column over to lock the plate into place. Tighten the two screws and then fasten the last two screws in the round holes of the plate.

If necessary, the length of the replacement can be trimmed with a column cutter.



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SUPPORT SOLUTION

ADJUSTABLE BASE

Place the 1/4-in. bearing plate on the footing under the column. Loosely tighten the two adjustment screws into the 5/8-in. dimples.

Use a level to plumb the column.

Once the column is plumb, use a 3/16-in. concrete drill bit and drill four 2-1/4-in. deep holes in each of the small sections of the keyholes. Fasten

with the four hex head screws.

Firmly tighten the adjustment screws in the 5/8-in. dimples. Then, screw the last two into the threaded holes. Thread these screws down until you feel them hit the footing. Do not over tighten these screws.

This procedure leaves a gap between the bottom of the adjustment plate and bearing plate. If you are installing the



The cap plate is loosely screwed to the beam of the house.



With the screws in place, the cap plate is then removed and mounted to the fastening unit on the Lally Lock column.

The adjustment plate mounts to the bottom of the column.



SUPPORT SOLUTION

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Lally Lock columns for new construction, the 4-in. slab concrete will fill the gap when poured. If you are using this for a remodel, box out the plates with concrete forms and fill with grout or concrete.

OVERALL IMPRESSION

I was impressed by the Lally Lock structural column and how easy it was to install, and especially grateful that I did not

need to jack up the house to get the column in. After I got the learning curve out of the way I was able to install the columns quickly and efficiently. **EHT**

The Lally Lock system provided adequate new support to the house and was much easier to install than standard lally column replacements.



The bearing plate is fastened to the floor with concrete screws.



Once the adjustment screws are tightened, the adjustment plate lifts the column into place for final installation. The gap between the adjustment plate and bearing plate can then be filled with concrete or grout.



The top plate screws flush and securely to the beam.

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Sticking with It

An Update on the Latest Glues and Adhesives



Liquid Nails latex-based drywall adhesive can correct minor framing irregularities. It acts fast, bonds strong and buffers sound. Plus, since using adhesive reduces the amount of drywall fasteners required, installers save time when finishing the walls, and there will be less nail pops in the future.

provide products that are safer and less harmful to the environment than previous products. In the past year, Liquid Nails removed phthalate plasticizers from all of its products. A significant portion of the product line has shifted from rubber/solvent-based to latex-based formulations, providing a safer working environment, as well as lower solvent emissions into the air—all while maintaining or improving adhesive performance.

Liquid Nails green building products include the new extreme temperature Subfloor & Deck Construction Adhesive (LNP-902), Drywall Adhesive (DWP-24), Heavy Duty Construction Adhesive (LNP-903), Marble & Granite and Solid Surface Materials Adhesive (LN-933) and Wood Projects Construction Adhesive (LN-740). Learn more at www.liquidnails.com.

RAPIDFIX DUAL ADHESIVE SYSTEM

RapidFix Dual Adhesive System incorporates an Instant Adhesive and Welding powder that can instantly repair almost anything. The RapidFix professional-grade adhesive instantly bonds most

From woodworking to roof building, glues and adhesives can be as important as hammers and nails to the solid construction of a home. Here's a quick roundup of some of the latest adhesive products to keep your next project held together with strength and stability.

LIQUID NAILS GREEN ADHESIVES

Liquid Nails construction adhesive has long been a reliable stand-by for construction pros. For contractors and DIY'ers with an eye on environmental sustainabili-

ty, Liquid Nails now offers more than 50 low-VOC (volatile organic compound) products in its adhesives line, most of which meet the requirements of the U.S. Green Building Council LEED and NAHB (National Association of Home Builders) green building programs. There are also a number of Liquid Nails products certified by the GreenGuard Environmental Institute as being low-emitting materials that contribute to better indoor air quality—meaning you can breathe more easily.

Liquid Nails regularly evaluates new technologies and materials to

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materials, including rubber, glass, china, metal and most plastics. When combined with the RapidFix welding powder it can be used to repair all types of cracks, holes, splits and gaps. It can be instantly

drilled, sanded, filed and painted. Bond and fill copper, steel, aluminium, brass, cast or pot metals, ceramic, glass, fiberglass, plastic or wood. RapidFix can also produce strong weld seams to support the



repair, just like solder or welded joints. Plus, the adhesive product is guaranteed to not dry out in the bottle, unlike other super glues. The dual system combines both applications into one product. Other bonding products like epoxy-based adhesives require a cure time from 5 minutes to 24 hours, while body filler or putty can take approximately 30 minutes or longer to set. RapidFix can be used for both bonding materials or filling materials, and it works instantly. Learn more at www.rapid-fix.com.

GORILLA CLEAR REPAIR

Gorilla Clear Repair features the strength of Gorilla Tape in a water-proof, airtight, crystal clear tape. Fix, patch, seal, hold, and protect almost any surface with a crystal clear appearance. Utilizing an extra thick adhesive layer and tough ultra-clear backing, Gorilla Clear Repair provides exceptional clarity, strength and durability for almost any project, indoors and out. The product's weatherproof formulation is UV- and temperature-resistant, and its notched edge design makes it easy to tear

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by hand. Gorilla Clear Repair sticks to smooth, rough and uneven surfaces and patches smooth surfaces with an air-tight seal. Learn more at www.gorillatough.com.

ELMER'S PROBOND ADVANCED

Elmer's always seems to "up the ante" when introducing new formulations of glues and adhesives. The company's new ProBond Advanced is the only multi-purpose adhesive on the market that delivers professional strength and versatility without the foamy mess of poly-urethane glues. It has zero percent foaming. ProBond Advanced works on nearly any substrate—wood, concrete, metal, glass, ceramics and



more. It's 100 percent weather-proof for both interior and exterior projects. ProBond is available in 2-, 4- and 8-oz. bottles. It offers 8-10 minutes of open time before clamping, 12-hour clamp time, and it's paintable when dry. Learn more at www.elmers.com.

RUST-OLEUM ANTI-SLIP

From floors and steps to exterior surfaces exposed to water, slippery surfaces can be dangerous. The new Rust-Oleum Anti-Slip spray provides a coating that creates a non-skid surface



while providing ultimate protection and durability against daily wear and tear. Available in an aerosol, Rust-Oleum Anti-Slip spray allows do-it-yourselfers to easily achieve a non-slip surface in just one coat. It is peel- and crack-resistant and can be used on concrete, metal and wood surfaces. The fast drying formula dries crystal clear in as little as 30 minutes, and may be applied anywhere a non-slip surface is desired, both indoors

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and outdoors. It is ideal for use on floors, ramps, steps, stairs, railings and more. Learn more at rustoleum.com.

DAP SMARTBOND

Just before this issue of *EHT* went to press, our staff got news of the new SmartBond adhesive from DAP. Although we have not yet had the opportunity to try it out, the product is billed as a "dynamic polyurethane adhesive foaming gel that is faster and easier to use than traditional cartridge adhesives." According to the manufacturer, a single can of DAP SmartBond construction adhesive provides eight times the coverage of standard cartridge adhesives, so users can do more with less. For example, the installation of subfloor in the

average new home, uses between 30 to 50, 28-oz. cartridges of subfloor adhesive using a 3/8-in. bead size, but an installer will only need four to five cans of SmartBond Subfloor Adhesive using a 1/2-in. bead size. DAP also claims the aerosol dispensing makes SmartBond 25 percent faster to apply than traditional adhesive cartridges. The polyurethane formula applies as a foam and collapses into a fast-curing adhesive gel that develops a strong, permanent bond to a wide range of building materials. Learn more at www.dap.com.

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Krazy Glue products come in a variety of forms including color-changing, brush-on and single-use tubes. The *EHT* staff prefers the single-use applicators that have just enough in each tube for one fast fix. They're convenient, quick and easy to use. Buy a multi-pack and keep a tube anywhere you might need a repair. Learn more at www.krazyglue.com.

collectibles to holiday wreaths and model trains. In just 30 seconds, one drop of Krazy Glue creates an incredibly strong bond between two substrates. This product is made from ethyl cyanoacrylate, a non-toxic, colorless, extremely

absorbent polymer that reacts with latex paint and instantly gels to create a micro-barrier. This barrier prevents paint from bleeding under the tape and keeps lines sharp. FrogTape is available in two different adhesive technologies for use on different surfaces. FrogTape Multi-Surface has a medium adhesion and can be used on cured painted walls, wood trim, glass and metal.

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FrogTape Delicate Surface has a lower adhesion to prevent damage on surfaces such as fresh paint (24 hours old), wallpaper and faux finishes. FrogTape is

available in a variety of widths to accommodate a multitude of patterns, designs and paint projects. Learn more at www.frogtape.com.

E6000 SPRAY ADHESIVE

The new E6000 Spray Adhesive from Eclectic Products is a permanent, multipurpose latex-based adhesive without the toxic smells, fumes or unhealthy side effects. It creates a strong, flexible, water-resistant bond that resists bleed-through and yellowing and works well on most all materials. The E6000 spray has no odor or VOCs and is extremely easy to use: Just spray. Any mess is easy to clean



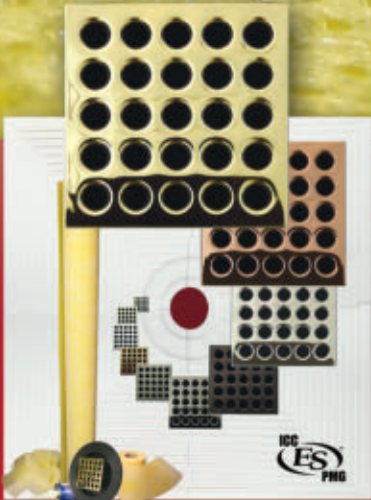
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Replace the Switch on a Cordless Drill

Dead power drill? You might need to replace the tool's power switch.



By Alyssa Vincent

Power tools, like any other household item, wear down after years of use. When a power tool breaks down, your first instinct may be to replace it or take it to a repair center. However, taking a DIY approach to power tool repair is easier and more economical than you might think.

One of the most common power tool repairs is replacing its switch. The switch is part of the tool's electrical system and may start to wear out after a few years of use.

You'll want to eliminate battery problems first, but the most common symptom of a broken drill switch is that it won't turn on. A broken switch can also cause the

drill to lose variable speeds or fail to switch between forward and reverse mode.

Diagnosing and replacing a drill switch is a pretty straightforward repair. It'll take you roughly 20 minutes to perform. While we used a DeWalt drill for this particular repair, this how-to should help you replace the switch in nearly any drill.

To diagnose and repair a drill switch, you'll need a screwdriver, needle-nose pliers and a multimeter.

To get started, you'll first want to open the drill casing.

Unscrew the two screws holding the transmission to the case,

then a series of screws holding the two case halves together. Once that's done, separate the two halves of the drill. If there's a sticker on the base holding the two halves together, you'll need to cut through it with a box cutter.

Next, in order to remove the switch, you'll need to remove the wires connecting the switch to the brush holder.

To do that, you'll need to remove the drill's motor assembly. Remove the motor by removing the two screws on the outside the drill case that hold the transmission in place.

Once that's done, you'll need to remove the two blocks holding the motor assembly in place. These blocks are attached to the case by four screws.

Once those are removed, you're free to pull the motor and transmission assembly away from the drill.

Now you're able to separate the brush holders from the wires going to the switch. Be sure to make note of which wire goes to which brush holder, as you'll need to reassemble it the same way.



Remove the transmission screws.

Next, remove the switch from the drill.

Test its electrical continuity with a multimeter.

Set your multimeter to the continuity setting. Checking for continuity is done in the ohm's



Seperate handle assembly



Remove bearing caps



Pull motor and transmission assembly from drill



Remove brushes

settings. An ohm is the unit of measurement of resistance in a circuit. Many multimeters have an audible tone setting which can be used when checking for continuity.

Touch one of the test probes on the multimeter to one of the battery connections on the switch. Then touch the other test probe to the opposite connection and pull the switch trigger. Repeat

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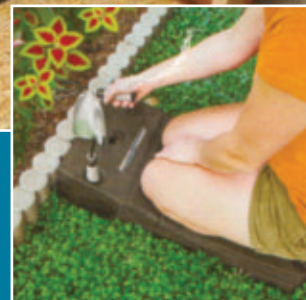
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this process on the other side. If your multimeter does not beep or otherwise indicate resistance on one or both sides, you'll need to replace the drill's switch.

Replacement switches can be found at eReplacementParts.com for roughly \$50. Test the new switch with the multimeter before installing.

Place the new switch into the drill body where the old one was. Route the switch's wires back into the drill's housing.

Replace the wire to the lower brush assembly and replace the assembly back into the drill.

Reinstall the motor and transmission assembly back into the



The wires of the switch can be tested with a multimeter. Test the current on both switches



Set the new switch



Route wires into housing



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drill, and replace the blocks around the armature bearings to secure it to the housing.

Replace the two screws on the outside of the case that hold the transmission in place.

Reconnect the wire to the second brush holder and reinstall it into the drill. Tuck any wires that come out of the casing as necessary.



Replace brush and secure wiring



Replace motor and transmission assembly from drill



Reattach and replace top brush



Replace remaining transmission screws

Finally, reinstall the other half of the drill casing, screw it together and install the last two transmission screws.

Your drill should now be fully operable, and it was easier and

less expensive than buying a new one or taking it to a repair center. Plus, you now know how to completely take your drill apart, which will make future repairs a breeze. **EHT**

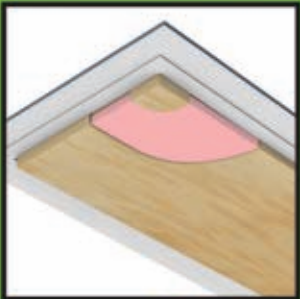
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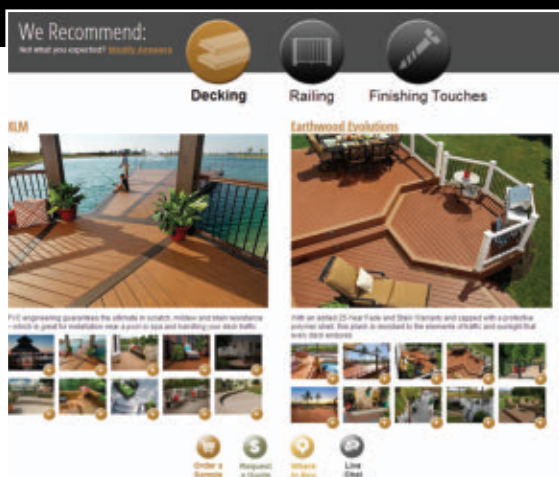
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Imagine an easy-to-use website tool that considers your outdoor living style and recommends decking products that are a perfect fit. TimberTech has enhanced and completely redesigned its popular Product Selector website tool to make it even more user-friendly. This tool allows consumers to take a short lifestyle quiz to find which TimberTech decking, railing, lighting, and finishing touches are right for them. The tool analyzes the answers and provides recommendations to help get them started on their deck and rail buying journey. Some of the lifestyle questions include deck location, how much traffic the deck endures, sun exposure, style preferences, nighttime use and more. The tool is also set up to recommend railings and amenities such as lighting. Visit www.timbertech.com.

KREG JIG HD

Bigger bit, bigger holes, bigger screws, and of course bigger projects. The all-new Kreg Jig HD (Heavy Duty) delivers the strength and confidence you need to build big. Designed with the same tried-and-true efficient design and hardened steel drill guides as the original Kreg Jig, the all-new Kreg Jig HD lets you drills holes which are 25 percent larger, and joints that are 50 percent stronger than traditional Kreg Joints. If you are framing walls, building deck railings, backyard furniture, fences, benches or any other large project, you always want the strongest joint possible; and this is where the Kreg Jig HD excels—strength. The Kreg Jig HD is optimized for working with 2x4s and larger stock. It utilizes #14 industrial-quality, heavy-duty, hardened-steel screws that provide incredible shear resistance as well as 3 anti-corrosion layers for incredible long-term moisture resistance. The kit includes the HD Drill Guide, Stop Block, 1/2-in. Diameter HD Stepped Drill Bit, HD Stop Collar and Allen wrench, 6-in. HD Driver Bit and a starter screw set. Visit www.wwhardware.com.



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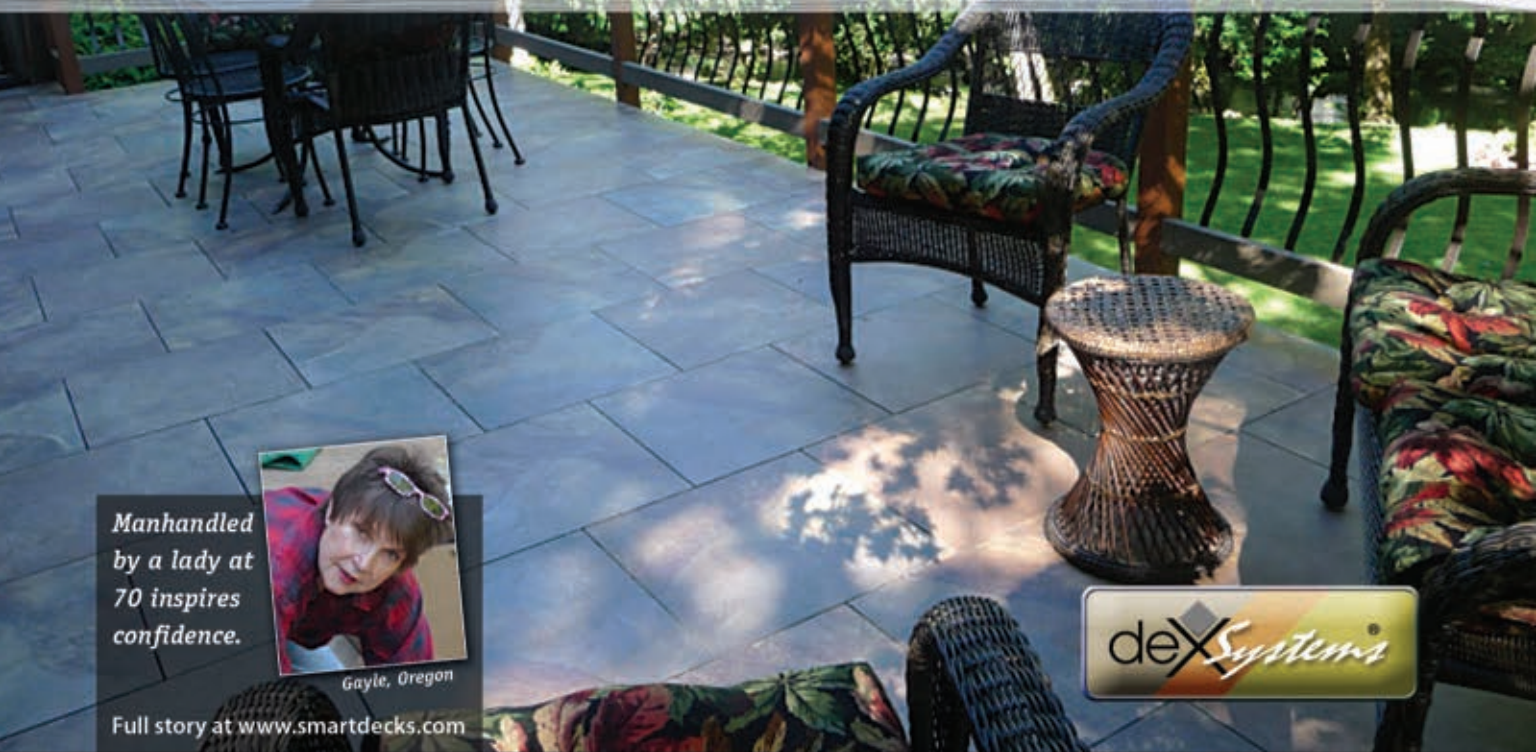


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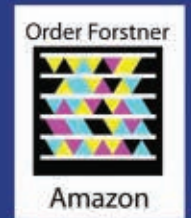
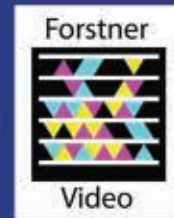
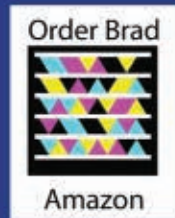
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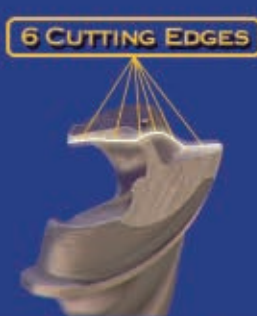
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