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CONTENTS



48



58

FEATURES

- 34** **Cut Energy Costs Around the Home**
Sealing Gaps & Adding Insulation

- 48** **Install a Beadboard Porch Ceiling**
Improving the Room Outdoors

- 58** **Handrail with a Twist**
Bending and Installing a Curved Handrail

EVERY ISSUE

- 6** **From the Editor**
79 **Advertisers Index**

COLUMNS

- 8** **Q & A**
12 **Tool School**
Wood Tool Roundup
28 **Do It Yourself**
Winterize Your Outdoor Equipment

DEPARTMENTS

- 70** **Skill Savvy**
Identify Problems with Ductwork
74 **Everything Auto**
Why Does My Car Make a Whining Noise?
76 **Hot Products**



78



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It's interesting to see how people living under the same roof will prioritize projects differently around the home. For instance, my approach to our new place is very unlike my wife's. As you'll see in this issue of *EHT*, I'm primarily interested in paying attention to the "boring" stuff that doesn't get much superficial notice, such as the house's energy efficiency, weather preparedness, and any problems with its structural integrity. Shanna, on the other hand, already has plans for us to remove an interior wall to further open the floor plan, plus she wants to expand the deck along the back side of the house.

A home project's form versus its function is only one aspect where people place different priorities. Personal preferences also extend into the interior décor. I leave most stylistic decisions up to the missus, who has a much better handle on color coordination than me. But her tastes have now clashed with my oldest son Hudson's preferences for the décor of his room. See, the previous homeowner had hired an artist to paint a forest scene covering all four walls of his room, a panoramic landscape complete with rolling hills, a babbling brook, overhanging trees, a deep blue sky, and even a couple of animals—a deer and an owl. My wife's verdict: "Tacky!" Hudson's opinion: "Awesome!"

This became that rare moment when I parted ways with Shanna on her taste in décor, not necessarily because I thought she was wrong, but because I thought my son should get the deciding vote for his own room. I'm proud to report that Hudson gets to keep the forest until he gets tired of it, then he'll get his first lesson on how to use a paint roller. Because his tastes are bound to change over time, just like everyone else's. And homes can change to accommodate with those new tastes.

I'm sure our new home will go through many changes, like walls being removed and new projects to enhance the back yard. But those things will have to wait. First and foremost, I have some doors to seal and insulation to add to the attic. That's one advantage of being the DIY'er in the house. Other folks can make all the plans they want, but when you're the one putting the hammer to the nails, nothing gets accomplished until you open the toolbox.



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Q. When considering home HVAC systems, what is the main difference between a furnace and a heat pump, and what are the pros and cons of each?

A. For this question, the EHT staff turned to our friend Dave Miller at HeatTalk.com: Furnaces produce heat through the combustion of fuels including oil, wood or natural gas. While heat pumps, on the other hand, generate heat through the use of both electricity and a refrigerant. Unlike a furnace, they can also provide cooling, which is perhaps their biggest advantage as it means you don't have to install two separate systems for both heating and cooling.

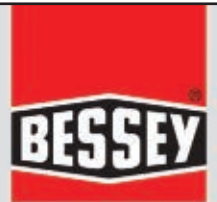
In terms of efficiency, heat pumps win hands down with many units now having efficiency ratings reaching as much as 300 percent. Unfortunately, they don't perform very well in cold climates, especially below freezing and as a result, a backup heating system is often required. However, this combination can work well in more moderate climates and can potentially help people live greener and make substantial savings on their energy bills.

In general, furnaces are the best choice for those who have access to a natural gas line and who live in colder climates. It especially makes sense in circumstances where a brand new air conditioning system has just been installed.

However, heat pumps may be a good choice for those without access to a natural gas source. Although electricity does tend to be more expensive than gas, the efficiency of heat pumps often helps to offset this. It may also be a cheaper option than having a brand new air conditioning system installed, and for those that live in milder to warm climates it should provide adequate cooling and heating year round.

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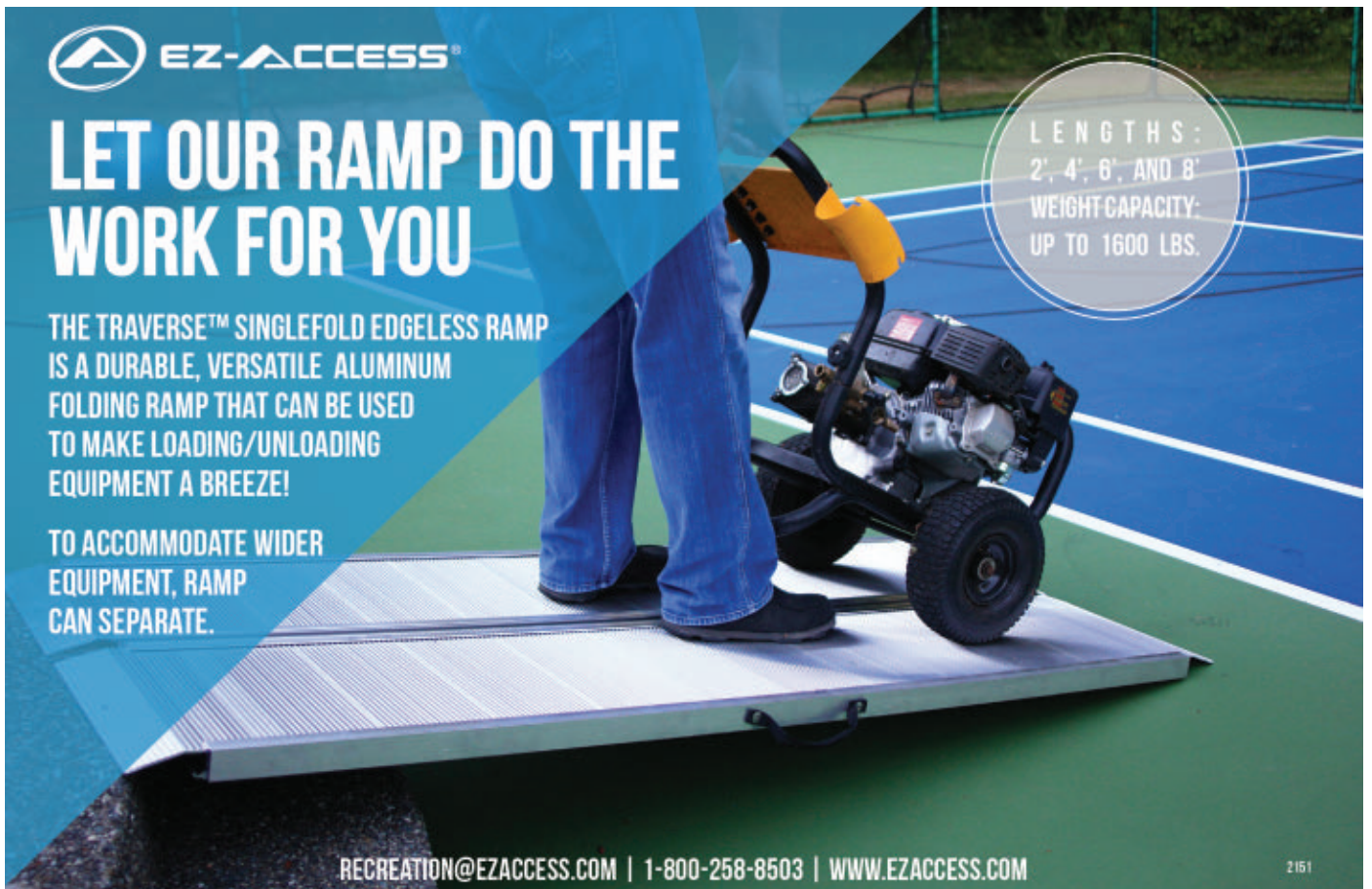
Q: I'd like to build a stone landscape wall. Is there a certain type of mortar mix I need to use?

A: There are several types of mortar mixes available for different applications, classified based on compressive strength, bonding properties and flexibility. Each mortar mix uses a specific proportion of Portland cement, hydrated lime and sand during mixing. Mortar mix type N is the best one for general application and the choice most often used by homeowners. Composed of one part Portland cement, one part lime and six parts sand, type N has a medium compressive strength recommended for exterior and above-grade walls including soft stone masonry exposed to severe weather and high heat. Type N mortar typically achieves 28-day strength in the range of 750 psi.

Mortar mix Type O has a low compressive strength, about 350 psi, used on interior or non-load-bearing walls. Type O is used for repointing brick because its consistency makes it easy to apply, but its low structural capacity makes it best suited to interior environments and not areas subjected to high winds.

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Type M mortar mix has the highest amount of Portland cement and is used for heavy loads, masonry below grade, foundations, retaining walls and driveways. Mortar mix type M will provide with at least 2,500 pounds per square inch compressive strength. However, Type M is also known to have poor adhesion and difficulty sealing. **EHT**



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Wood Tool Roundup



By Matt Weber

with features, the R4210 features an industry-leading 0-70° miter range with a cutting head that tilts 70 degrees to the left and to the right. The dual-bevel design enables you to move the saw head instead of the material for added convenience. The saw has positive bevel crown molding stops at the most common angles: 0, 15, 22.5, 33.9 and 45° left and right. Included is a work light to improve cutting accuracy, and the 15-amp motor easily handles the toughest materials. The R4210 offers 2x8-in. crosscut capacity at 45°, and 2x12- or 4x4-in. crosscut capacity at 90°. The saw features adjustable miter and bevel detents (with bypass), a built-in dust collection port, and at only 47 lbs. it's easily portable. Visit www.ridgid.com.

BOSCH 4100 WORKSITE TABLE SAW

For woodworkers, a reliable table saw is a crucial counterpart to the miter saw, and for many years the *EHT* staff has trusted

From trim carpentry and furniture building to deck construction and house framing, if you work with wood, you'll enjoy this issue's overview of some of the latest and greatest tools of the trade.

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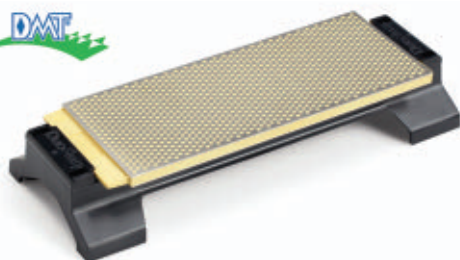
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With up to 8,000 N of clamping force, the new REVO KRE body clamp has a powerful grip thanks to its metal-reinforced plastic housing and optimized sliding arm. The double slide protection holds the clamp reliably with the set clamping force and prevents any unintentional slipping of the sliding arm when in the unclamped position. The innovative body clamp design has an ergonomically shaped twin-component plastic grip with an

HITACHI POWER TOOLS RENAMES TO METABO HPT IN NORTH AMERICA

Power tool aficionados should keep an eye out for changes to a familiar brand name. Beginning in September of this year, Hitachi Power Tools is changing its name to Metabo HPT for its full line of power tools, fasteners, accessories and outdoor power equipment products for North America. According to the company, nothing else will change about the brand except the name. Products will retain the current brand identity: same color, same model numbers, same warranties and the same battery interchangeability. They will be made by the same people, in the same factories, with the same specifications. Hitachi Power Tools products will be interchangeable with Metabo HPT products, and Metabo HPT products will be interchangeable with Hitachi Power Tool products. During the transition, the Metabo HPT packaging and signage will feature both names and logos to clearly communicate the changeover from Hitachi Power Tools.



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internal hex. The large clamping surfaces, which sit at right angles to the rail, have three removable and glue-resistant protective caps. The KREV Vario version of the tool covers clamping widths of over 1 meter. The variable model is equipped with an infinitely adjustable top section that can be shifted at the touch of a button. When it is positioned in the center of the workpiece, the weight can be well distributed, especially when an object is clamped for an extended period. Visit bessey.com.

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This is the first clamping system that lets users groove their own dovetail clamp tracks to clamp almost anywhere. The MatchFit Dovetail Clamp is an innovative



new woodworking tool that allows users to quickly and easily attach fences, outfeed tables, cutting guides, and more with just a dovetail groove and the Dovetail Clamps. Designed in the USA, the clamps are manufactured with a forged head compatible with a 1/2-in. wide, 14-degree dovetail

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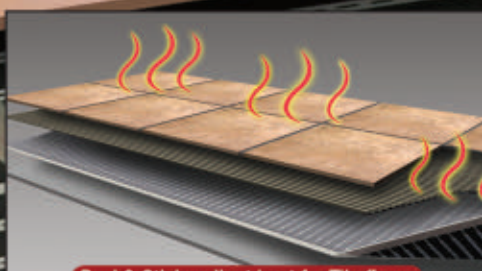
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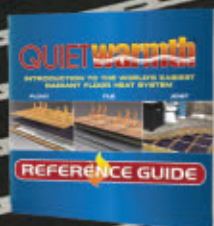


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and kickback. The Dado Stop Pro bundles the Dado Stop, Dovetail Clamp and Setup Gauge in one convenient package, bringing together everything makers need to create dados. The Dado Stop Pro makes precise, tight-fitting cross dados for half laps, inlays and other tricky joinery simple and easy. And because the fixed center leg on the Dado Stop is exactly three inches in length, the Dado Stop Pro can be used to calibrate the rip fence scale, allowing builders, woodworkers and other makers to use it with confidence. Visit microjig.com.

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Winterize Your Outdoor Equipment



One common task to protect gas-fired outdoor power equipment is prepping the fuel systems of the engines. Although some manufacturers recommend draining the fuel tank and carburetor prior to storage, doing so might make it more difficult to start when you take it out of storage. The fuel system must be addressed, however, because alcohol-blended fuels can attract moisture that leads to separation and formation of acids during storage. Acidic gas can damage the fuel system of an engine while in storage. Moisture can trigger corrosion in the tank, fuel lines, carburetor and cylinders.

This true for lawnmowers, blowers, chainsaws and other gas-powered equipment. The problems arise in part because it's nearly impossible to get every drop of fuel out of the system, and when oxygen attacks, the remaining fuel droplets can create a gummy residue that clogs parts of the carburetor, which prevents the engine from starting and requires cleaning the carburetor. Fuel system plastics and rubbers are designed to live in fuel, and these components can become brittle and crack when exposed to air.

To avoid damage to the system, use a quality fuel stabilizer and fresh fuel before putting equipment

A fuel stabilizer will protect your gas-driven equipment during winter months. When mixed with fuel, a product like Ethanol Shield from B3C Fuel Solutions will remove water, prevent corrosion, keep stored fuel fresh, and make it easy to start the engine.

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DO IT YOURSELF

away for the season. Adding fuel stabilizer to old fuel will stop it from degrading further, but the fuel may already have broken down (gas lasts only a few months before going bad). To store for

winter, fill your tank 95 percent full with fresh, stabilized fuel. This leaves a little room to prevent the fuel from expanding and spilling in warm weather, but reduces the risk of water vapor

that can condense and contaminate the fuel.

After adding the fuel stabilizer, run the engine for a couple of minutes to circulate the stabilized fuel into the carburetor and fuel lines. That's all it takes to winterize your power equipment's fuel system.

In addition to prepping the fuel system for your outdoor power equipment, clean the housing and engine thoroughly, remove all dirt, grease, leaves, etc. that can contribute to rust. Lubricate all moving parts. Inspect moving parts for damage, breakage and wear. Replace if necessary.

For lawnmowers, clean the underside of your lawn mower by scraping off build-up of grass and trash. This chore should be done after each mowing, but most definitely before winter storage. Keep finished surfaces/wheels free of gasoline, oil, etc.

Clean the engine often to keep trash from accumulating. A clogged engine runs hotter and shortens engine life. However, avoid using a garden hose to clean equipment unless the electrical system, muffler, air filter and carburetor are covered to keep water out. Water in the engine can result in shortened engine life.

Replace the air filter every season, servicing it more often under dusty conditions. (To clean an air filter, remove its cover, carefully remove the cartridge, and gently tap it on a hard, flat surface.)

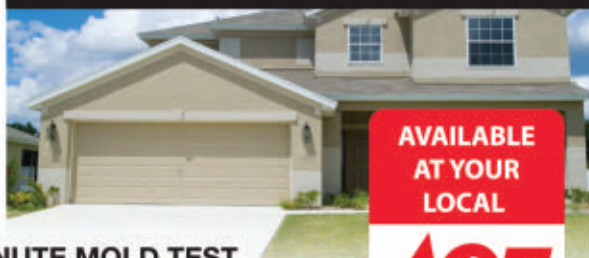
SPRINKLER SYSTEM

Prepare an in-ground sprinkler systems for the onset of freezing temperatures. Water remaining in the system may cause valves or other components to malfunction during spring and summer.

Turn off the timer to your irrigation controller to ensure the valves will not activate. (If you unplug or cut the power to your controller

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B'LASTERIZE YOUR EQUIPMENT FOR WINTER

As the cold-weather season approaches, it's natural to start prepping your winter equipment for use, but we often forget about winterizing our spring and fall equipment. We'll take our advice and don't forget about it. You won't regret taking the time to winterize your equipment for seasonal storage. Your garage door, lawn and garden equipment, outdoor power tools, hand tools and even your car will benefit from a few simple tasks. You'll thank us come springtime.

B'laster makes several products that help prepare your equipment for winter storage. A few must-haves for around the house are as follows:

B'LASTER PREMIUM SILICONE GARAGE DOOR LUBRICANT

If not only to save yourself the headache of a squeaking garage door, but properly winterizing your garage door will save you time and money. Spray B'laster Garage Door Lubricant on all garage door mechanisms including the tracks, rollers and springs. It provides long-lasting protection even in cold weather. Bonus: If you have a rubber seal where the door meets the floor, apply it to the seal so it won't stick to your garage door floor.

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B'LASTER PRO-GRADE MULTI-PURPOSE LUBRICANT

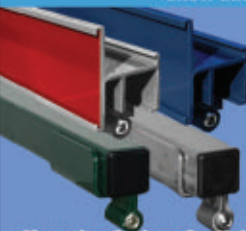
Probably the most versatile product for winterization is a high-quality general purpose lubricant. We recommend coating all metal parts and housings to repel condensation of the long winter to keep rust from forming. No joke, coat it all! Including engines, lawn and garden tools, hand tools, locks, bike chains, lawnmowers and so on. It will provide excellent corrosion protection all throughout the winter. Visit blastercorp.com.

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rather than only turning off the timer, you may need to reprogram it in the spring.) Close the main water valve to shut off the flow of water to the irrigation system. The main valve is often located outside, but may be inside the garage, depending on the system setup. Shutting off the main valve will prevent any flow of water and protect the system from freezing up. If your system does not have a main shutoff valve, you may con-

sider purchasing one, as they are inexpensive to install and a great way to protect your investment.

If you live in colder regions, remove the water from pipes to keep them from freezing and bursting. There are several ways to drain pipes, including draining the valves manually and using compressed air to "blow out" the system. There can be some risk involved when using the "blow out" method, so wear eye protection or contact an irrigation system specialist beforehand.

Insulate any aboveground pipes, valves and backflow preventers. Wrap the valve in insulation (foam insulation tape and a plastic bag). Home supply stores sell self-sticking, foam-insulating tape and insulating tubes for this task.

Another option is installing

wireless rain/freeze sensors. A sudden cold snap before the system is winterized cannot result in damage and wasted water. A rain/freeze sensor connects to most irrigation controllers, and overrides the watering schedule when it detects rain or freezing temperatures. Once conditions improve, the system will return to normal operation.

Even if temperatures don't drop below freezing during the winter, it is important that homeowners reduce the watering times and frequency during cooler temperatures. Most plants and grasses adapt to cooler temperatures and shorter days by curtailing growth, or going dormant during the winter. Scaling back watering will result in happier, healthier plants when spring arrives. **EHT**

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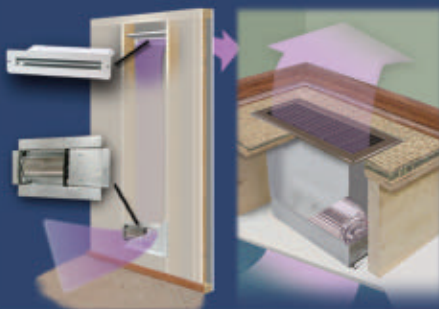
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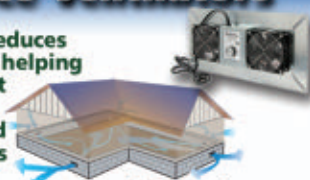
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CUT ENERGY COSTS AROUND THE HOME

By Matt Weber

Having moved my family into a larger house, one of my first concerns was: How much will my utility bills increase to heat/cool the extra square footage?

I'm the dad after all, so it's my job to follow my kids around and turn off all the light switches they leave on. "Close the door! Are you trying to air-condition the entire neighborhood?" is a chestnut I picked up from my old man and now use to chastise the people in my household.

In effort to head off trouble at the pass, I decided to examine the house for leaks in the building envelope, hoping to seal up any problem areas and reduce energy loss before I ever get the first power bill. Assuming your HVAC system is in good work-

ing order, the best place to start this process is getting to know all your windows, doors and attic.

SIGNS OF TROUBLE

Look for any cracks or holes around exterior doors, windows and electrical outlets. A good rule of thumb is that if you see any daylight shining through the joints around doors or windows, it's a sign they need to be sealed. Another good test is to hold a candle near the panes of your closed windows. If you notice the candle flame flicker, then it's a sign there is unwanted airflow which needs to be sealed. Apply a caulk/sealant where necessary to prevent air from escaping the home.



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Insulation**

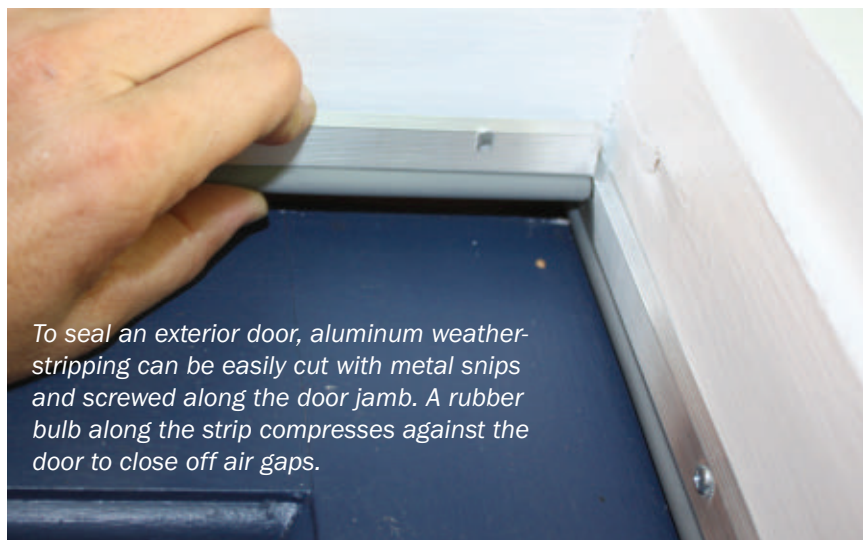
Easy DIY tip: During the summer, keep blinds closed to prevent sunlight from warming the house, and during the winter, be sure to keep blinds open during the day to allow sunlight to enter and heat the home.

Luckily, the windows of our new house seemed to be in good working order. The doors, on the other hand, needed some work. The back door had missing/deteriorated weather-stripping which was causing a draft, and around the front door I could see sunlight bleeding around seams of the jamb.

SEALING THE DOORS

The front door required a simple solution—new caulk/sealant along the seams of the jamb. I used the new Gorilla Glue Silicone Sealant in a white color to match the surrounding trim. Note that silicone sealant is typically not paintable, so if you plan to add paint later, make sure to select a caulk/sealant product that is specifically labeled “paintable.” For this application I didn’t need a paintable sealant, but the Gorilla product did offer the features I was looking for: a 100-percent waterproof, shrink/crack-proof, mold/mildew-resistant, non-yellowing formula that stays flexible over time.

At the back door, I removed and replaced the old weather-stripping using an aluminum weather-seal that features a rubber bulb along one edge of its length. This rubber bulb compresses against the door to seal out air and moisture. All that’s required to install it is the weather-seal kit, a drill/driver, measuring tape and a hacksaw or metal snips. The kits are usually sold with three pieces, one for the top and two for the sides of the door. Any of the three components can be trimmed to size.



To seal an exterior door, aluminum weather-stripping can be easily cut with metal snips and screwed along the door jamb. A rubber bulb along the strip compresses against the door to close off air gaps.



Beginning with the side pieces, close the door and press the weather-stripping firmly against it. You can usually drive the screws (included with the kit) directly into the door frame. (If installing in a metal door frame, you’ll need to pre-drill pilot holes with a 1/16-in. spiral tip bit.)

When attaching the strips, leave the screws proud without securing them tightly so the weather-stripping stays loose until all the screws have been started. Repeat the procedure for the other side of the doorway. With both sides installed, measure between the two strips to determine the length of the top strip.

Install the top strip with screws just like the first two strips. Close the door a few times to check the seal and make minor adjustments. The oblong screw slots enable you



to back out the fasteners, move the strip as necessary and then retighten until you’ve completely closed off the gap.

KEEP IT CLOSED!

Depending on your lifestyle and the living habits of the people in your house, you might need to think beyond sealing your doors. My wife and I have three young kids who have a mysterious aversion to closing our doors. The back door that leads to a screened porch is the most likely candidate to be left wide open several times a day. The new aluminum weather-seal won’t do much good if the door is standing open.

Our solution was to install a mechanical door closer on the back door—just like you see on standard screen doors. It’s a simple installation that we attached



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to the top, only requiring a few screws and a screwdriver, but it ensures the door will return to the big hole in the wall, not only conserving your conditioned air but keeping out bugs, too.

ATTIC NEEDS ATTENTION

So far, so good. While examining the house, I'd only encountered minor issues in need of simple repairs ... until I climbed into the attic. A home inspector had

recently reported that the insulation to this house was compressed in the attic, but I was shocked to see just how little insulation was to be found and how poorly it was distributed across the floor. My guess, based on the crude plywood subfloor in parts of the attic, is that the previous homeowner had used the attic for storage—maybe stored bins of clothes that served as insulation but also smashed



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The attic didn't have near enough insulation, and what it did have was very compressed.



We decided to supplement the existing insulation with unfaced rolls and loose-fill cellulose.



I broke up the compressed cellulose material when installing it by hand.

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down the proper attic insulation it was sitting upon. Whatever the reason, the storage items were gone, the insulation was thin, and the attic needed a lot more product.

The existing blown-in fiberglass

insulation was piled up in some areas of the attic but scattered so thin in others that you could see the ceiling drywall of the room below. I decided to supplement this with two types of additional insula-

tion: more blown-in insulation plus some unfaced roll insulation.

If this had been a new attic with no insulation whatsoever, I'd have rented a blowing machine to apply the Greenfiber cellulose insulation I picked up at a local home center. For big jobs, the blowing machines



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Once I filled the joist bays with loose-fill cellulose, I used the flat edge of a mulch rake to screed the tops of the joists and level the surface of the attic floor.



I rolled out the unfaced "glass mineral wool" insulation over the floor joists. I installed the rolls perpendicular to the joists so they would cover the wood framing.



If you step between the attic joists, your foot will likely plunge through the ceiling. To avoid this, use plywood (at least 3/8" thick) as a work platform to bridge the joists and support your weight while you work.

can usually be found at the same place you purchase the insulation, often supplied at no additional charge to what you pay for the insulating material.

The drawback with a blowing machine, however, is that it requires two people to run the machine, and it's not always an accurate means of applying the product. The stuff sprays everywhere, and I wanted to keep mess to a minimum and maintain order in the attic space. To accomplish this, my plan was to simply fill up the joist bays with cellulose so the insulation was level and the attic floor was basically flat. I would then follow up with layers of unfaced roll insulation.

Since I didn't use a blower for my blow-in insulation, it should probably be termed "loose fill" insulation that I strategically applied as needed by the

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handful. I recommend using eye protection, a face mask, gloves and long sleeves when dealing with cellulose or fiberglass insulation to avoid itching and irritation.

The cellulose material is very compressed inside the package, so break it up as you install it to stretch the product and to create lots of internal air pockets that will help achieve a thermal break. After filling the joist bays with cellulose, I had a flat attic floor



To cut batts or rolls of insulation, use a utility knife that has an extendable blade and guide the cut with a rigid straight edge.

RECOMMENDED HOME INSULATION R-VALUES

Insulation levels are specified by R-Value, which is a measure of insulation's ability to resist heat traveling through it. The higher the R-Value the better the thermal performance of the insulation. The recommended insulation level depends on the geographic area of your home. According to the Department of Energy, the warm, southern areas of the country should have enough attic insulation to achieve a value of R-30 to R-60. The northern, colder areas of the U.S. require attic insulation of at least R-49 for the system to be cost-effective. The amount of insulation required to achieve a certain R-value depends on the type of insulation being used. For example, 3-1/2 in. of fiberglass will achieve R-13, while 2 inches of rigid foam polystyrene achieves R-10. The R-value will be printed on the package of the insulation product so you can easily calculate how much is required. R-Values of individual products can be added to achieve recommended levels. An R-38 added to an R-11 results in R-49.



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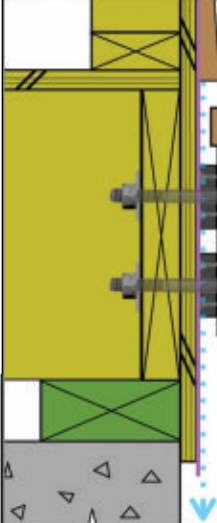
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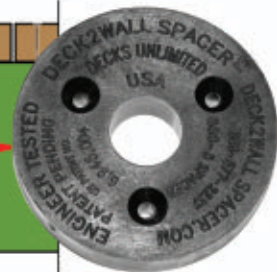


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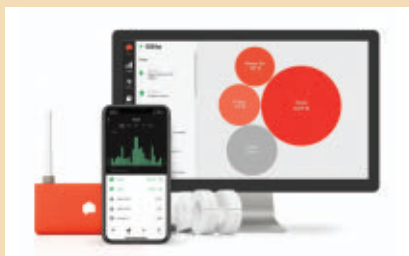
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Energy monitors connect to your electricity meter to provide information on how much energy your home is using and how you can make your home more efficient. Energy monitors offer a variety of features, from reporting the energy usage of individual appliances to recommending measures to increase efficiency. Whether you want to save money or reduce your carbon footprint, to reduce electrical usage your household must either lessen overall consumption as a whole or determine which devices are heavy users. Energy monitors allow you to track your home's energy usage with much more detail than your generalized power bill, allowing you to see where the fat should be cut. Some home energy monitors allow you to track the cost of your energy consumption in real-time. Many home monitors connect to a mobile app that can send notifications about your appliances and warnings on abnormal usage.



but still needed more insulation, seeing as I now had roughly 5 inches of insulation and wanted about 12 inches on the attic floor.

I used the flat side of a mulch rake to screed the loose-fill relatively flat, knocking the stuff down between the joists to level the floor for the rolls.

Unrolling fiberglass insulation can be an easy and inexpensive method to increase insulation levels. When the joist bay is full, install the new layer of unfaced insulation perpendicular to the first, covering the ceiling joists

to reduce heat loss through the wood.

If you install additional fiberglass insulation over existing insulation, be sure to use unfaced rolls or batts. The facing acts as a vapor retarder that helps reduce the amount of moisture entering a wall, ceiling or floor. If you add a vapor retarder with another layer of faced insulation, any moisture that does get through the first layer may condense on the vapor retarder. This can cause water stains on the ceiling and could lead to mold and structural damage.



After installation, we had exceeded 12" of attic insulation—roughly 5-1/2 inches of cellulose (R-20) plus the rolls (R-30) for a total R-value of 50, which far exceeds the minimum R-30 rating that is recommended for our geographic area.

If you're installing additional insulation near the eaves of a home with soffit vents, use soffit vent baffles to allow the vent to stay open above the insulation for proper airflow.

Also note that electrical codes generally require that insulation be kept at least 3 inches away from heat-producing fixtures. A common solution is to nail 2x blocking around the fixtures perpendicular to and flush with the ceiling joists. The blocking creates a small protective wall to keep the insulation away from the light.

And after you've finished adding attic insulation, complete the job by installing an attic access-hole cover and insulating it with batt or foam board insulation. **EHT**

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INSTALL A BEAD- BOARD PORCH CEILING

By Rob Robillard

Historically, beadboard was a durable, basic wall or ceiling finish that was common by the 1880s and was also popular in cottages, camps and unheated buildings.

We recently built a screen porch for a client who wanted a beadboard ceiling, but they wanted the orientation of the boards to be different than most ceilings they've seen. They wanted the boards to run parallel to the roof rafters, not perpendicular. The beauty of beadboard is its versatility, which is only limited by the user's ideas.

In order to accommodate the pattern, we first had to install 1x3 strapping at 16 inches on center so we could install and fasten the beadboard. This 90-degree alignment provides a nailer at every 16 in. for fastening the boards.

GETTING STARTED

We measured from the top of the roof down to the LVL on both ends of the porch. In a perfect world these two measurements would be the same, but they were off by 1 inch.

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INSTALL A BEADBOARD PORCH CEILING



We first installed 1x3 strapping 16" on center over the ceiling rafters.

We decided to use a super highly technical carpentry trick called "splitting the difference" (just kidding). We took the 1/2 inch off the largest measurement and cut all the sloped ceiling boards the same size. Once we knew that measurement, we snapped a chalk line across the top of the ceiling slope as a visual reference.

Tip: If you're able, cutting all the boards the same size keeps things consistent and allows you to set up a cutting jig for faster, more efficient cutting.

We installed a temporary board along the chalk line at the top ceiling



The 90-degree alignment provides a solid nailer at every 16" for fastening the boards perpendicular to the rafters.

ing slope as a "stop" for our boards. This enabled us to push the beadboard boards against the stop to ensure a consistent line across the ceiling.

INSTALLING THE FIRST BOARD

We installed the first board against the side wall with its grooved edge facing the wall, tongue facing out into the ceiling field.

While holding the first board in position, we measured across the ceiling to the opposite wall to be sure the board was parallel to it. (If



A temporary board at the top of the roof slope served as a guide for installing the beadboard boards.

the top and bottom measurements of the board show it's not parallel to the wall, then angle the board slightly until it is.)

With the first board held in proper alignment, we installed 6d finish nails at an angle through the tongue and into the strapping (this is called blind nailing). The nails in the tongue will be hidden by the next board's grooved edge. I also installed a few nails at the ceiling/wall edge, this is called face-nailing. You will only see face nails on the first and last boards, not on the ones in between.

Don't worry if there's a slight gap between the boards and the wall; it will allow room for expansion and will be hidden by molding.



The boards intersect the temporary board at the top of the slope.

FILLING IN THE FIELD

Install the second and subsequent boards by pressing its grooved edge over the exposed tongue of the first board. If it doesn't fit tightly, hold a scrap of beadboard against its outer edge and tap it lightly with a hammer. Be careful not to damage the tongue. Secure the board by nailing through the tongue and into the strapping.

Be sure all joints between the boards are tightly closed.

If you come to a ceiling-mounted light fixture, air-conditioning grille or other obstruction, remove it and cut the board to fit around the

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INSTALL A BEADBOARD PORCH CEILING



The boards terminate at the LVL band of the porch roof.



Cutting a bevel at the board ends will help ensure a snug fit.



Multi-level scaffolding will make a job like this much easier.

electrical box or duct hole. For a recessed light, remove the decorative trim and slip the board into position. Hold the trim against the ceiling fixture and trace where it overlaps the board. I then use a compass to finish the trace pattern.

Cut the board along the line with a jigsaw, nail it to the ceiling.

HALFWAY AND THREE-QUARTER MARKS

At both the halfway and 3/4-mark, it's a good idea to take

parallel measurements to ensure the boards are still running parallel. If not, you can make minor corrections by angling the boards slightly. Spread this across multiple boards to achieve parallel again.



The tongue-and-groove beadboard boards are blind-nailed onto the nailers.



It may be necessary to tap the boards together to close the seams, but be careful not to damage the joint.



Measure the boards to make sure you're installing them parallel to the porch walls.



Use a jigsaw to notch boards to fit around obstructions.



Here we had to cut room for the roof bracing.



This project involved several can lights.

INSTALLING THE LAST BOARD

Many times the last board needs to be ripped thinner. I sometimes rip a slight bevel (15°) so the board angles into position, but the joint looks and fits tightly. Another trick I sometimes use is to leave the second to last board loose, and snap them both into place at the same time.

Whatever method you choose, you will need to face-nail either the last or both boards when done.



Use a thin blade on the jigsaw to cut a tight radius.



The recessed lighting conceals the wires and hardware inside the roof.



After completing the first slope of the roof, we completed the second slope and worked toward the middle.

BEADBOARD NOT LINING UP?

Our installation had three sections of beadboard; the two slopes and the flat top section. One thing that is fairly typical for this type project is you'll notice that the boards do not directly line up.

To combat this and also hide the butt joints of the joining sections, we installed trim boards with the roof angle ripped on the edge. This trim board covers the seam and also breaks up the boards, disguising some of the misalignment.

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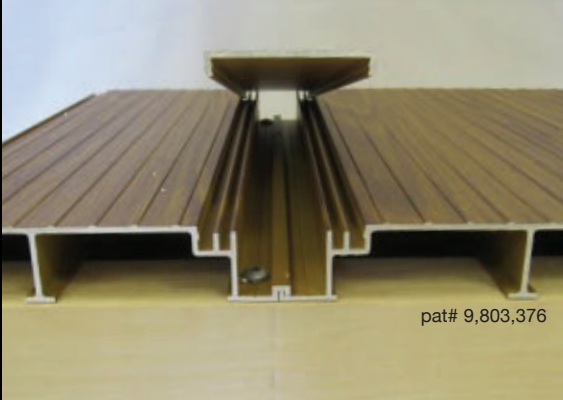
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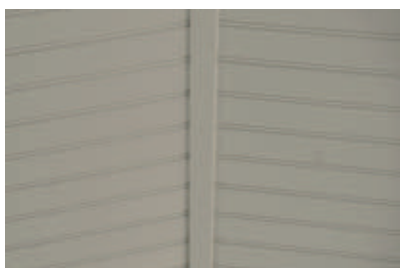
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INSTALL A BEADBOARD PORCH CEILING



Seams along the edges can be concealed with purchased molding or with a custom-made molding strip.



The molding gives the roof a neat, finished look.



FINISH WITH TRIM OR MOLDING

While not always needed, one way to deal with the lower and side edges (seams) is to install a small molding strip—or custom make one. We typically use leftover

beadboard and rip 1x1 strips to finish the edge seams. **EHT**

***Editor's Note:** Rob Robillard is a remodeling contractor in Concord, MA, and editor of www.ConcordCarpenter.com.*



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HANDRAIL WITH A TWIST

*Bending
and Installing
a Curved
Handrail*

By Larry Walton

When Robert Lipskoch was drawing the plans for his house, his kids wanted a curved slide from the second to the first floor. Although the slide did not remain in the plans, a dramatic dual curved staircase emerged as the centerpiece of the house plan.

Robert laminated the curved stringers in place using 16-in. wide strips of thin plywood and finished both sides with oak veneer. He constructed the treads of steel frames and plywood panels between the stringers, which means the stringers also functioned as knee-walls that we fit with caps on top and bottom. He laminated the caps in place with 1/4-by-3/4-in. oak strips.

The balusters, which support the handrails, were designed to penetrate the stringer caps, which meant the handrails needed to match the curve and climb of the stringers. This would be achieved by gluing and clamping the handrail components together directly on top of the stringers.

TWISTED MYSTERY

I can't explain the trigonometry involved, but the combination of stair rake (ascending at an angle) and curving around a plan-view radius results in a continuous twist in the rail from bottom to top. The right rail in our dual stair case curves clockwise as it goes up while the rail itself twists counter-clockwise so the top of the rail remains at the top at any point along the stair case.

HANDRAIL WITH A TWIST

Bending Rail from a stair parts manufacturer is designed to handle both the bend and the twist of these forces. The local lumber yard ordered the oak bending rails. The bigger challenge for this project was the construction of the stringers, especially the caps, which had to be laminated a few layers at a time and shaped to match the treads along the way.

CHOOSING THE RIGHT GLUE

After much debate, Robert chose DAP Weldwood Plastic Resin Glue for two reasons, open time and stability. Open time refers to the amount of time you have to get things into place once you mix and spread the glue. If the glue sets too fast, it will hinder the bending process and could ruin your expensive bending rail.

Glue stability is the next consideration. We saw that standard yellow carpenters glue had a certain amount of elasticity that may allow the layers of rail to creep under pressure for a long period of time. Robert was looking for a glue that would be as stable as possible over the long term.

CODE CONSIDERATIONS

Stairs must be built to specific building codes, and several code requirements come into the picture for a project like this one. Tread and riser sizes, guardrail/handrail heights and baluster spacing are among the top priorities. Be sure to check that the tops of the knee-walls are parallel with the stair nosings. Guardrail/handrail heights are determined by stair nosings, not the knee-wall. Adjust the knee-wall with temporary shims, if needed, before bending the rail. Check your local codes and plan accordingly.

HOW-TO TWIST A BENDING RAIL

The following is how we laminated, fit, drilled and assembled the curved handrails.



We attached clamping boards vertically up the sides of the stringers. These boards were about three inches higher than the top of the stringers, and the ends were cut at the rake angle of the stairs.



We rough-cut the end of the bending rail to reach past the newel post location but not reach the floor.

After mixing the plastic resin glue according to instructions, we spread the rail pieces out on the floor and applied the glue using mini rollers with foam roller covers.

We re-stacked the glued pieces and wrapped the assembled rail with stretch-wrap film in a few places. We also taped some wood pieces to the lower part of the rail that matches the bead and builds the bottom out flush with the top.



The rail was placed on top of the stringer and against the clamping boards.



The rail was clamped about every 6 inches from top to bottom.

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HANDRAIL WITH A TWIST



We used pieces of wood that matched the bead profile at the bottom and blocks to distribute the clamping force bridging from top to bottom.

Clamps added between the clamping boards helped to minimize gaps.

With all of the clamps in place, we let the newly laminated rail dry for 24 hours.



After removing the clamps and lifting the rail from the stringer, we could see how much twist the bending process put in the rail to keep it level with the treads all along the stair case.

To fit the rail in final position, we put vertical boards in three places along the stringers and marked the elevation of the top of the rail that would have it function as both

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guardrail and handrail (which in this case was 37 inches measured vertically above the stair tread nose).



WHAT IS BENDING RAIL?

Bending Rail is designed for making curved railings on most curved staircases and balconies at the jobsite. Bending handrail comes in multiple layers (ply) and is glued together to form the new handrail. Each ply comprising the bending rail is designed and manufactured with a tongue-and-groove bead to create an alignment of the plys. When assembled, bending rail results in a match of a standard rail profile.
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HANDRAIL WITH A TWIST



We used a reciprocating saw and a scrap board against the newel post core to cut the rail to length at the proper angle.

We used a Dewalt 20volt impact driver with a special threaded driver bit to insert the rail bolt into a predrilled hole in the end of the rail.

We used a compass to lay out the baluster locations along the



length of the rail. The minimum baluster spacing is determined by the building code.

A plumb bob showed where to transfer the rail markings to the top of the stringer caps.



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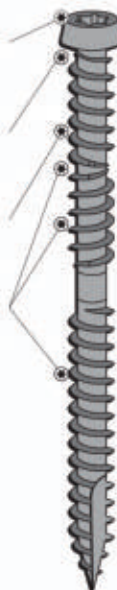
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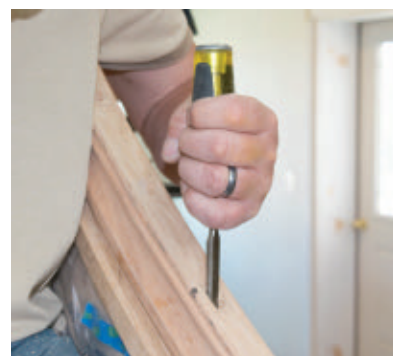
HANDRAIL WITH A TWIST



We marked the depth of the baluster holes on a spade bit with tape, and drilled the holes with a drill that had a built-in circular bubble level on the end.



When drilling the holes in the rail, we had an additional guy watch the bit to make sure it stayed plumb. A wood chisel helped us to square the holes for the square balusters.



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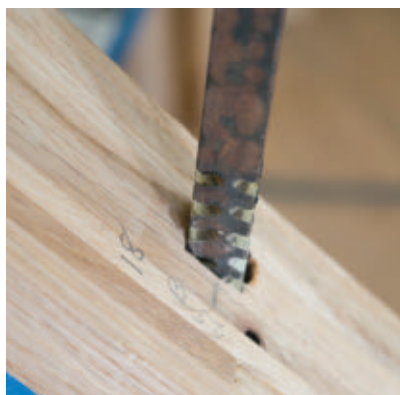


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HANDRAIL WITH A TWIST



We cleaned out the square balusters with this homemade cutting tool.

We marked the penetration depth of the balusters using masking tape and a gauge cut at the rake angle.

We drove the balusters into the stringers to the marked depth.

It took three people to place the rail onto the balusters and into position at the newel posts.





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Working from the bottom to the top, it took lots of hands to keep the balusters in place as the rail was lowered into position.

Robert used a dead blow hammer to fine-tune the rail onto the balusters to the proper height.

We again placed a protective scrap against the newel post to fine-tune the end of the rail's compound angle to the post with a reciprocating saw. **EHT**



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Identify Problems with Ductwork



photo © Susan Leggett

by Dave Miller

Even though you may often overlook the ductwork in your home, the smooth running of your HVAC system is contingent on the ductwork's efficiency. It is the delivery system for conditioned air around your home and needs to be up to scratch for optimal performance.

Repairing ducting that is in poor condition is put off by many homeowners to save on the costs of these repairs. But in the long term, you are likely to end up losing more money due to the decreased efficiency of your system. If you have problems with your HVAC, there are certain indicators that can give you a

good idea whether the ducting is the source.

TEMPERATURE FLUCTUATIONS

Since the main aim of your HVAC system is to achieve a stable and comfortable temperature throughout your home, a major indicator that there's a problem with your ducts is if there is an uneven temperature between rooms. If you feel that one or two rooms are at a different temperature or humidity level than the rest of the property, use thermometers to test the temperature difference, taking into account other factors such as open windows.

Temperature fluctuations can indicate that there is either an issue with the installation of the ductwork itself or a leak somewhere. This can cause the loss of conditioned air and pressure disturbances, which means your system is still at work, yet producing little to no results.

NOISY DUCTWORK

When you first activate or deactivate the system, it will make some noises. Particularly with rectangular shaped ducting, the noises are a result of the metal sheeting that the ducting is composed of expanding and contracting, and this is completely normal.

If, however, the noises are continuous or occur randomly whilst the system is on, then there is a cause for concern as it's a sign that the system has pressure disturbances, bad installation, is malfunctioning or has a significant blockage.

Whistling sounds are also a common sign that there's a problem with the ducts and this can indicate a leak, or that the vent covers are too small for the system to handle. It could also be that dust buildup within the vent covers is blocking air flow.

DECREASED AIR FLOW

The simplest way to test your ducting is to check the airflow of your vents yourself. Use your hands to feel the airflow coming out of the vents in multiple rooms and you may notice a difference.

One or more of the rooms may have a weaker airflow than the others, and this is a sure indication of a problem. Leaks, inadequate insulation, loose joints or bad sealing can all lead to

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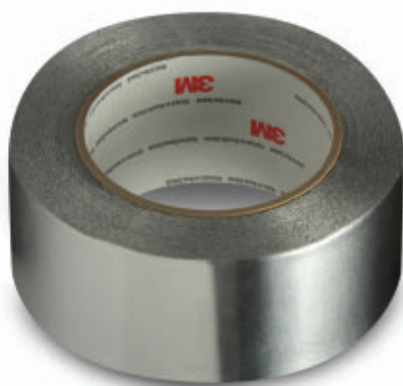
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Make sure the duct joints are sealed to get the most efficiency from your system. Avoid “duct” tape for air ducts and wrap the joints with high-quality foil-faced tape, which is more durable and creates a tighter seal.

decreased air flow through the ducting of that particular vent.

PEST INFESTATION?

The infestation of rodents, roaches or other pests can also signal that your ductwork is not working as efficiently as it should. These home invaders typically take refuge within ducting, often bringing in debris that causes blockages.

This isn't just a threat to the condition of your HVAC system but also yours and your family's health, as many pests carry pathogens and allergens into your AC which can then be distributed around the property. This brings us on to our next point.

INCREASE IN RESPIRATORY AILMENTS

Debris, pathogens and allergens as a result of infestations of pests, the congregation of molds and a general build-up of dust and dander can directly cause respiratory illness, and irritate pre-existing conditions, especially for those

who have allergies such as allergic rhinitis.

This can make your home quite uncomfortable, and if you do have a sensitive respiratory tract, it could even be a nightmare. The best way to combat this is to have the ducting thoroughly cleaned and if it is a pest control problem, to start thinking about ways of dealing with them.

UNEXPECTED ENERGY BILLS

You may not notice temperature fluctuations or any of the other physical signs, but there is one thing that should certainly get your attention. Spikes in your energy bills may indicate there is a problem somewhere in your HVAC system. Although it doesn't indicate the exact problem, it is certainly something to look out for.

DID YOU DETECT A PROBLEM WITH THE DUCTING?

If you believe the ductwork may be causing a decrease in efficiency of your HVAC system, you could try and patch the leak, tighten the

supports or fix any other issues yourself if you are quite handy with DIY and know what you're doing.

If you're not entirely sure then don't be a hero, because mistakes can be costly. The best thing that you can do is contact a qualified HVAC technician. They will be able to diagnose the specific problem with your system and will have no problem honing in on the exact issue with your ducting to repair it or give you advice on what needs to be done.

In summary, it's always much more valuable to take the upfront cost of fixing and maintaining your ducting rather than slowly losing more money in the long term due to a drop in performance caused by poor ductwork. **EHT**

Editor's Note: Dave Miller is an HVAC tech who now dedicates himself to sharing knowledge on his website HeatTalk. Dave has worked for over 10 years in the HVAC industry and for the last 5 has run his own contracting business. He can be found on Twitter with the handle @heattalkcom.

Duct Wrap Insulation improves duct system's air temperature consistency, reduces condensation and absorbs draft and system operation noise for improved duct system efficiency.

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Why Does My Car Make a Whining Noise?



By Clark McGurgen

Does everyone in your apartment complex or neighborhood know every time you come and go because you have a screeching or whining car? Do you cringe before you start your car because you are scared of what sounds it will make? Or, are you reading this article for that friend? I recently had this problem in my Dodge truck and decided to put BlueDevil Products to the test. Keep reading for the results!

Having a noisy car can be annoying and embarrassing for you and those around you. Luckily if you have a noisy car, the repair is often relatively inexpensive. First you need to determine what sort of noise your car is making.

NOISES A BROKEN CAR MAKES

Low rumbling and buzzing noise coming from the middle or back of your car: You likely have a leak in your exhaust system. These can often be easily fixed at your local exhaust shop and best handled by a professional.

Screeching or squeaking noise coming from the front of your car: You likely have a loose or worn belt accessory belt. Your car may have multiple belts, or only one, but often they can be changed easily. Before changing your accessory belt, inspect it for obvious wear or cracks. If it appears to be in good shape, then it is possible the tension

needs to be adjusted. Refer to your car's owner's manual for proper belt-tensioning procedures.

Whining noise coming from the front of the car: You likely have a power steering pump that is low on fluid causing it to whine.

Low power steering fluid can often be the cause of a whining noise that comes from the front of your car, especially if it changes pitch as your engine changes RPM. The power steering pump is located on the front of your engine and usually is driven by a pulley connected to your engine's crank shaft by one or more belts. The pump will also have a reservoir with a dip stick to hold the power steering fluid, and a feed and return line running to your power steering gear or rack.

Generally, there are two different types of power steering systems commonly used in vehicles in the US today. A pitman arm style system uses a rotary valve and steering gear to transfer the motion of your steering wheel into the hydraulically powered motion of a pitman arm. The pitman arm then moves the steering linkage to turn your wheels. The other system is called a rack and pinion system. This system turns the motion of your steering wheel into the lateral movement of a steering rack which is used to move your steering linkage, turning your wheels.

Usually your power steering system will develop a leak in the steering gear or rack, rather than in the pump, so if you're searching for a leak that would be the best place to start looking.

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Once you've discovered a leak in your power steering system either by drips under your car, a visible leak, or steady drop in power steering fluid level, you should look into stopping the leak. The power steering pump is a robust pump, so even if it has been run dry (and is whining), it may still function properly if the reservoir is filled to the proper level. The danger in driving a vehicle that is leaking power steering fluid is that it can cause sudden and dramatic changes in the handling of your vehicle and how it responds to steering input from you. This is a safety hazard and may cause very dangerous situations for you and those around you.

The best way to quickly stop a leak in your power steering system is to add BlueDevil Power Steering Stop Leak to the reservoir. One third of a bottle is enough to permanently seal the leak in your power steering system by reconditioning the old seals. BlueDevil

Power Steering Stop Leak is guaranteed to permanently stop your leak and, best of all, it is quick, easy and significantly less expensive than replacing equipment. Once you've added BlueDevil Power Steering Stop Leak, top off your reservoir with the manufacturer's recommended power steering fluid. Be sure to check your owner's manual as different vehicles require different types of fluid.

After discovering the leaking power steering gear in my Dodge truck, I purchased a bottle of BlueDevil Power Steering Leak Stop from my local parts store and added it to my power steering reservoir. After a 1,700 mile cross-country road trip, my power steering system is still leak free! **EHT**

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HOT PRODUCTS



GARAGESKINS—BRINGING A NEW PRODUCT TO MARKET

Ever have that great idea and think, “People would definitely buy that! I should patent the idea.” Of course, you didn’t patent it or even pursue it. You may have later kicked yourself when that exact same product hit the market and was an instant success.

Shows like *Shark Tank* and *Get Funded* make it seem like all you have to do is bring an idea to a group of people wearing nice clothes and sitting in fancy chairs and *voila!* The money starts rain-

ing down. Reality is of course very different, and those “Sharks” are wealthy for a reason: They are very smart. They want to see that not only is your idea a great one, but others think so too and are willing to part with their hard-earned money for your amazing product.

But to have a product to sell takes money, more than you have laying around or that Grandma is willing to fork over from her retirement. How can you bridge the gap to pay the engineers, product development people and prototypers to get your product ready for manufacturing, cash to order your first round of production, then pay marketers to get the word out, attorneys to get your business started, and still be able to pay your personal bills?

Until last year, it seemed impossible. But thanks to the SEC finalizing their rules around equity crowdfunding (think Kickstarter but instead of pre-buying a product you are actually buying stock in a company) it’s now possible to approach the “crowd” for your seed capital.

That’s the path that serial DIY’er Rick Medlen of Albany, Oregon took for his fledgling company, GarageSkins, Inc. Having developed a DIY way to enhance a standard steel garage door to look like a real wood carriage-house styled door without any replacement, Medlen searched around for the capital to begin manufacturing. He needed several hundred thousand dollars to lease facilities, purchase raw materials, hire production workers and management, and sustain all of this until sales of the GarageSkins overlays were strong enough to support the company. His need was too small for true Venture Capital, and lack of product to sell stopped most private investors in their tracks. But by patenting his idea and having developed great working prototypes, he was ready when equity crowdfunding became a reality.

Working with StartEngine.com’s professionals to remain in line with all SEC rules, Medlen launched his online campaign last August. Since then he’s raised over \$200,000 with an average investment of just under \$1,000 per person. As Medlen states, “There’s no way that I’d have the expertise nor be able to afford to hire professionals to make this campaign as successful as it’s become without the help of the great people at StartEngine. We’re now confident that we’ll get our GarageSkins overlays to market soon and begin growing a successful and meaningful company.”

Like what you see? GarageSkins, Inc. is still accepting investments. Check out the details at www.startengine.com/garageskinsinc. StartEngine.com and sites like it host hundreds of companies looking for start-up and growth capital from individual people just like you. These sites are happy to talk with you about crafting your own campaign to launch that rock-star amazing idea you’ve been chasing for years.

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Milwaukee Tool's new line of M18 cordless power equipment features completely redesigned motors and mechanical and electrical components. Launching mid to late 2018 with a new M18 Fuel Hammer Drill, Drill/Driver, and Impact Driver, each of these tools combine three exclusive innovations—the PowerState brushless motor, RedLithium battery pack, and RedLink Plus intelligence—all specifically re-designed to reach a new level of power and performance never seen on an 18V platform. The first combo kit includes a compact drill/driver and impact driver. The M18 Compact Brushless 1/2-in. Drill/Driver has an all-metal chuck and gear case, and is only 6.5 in. long, making it more compact. The M18 Compact Brushless 1/4-in. Hex Impact Driver is the most compact in its class, measuring a mere 5.1 inches in length, and delivers 1600 in.-lbs. of torque. Visit milwaukeetool.com.



WAGNER FLEXIO 3000

"Ten times faster than a brush," boasts the Wagner company of the new FLEXiO 3000 hand-held sprayer. It has variable speeds for cutting time and effort on painting projects and comes with two different nozzles—one for painting walls, fences and siding. The other nozzle for fine finishing on cabinets and trim. The new nozzle design delivers an improved spray pattern and adjustable control with less mess and overspray. Cover an 8-by-10-ft. surface in minutes (Stain in one minute; latex paint in 5 minutes). There are four new models: FLEXiO 2000, FLEXiO 3000, FLEXiO 4000, and FLEXiO 5000. The redesigned paint sprayers feature a nozzle with only two parts to clean and reassemble—reduced from 7 parts in previous models. Cleaning is faster than with a brush or roller. Visit www.wagnerspraytech.com.



FRONTIER 9" TOOL BAG 23009-FT

For jobs on the go, the new Frontier 9-in. Tool Bag (23009-FT) features 15 pockets for plenty of storage, including a carabiner and a phone pocket. The bag is constructed of heavy-duty 600D polyester and features an open-top design with a carrying handle. Available in blue and black, the tool bag features 9 exterior pockets and 6 interior pockets along with a tough PVC bottom and upper rim. Visit xddproducts.com.



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Bigfoot Systems	20	Peel-Tek	38
BlueDevil Products	IFC, 1	Perma-Chink	21
Calculated Industries	26	ProWood Lumber	44
Deck2wall Spacer	42	Quickscrews	7
Deckorators	45	QuietWarmth	23
DeckWise	41	Rapid Set	18
Draft Cap	42	Red Devil	33
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- Height with bag inflated: 46"
- Approximate shipping weight: 64 lbs.

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CANISTER PROVIDES SIX TIMES THE SURFACE AREA OF A BAG FILTER!



G0785 ONLY \$335⁰⁰

12" DISC SANDER WITH BUILT-IN BRAKE



- Motor: 1 HP, 120V, single-phase, 1720 RPM, 9.5A, capacitor-start w/ brake
- Base size: 16 1/2" L x 16 1/2" W
- Sanding disc size: 12"
- Power transfer: Direct Drive
- Table tilt: 15° L and 45° R
- Approx. shipping weight: 92 lbs.



G0702 ONLY \$450⁰⁰

12" BABY DRUM SANDER

- Sanding motor: 1 1/2 HP, 115V, single-phase, 13A
- Conveyor motor: 1/4 HP, 115V, single-phase, variable speed 5-55 RPM, 0.3A
- Drum surface speed: 2127 FPM
- Maximum board dimensions: 12" W x 3 1/2" H
- Minimum board length: 8"
- Sanding drum size: 4"
- Sanding belt size: 3" hook and loop
- Dust collection port: 2 1/2"
- Approximate shipping weight: 166 lbs.



G0459 ONLY \$650⁰⁰

6" JOINTER WITH CABINET STAND

- Motor: 1 HP, 110V/220V, single-phase, 14A/7A
- Prewired voltage: 110V
- Table size: 6 1/2" x 47 1/2"
- Number of knives: 3
- Cutterhead speed: 5000 RPM
- Cutterhead diameter: 2 1/2"
- Max. rabbeting depth: 1/2"
- Cuts per minute: 15,000
- Fence size: 29 1/4" L x 4" H
- Approx. shipping weight: 260 lbs.

FREE PAIR OF SAFETY PUSH BLOCKS



G0814 ONLY \$669⁹⁵

1 1/2 HP DUST COLLECTOR

- Motor: 1 1/2 HP, 120V/240V, single-phase, 3450 RPM, 12A/6A
- Airflow: 1300 CFM
- Max. static pressure: 9"
- Standard bag filtration: 2.5 microns
- 6" inlet "Y" w/ two 4" openings
- Impeller: 12 1/2" cast-aluminum, radial fin
- Portable base size: 21 1/4" x 33 1/2"
- Lower bag capacity: 5.7 cu. ft.
- Height (w/ bags inflated): 78"
- Bag size (diameter x depth): 19 1/2" x 33" (2)
- Approx. shipping weight: 118 lbs.

Z-SERIES

MADE IN AN ISO 9001 RATED FACTORY



G1028Z2 ONLY \$355⁰⁰

COMBINATION SANDER 6" X 48" BELT, 9" DISC

- Motor: 3/4 HP, 110V/220V, single-phase, 3450 RPM, 12A/6A
- Cast-iron table, disc and frame
- Quick-release belt mechanism
- Dual voltage motor prewired for 110V
- Dust ports - 2" for belt, 2 1/2" for disc
- 2300 FPM sanding belt speed
- Belt driven
- Approx. shipping weight: 122 lbs.

Z-SERIES



EXCLUSIVE QUICK-RELEASE BELT SYSTEM

G1014Z ONLY \$459⁹⁵

14" DELUXE BANDSAW 35TH ANNIVERSARY EDITION

- Motor: 1 HP, 110V/220V, single-phase
- Amps: 11A at 110V, 5.5A at 220V
- Precision-ground cast-iron table size: 14" x 14"
- Table tilt: 10° left, 45° right
• Floor-to-table height: 43"
- Cutting capacity/throat: 13 1/2"
- Max. cutting height: 6"
- Blade size: 93 1/2" (1/2" to 3/4" wide)
- Blade speeds: 1800 and 3100 FPM
- Overall size: 27" W x 67 1/2" H x 30" D
- Footprint: 23 1/2" L x 16 1/2" W
- Approx. shipping weight: 247 lbs.



G0555LA35 ONLY \$655⁰⁰

17" HEAVY-DUTY BANDSAW 30TH ANNIVERSARY EDITION

- Motor: 2 HP, 110V/220V, single-phase, TEFC, prewired 220V, 1725 RPM
- Amps: 20A at 110V, 10A at 220V
- Precision-ground cast iron table size: 17" x 17" x 1 1/2"
- Table tilt: 45° R, 10° L
- Floor-to-table height: 37 1/2"
- Cutting capacity/throat: 16 1/4"
- Blade length: 131 1/2" (1/2" to 1" wide)
- Approx. shipping weight: 342 lbs.



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G0513ANV ONLY \$999⁰⁰

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