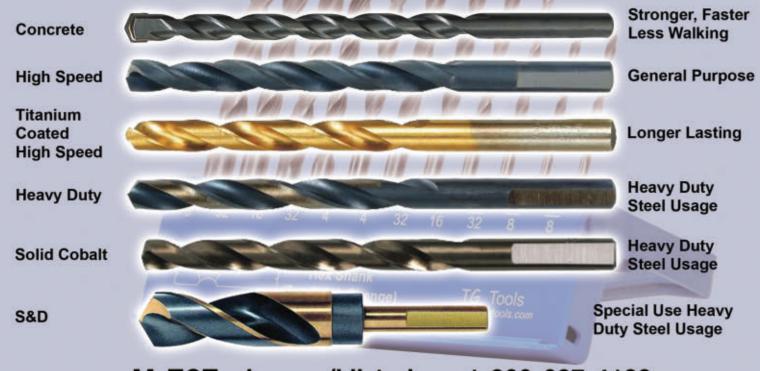




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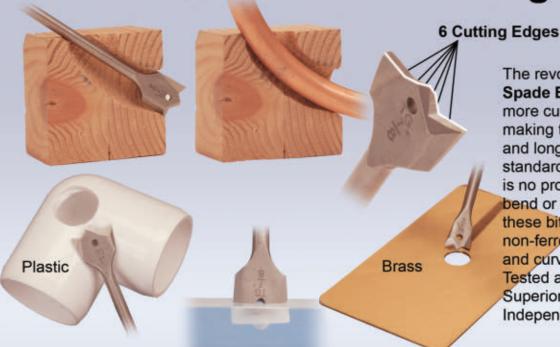


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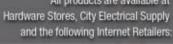
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From The

ou need to enjoy yourself this fall. You're a hard worker, but you should remember to make time to relax. A little downtime is good for the body and soul.

If you're reading this magazine then you're either a DIY'er or a pro remodeler, so you aren't afraid to get your hands dirty and break a little sweat. You make all the improvements to your home in the few spare hours outside your full-time job, because that's what it takes to get things accomplished.

And, if you're this type of person, then the DIY ethic likely doesn't stop at improvements. You stay on top of your home's maintenance and repairs, because a little prevention is worth a pound of cure. You mow the grass, and then you fix the mower. You trim the hedges and unclog the toilets and tackle all of life's little emergencies that tend to vex the other members of your household.

You probably change your own motor oil and shudder at the thought of ever having to phone a repairman for anything, because you like to save a little money at every opportunity. After all, wealthy people don't often do their own dirty work when they've got plenty of cash to hire a pro.

You, however, would rather spend those dollars taking your family out to eat than give them to someone else to do a job that you could do yourself. So, you go the extra mile. You step up to the plate and do the jobs yourself.

The world needs more people like you.

But hard work can be taxing, and people like you can get carried away. They can get burnt out, tired and maybe even testy around

the house. That's when they need to relax.

So this fall, don't forget to slow down and take it easy. You deserve a break. It's football season. Have a cold one.







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Questions About Home Building, Remodeling? Have Your Own How-To Tip? Visit our blog at **blog.extremehowto.com** and click on Ask Our Experts.

• The trap beneath our kitchen sink is leaking, and I can't get the fitting to tighten. Is there a way to repair the leak without calling a plumber?

• Since the water in drain pipes is not pressurized, leaks can often be fixed using self-fusing silicone
• tape. Stretch a length of the tape and wrap it around the problem area of the drain pipe, overlapping the tape and making sure to cover the surface on both sides of the leak. The tape fuses to itself to form a waterproof seal.

• A valve near the top of my water heater is leaking into a drain line. When I flip the trigger I can open the flow further but I can't get it to close completely. What is wrong?

• Both gas and electric water heaters have a safety device called a pressure relief valve. In case the tank over-pressurizes, the relief valve opens to release pressure. If the valve doesn't open correctly, the tank can over-pressurize and explode. However, the valve should not remain open at all times. Sometimes debris in the water supply can lodge in the valve and prevent closure. With the water supply completely open, trigger the relief valve to open the flow and blast away any potential blockage. If this doesn't work after a few attempts, the valve has probably gone bad and requires replacement.





S. Got-2

Questions About Home Building, Remodeling? Have Your Own How-To Tip? Visit our blog at **blog.extremehowto.com** and click on Ask Our Experts.

• I'd like to install tile in a room at the rear of my house, but my neighbor thinks the floor is not stable enough and says the installation might crack. Is there a way to stabilize the floor?

• A floor might be solidly constructed and adequately supported but still have a degree of "bounce" or vibration when people move throughout the room. This is usually only problem if you plan to install a tile floor,

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because any minor amount of deflection in the subfloor could result in cracked grout or flooring. If you can gain access beneath the subfloor, you can level and stabilize the joists by constructing a perpendicular girder beneath them supported by a system of posts and piers that connects to the ground.

• Should I use plastic • sheeting as a moisture barrier before installing solid wood floors on the first floor of my home?

 You should definitely use a waterproof barrier over the subfloor, but plastic sheeting is not recommended for solid wood floors because the nails or staples will penetrate it during installation. Use a paint roller to apply a coat of liquid waterproof membrane over the subfloor or slab, allowing it to dry according to the manufacturer's instructions. When working on a concrete slab, use construction adhesive to glue down 3/4-in. marine-grade plywood over the waterproofing before installing the floorboards. **EHT**



Handy Fasteners for Home Improvement



our home-improvement project is only as strong as the fasteners that hold it together. From nails and screws to innovative metal hardware, here's a look at some common solutions as well as some of the latest developments in those unsung heroes of house construction.

COATED FASTENERS

Today's exterior fasteners are coated to prevent rust, and some coatings are colored to blend with surrounding materials.

When it comes to nails, exteriorgrade galvanized nails are made of steel and coated with zinc.
Although galvanize means "to coat iron or steel with rust-resistant zinc," the amount of zinc on the nail and its method of application make a significant difference in how well the nail will resist rust.
Nails that are certified "hot-dipped galvanized" have the critical alloy layers that ensure long-time corrosion-resistance. With hot-dipped nails, the nails are actually immersed in molten zinc.

Maze StormGuard nails are each dipped twice in zinc for a thick uniform coating. Other methods of galvanizing are shown by

WHICH NAIL FOR WHICH APPLICATION?

Smooth shank nails are easy to drive but don't offer much holding power. Choose the best for the job at hand to ensure a firm, long-lasting connection.



Spiral Shank—Maze Nails mill designed and produced the world's first spiral shank nails, which have a spiral thread that causes them to turn when they are driven. Similar to wood screws, they form their own thread in the wood fibers for extra holding power. They are specifically designed for use with hardwoods and dense materials. Flooring, siding, decking, pallets and truss rafters are typical applications for spiral shank nails.

Ring Shank—Independent Nail, A Div. of W.H. Maze Company, developed an annular (or ring) thread on their nails to provide even better holding power in many applications. The threads on ring shank nails separate the wood fibers, which then lock back into the rings and resist removal. Ring shank nails are widely used in plywood, underlayment, decking, siding and roofing applications.

Fluted Shank—A third type of threading, typical on masonry nails, is a fluted shank. This thread style gives nails excellent holding power in concrete block and masonry applications. The horizontal threads cut the masonry to minimize cracking and provide excellent holding power.

Source: Maze Nails, www.mazenails.com



Cox is widely recognized for premium outdoor wood products, but protecting the wood from the elements is just part of protecting your investment and your family. Ask your lumber dealer for DuraPine by Cox and request the "peace of mind" premium warranty, because repairs are more than wood, they include labor and fasteners.





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TOOL SCHOOL

PENNY-INCH NAIL EQUIVALENTS

2d = 1"

3d = 1-1/4"

4d = 1-1/2"

5d = 1-3/4"

6d = 2"

7d = 2-1/4"

8d = 2-1/2"

9d = 2-3/4"

10d = 3"

12d = 3-1/4"

16d = 3-1/2"

20d = 4"

30d = 4-1/2"

40d = 5"

50d = 5-1/2"

60d = 6"

70d = 7"

80d = 8"

lab tests to leave nails with a non-uniform coating, a very thin coating, or a coating which frequently chips when hammered.

Tool Tip: Milled-face hammers aren't recommended for driving galvanized nails because the abrasive surface may damage the zinc-coating on the nail head and reduce its corrosion resistance. Smooth-face hammers are recommended.

Nails can also be pre-finished with a factory color to blend with painted surfaces. Colored nails save time by eliminating the laborintensive job of touching up nail heads.

Screws are also available with a variety of coatings. GRK Fasteners' Kameleon Composite Deck Screws work with composite boards and treated lumber and are colored

GRK Fasteners' Kameleon Composite Deck Screws blend with the most popular decking colors.

to match today's most popular decking tones, including Redwood, Brown, Grey, Sand and Tan. The Climatek coating resists corrosion, and the screws have unique fiber-trapping rings that eliminate the common mushrooming effect in composite material.

With white being such a popular color choice for trim inside and outside the home, Screw Products' new White Head Trim Screw is a multipurpose exterior/interior fastener for a wide range of projects. These fasteners can be used with ACQ and CCA pressure-treated lumber thanks to a proprietary coating designed to protect against corrosion. They're ideal for materials with a white finish such as fascia, fencing, siding, trim and more.

Adapting to the same color trend, GRK Fasteners offers new White Cabinet Screws for new and remodeled kitchens. The screws have a durable white coating that blends with white cabinets, allowing them to hide in plain sight. They can also be used for other interior applications such as closet and shelving systems.

STAINLESS FASTENERS

In certain severe conditions, stainless steel fasteners are preferable to coated fasteners. These highly corrosive conditions include marine environments (within 5 mi. of the seacoast), as well as cedar and redwood products (siding and decking) where the wood is left natural or treated with a clear wood finish.



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TOOL SCHOOL

For example, SureDrive USA offers Seamaster Stainless Steel Decking Screws with both flat-head and trim-head designs in either square-drive or star-drive. The Seamasters have self-drilling points and self-countersinking nibs, and resist corrosion despite saltwater exposure on docks, decks, boardwalks and boathouses.

SPLIT-FREE FASTENING

SplitStop High Performance Screws from Titan Metal Werks eliminate splits and the need to pre-drill wood, even in dense hardwoods like ipe. The patented thread and tip design also diminishes drive-torque, resulting in less screw breakage, reduced user fatigue and The SplitStop Titan III deck screw eliminates the need for predrilling even in dense hardwoods such as Ipe.

longer cordless-drill battery life.

Similar split-free design features in the company's Titan III decking screws prevent mushrooming in dense composite or capped-stock-cellular deck boards.

SplitStop TIII screws are available in three sizes and five colors plus stainless.

MERCHANISCHES

HAMMER-DRIVE ANCHOR

Ever used a hammer-drive anchor? Also called "drive nail anchors" and "metal hit anchors," these fasteners are made of sleeved expansion nails designed for tamper-resistant use in concrete, stone, solid brick and block. To use, first predrill a hole using a hammer-drill to the manufacturer's recommended diameter and depth for fastener size and substrate. Remove the debris with a pipe cleaner, compressed air or vacuum. Insert the anchor through the fixture and into the

To use a hammer- drive anchor, predrill a pilot hole and insert the sleeve. Hammer the nail head to expand the anchor inside the wall.

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TOOL SCHOOL

hole until the flange contacts the fixture. Hammer the nail until the head is flush with the flange of the anchor. The nail creates an expansion of the anchor for a firm hold in the concrete, brick or block.

DECK HARDWARE

Methods of deck construction evolve over time to adapt to changing building codes. The new changes in technique are meant to ensure a safer deck, and some of

HEAVY-DUTY TOGGLE BOLTS

To securely fasten a heavy item to a wall or ceiling, you need a toggle bolt. Toggler **Anchor Systems offers** the heavy-duty 1/4-in. Snaptoggle BB, which holds up to twice more than wing-type toggle bolts that fold in half when inserted in the wall. The Snaptoggle is quick and easy to install, and uses a single-piece zinc-plated steel anchor bracket to hold up to 1,080 lbs. in concrete block and up to 265 lbs. in 1/2-in. drywall.

Here's how

Drill 1/2-in. diameter pilot

Fold steel

bracket along-

insert through

toward you so

bracket rests flush behind wall.

Slide the plastic cap along the straps until its

flange is flush

against wall. Bend the straps to the

side plastic straps and

the hole. Pull straps

to use:

hole.



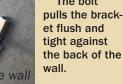


Inside the wall

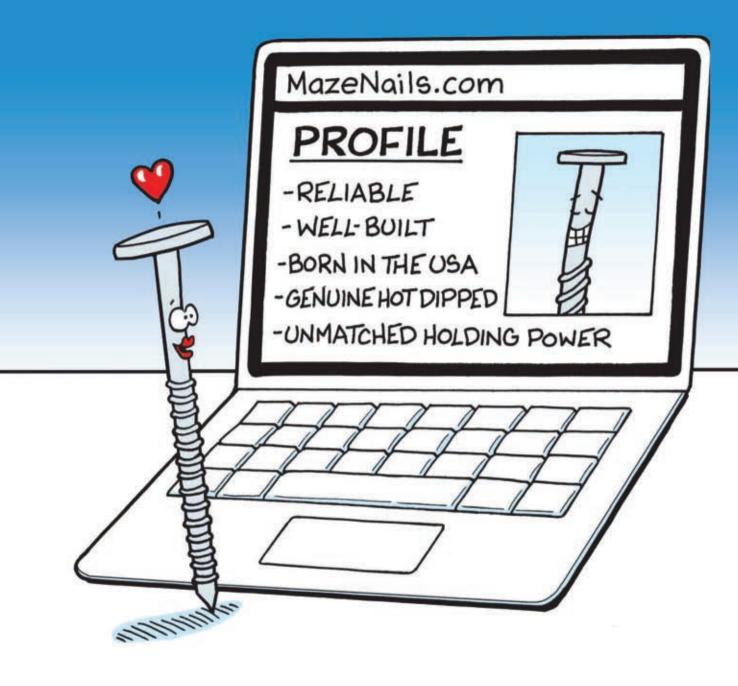




side to snap them off.
Place the fixture (represented by washer) over the flange.
Drive 1/4-in.
bolt through fixture and tighten until flush.
The bolt pulls the bracket flush and









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TOOL SCHOOL

the latest requirements relate to the metal hardware fastened to the deck to strengthen its framing connections.

A deck's ledger connection is the focus of the latest code

updates because it's the leading contributing factor in most deck collapses.

Simpson Strong-Tie offers a deck tension-tie for attaching a deck to a home that meets the

latest code standards for securing the ledger. The DTT1Z deck tension-tie fastens from outside the house, allowing the four required 750-lb. lateral connectors to be fastened to structural framing members in the house. The DTT1Z screws to the narrow or wide face of a single 2x joist.

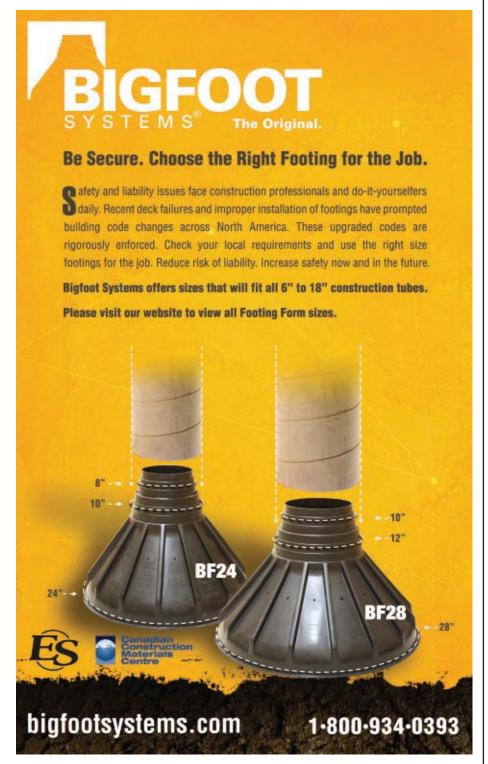


The DTT1Z deck tension-tie from Simpson Strong-Tie satisfies the latest deck ledger code requirements.

Then, a long hex screw with an integral washer attaches the tension-tie to the supporting structure with a minimum of 3 inches of penetration.

A deck's handrail system is another focal point for making stronger connections.

To construct a sturdy code-compliant deck handrail, DeckLok offers the Advanced Lateral Anchor System. This patented metal anchor adds a bolted attachment at critical structural locations such as the handrail post-to-framing connection. Other deck-fastening techniques rely on resistance to "pullout" force, like using a nail to hold a crowbar. The DeckLok Advanced Lateral Anchor System redirects the force of the load from "pullout" to a connection in "shear" at the deck's floor joist. The system recently received an updated





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AND INSERT GRAPHITE IN LOADING
HOLE ON TOP.



BEFORE LOADING NEW PIECE OF GRAPHITE,
CHECK AND MAKE SURE RED
BUTTON IS IN UNLOCKED POSITION.
TAP QUICKDRAW UPSIDE DOWN A FEW TIMES
TO CLEAR CHAMBER.



TO COMPLETE LOADING, RE-ENGAGE
GRAPHITE BY SLIDING RED BUTTON DOWN
INTO LOCKED POSITION.

TOOL SCHOOL



The DeckLok Lateral Anchor System provides shear support to railing posts by connecting to the deck joist.

ESR-2114 evaluation from ICC Evaluation Service (ICC-ES) verifying the bracket's continued code compliance. **EHT**

MOUNT A SCREW IN A HOLLOW DOOR

Since there's not much solid wood in a hollow-core interior door, screws will usually tear out of the door as soon as any weight is applied to them. This complicates mounting items such as pictures, mirrors, hooks, etc. to the door. To mount anything into a hollow door requires special Hollow Door Anchors. These plastic anchors fold flat to fit inside a pilot hole drilled into the door. Once inserted, a small key is used to open the anchor, which spreads out interior brackets to clamp the collar of the anchor against the door face, like a toggle-bolt. The screw is then driven into the anchor until tight.

- 1. Screw, hollow door anchor (white) and key (red)
- 2. Drill pilot hole.
- 3. Fold door anchor in half.
- 4. Insert anchor into hole up to collar.





- 5. Insert key into anchor to spread open toggle brackets inside door.
- 6. Insert the screw into to the anchor for a secure hold. In this case, I was screwing a mirror clip to the door.
- 7. Tighten the screw securely against the collar of the anchor.
- 8. Repeat procedure for all screws required for your project.



















Dry Times

Protect your basement and more with liquid waterproofers.



Iy'ers are usually well informed about the need to seal exterior wood, but concrete and other building materials need love, too.

Exterior concrete should be sealed in any region that is subject to freeze-thaw cycles, including warmer Southern states like Alabama and Georgia, even areas of California and Florida. Concrete is a porous material that absorbs liquids. This porous material can drink up water which then freezes in cold weather. The expansion of frozen liquids inside the pores can destroy the surface of unsealed concrete. Brick mortar behaves in the same way.

Beyond the temperature problems, concrete should also be sealed to maintain an attractive appearance and resist stains. Oil, salt, fertilizer and other common household chemicals can discolor and damage unsealed concrete.

SEALER APPEARANCE

Most chemically reactive sealers penetrate into the concrete for a nearly invisible surface appearance. Solvent-based acrylic resin sealers and epoxies will enhance the color and give concrete a highgloss wet look. Water-based acrylic resin sealers provide a satin appearance. Urethanes (usually applied over epoxy) are available

Masonry waterproofers work by plugging the tiny holes in masonry and concrete to create an integral barrier against liquids. Photo courtesy UGL Drylok

in matte and gloss finishes. Some sealers can also be tinted.

Most sealers available on the consumer market can be applied by a homeowner using standard painting tools such as a brush, paint roller or pump-up sprayer.

Masonry Waterproofers are latex- or oil-based waterproof paints, which are opaque in appearance and conceal the surface of block walls. They're usually sold in a white tint, but also beige and gray. Some products are tintable. Depending on the product, they can can withstand 10 to 15 lbs. of hydrostatic pressure—greater than a wall of water 22 feet high.

SURFACE PREP

Clean the surface thoroughly with a wire brush or pressure washer to remove any loose or broken mortar and dirt from the surface. Also remove any white, powdery deposits (efflorescence) on the masonry surface by washing with a solution of muriatic acid according to the manufacturer's directions. Rinse away dust and allow to dry. Fill any cracks and holes with a masonry or concrete patching compound.

If the wall was previously painted, the sealer will adhere to paint rather than the concrete or masonry surface, meaning the bond will be only as good as the paint's bond.



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SealKrete is an "all-purpose waterproofer" that seals stucco, brick, plaster, wood and more.



SealKrete can be applied with a sprayer it goes on milky and dries a clear satin.



Some waterproofing sealers can be used as a paint additive to extend life and coverage to a paint job.

CLEAR SEALER APPLICATION

Water-based acrylic sealers are intended primarily for vertical surfaces. Although designed for concrete, some sealers are considered "all-purpose" waterproofers that work on block, tile, wood—even

metal, depending on the product.

Refer to your manufacturer's instructions for specific application methods. Some products should be brushed on while others can be rolled and sprayed. Most acrylicresin sealers and certain reactive penetrating sealers can be applied

as soon as new concrete has cured (but better late than never).

The Original SealKrete is an allpurpose penetrating clear satin waterproofer that has a wide range of uses. Use it for concrete, brick, stucco, aluminum and vinyl siding. It can rejuvenate old plaster, bind to chalky surfaces, and even be used as a paint additive to extend life and coverage to a paint job.

SealKrete is ready to use. Apply it with a brush, roller or sprayer (garden or airless). Backroll spray





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MASON'S SELECT

Mason's Select from Duckback Products is a transparent concrete stain and sealer for both exterior and interior applications. With 100-percent acrylic formula, it transforms ordinary concrete into



a natural stone appearance. It seals and protects against UV, oil, grease, transmission fluid and is resistant to hot-tire pickup. Use it on driveways,

walkways, garage floors, concrete, block walls, pavers and interior floors. Mason's Select can also be tinted. To create a slip-resistant surface, just add Duckback Anti-Skid Additive. Visit Superdeck.com. applications to ensure penetration. Apply at least two coats, allowing two hours dry time between each. Remove any overspray immediately with water. The sealer goes on milky white but dries clear. When the sealer dries, it can be top-coated with latex- or oil-based paint.

MASONRY WATERPROOFER APPLICATION

Typically used on basement walls, masonry waterproofers such as Drylok work by capillary action, penetrating the tiny pores



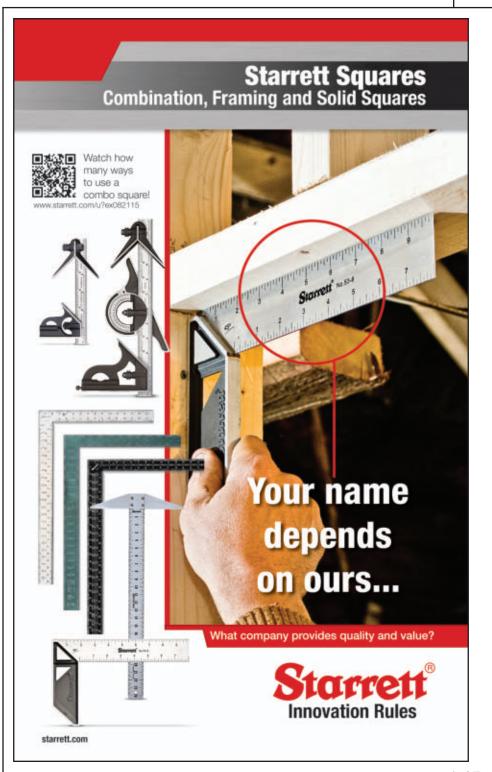
If applying a masonry waterproofer with a roller, back-brush the coating to work it into the pores of the block. A minimum of two coats is required.



Drylok Extreme incorporates a non-hazardous biocide that helps resist mildew growth on the paint film. It stops 15 psi (greater than a wall of water 33 feet high) and features a fully transferable 15-year warranty.

in the masonry and bonding together as an integral barrier to stop water seepage. Ordinary paint only adheres to the surface, and oncoming water pressure can force it off. The high solids content in the masonry waterproofer, however, actually plugs those tiny pathways with a heavy coating.

Before application, cracks and holes in the walls can be patched using a fast-setting hydraulic



DO IT YOURSELF

DON'T FORGET OUTDOOR WATER MANAGEMENT!

Being the lowest level of the house and often located below grade, basements have a tendency to be damp. Waterproofing products certainly help keep the home's interior dry, but if hydrostatic pressure is forcing water



into your home's foundation, you should take additional steps to divert it. The outside pressure can eventually damage the

structure of the foundation as well as lead to mold and mildew.

Roof runoff is often a major contributing factor to the massive amount of water collecting at a home's foundation walls. Whenever you discover wetness on interior masonry walls, look outside for what is causing the seepage problem. Check for leaky gutters and downspouts or blocked drainage pipes. Ruts in the landscape or improper grading can also direct water towards your foundation. As the soil around your foundation becomes saturated, hydrostatic pressure forces water through the porous masonry, which create the dark stains on unsealed interior walls. Today's building codes generally recommend that water should be diverted 10 feet away from the house foundation. This can be accomplished with proper grading, along with downspout extensions, splash blocks or downspout drains. The grading should be sloped away from the house, dropping 6 inches for every 6 feet.

For the best waterproofing results, correct all of these exterior problems before applying a masonry waterproofer to the interior block.

cement. UGL makes a product called Drylok Fast Plug that works well for repairing block walls. Don't forget to patch the area where the floor and wall meet. Often, when concrete floors cure, they shrink and pull away from the wall, allowing a space for water to enter, so be sure to fill the gap.

Stir the waterproofer thoroughly to distribute the solids. Apply it with a 3/4-in. nap roller or stiff bristle brush. If rolled on, backbrush the first coat to fill any pinholes in the masonry. Proper coverage is important for waterproofing, and one gallon covers an 8-by-10-ft. area. At least two coats are required.

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Selecting The Correct Plier For The Job



nowledgeable tradesmen and serious DIY'ers know that a quality pair of pliers goes a long way toward getting a job done. They rely on their pliers to hold up under grueling conditions and applications.

Many consumers may not realize that there are many types of pliers for just as many uses—some of which are highly specialized so many people may end up using the wrong type of plier for a particular job. Because the plier market can be a little confusing, CHANNELLOCK®, the famous maker of quality tools for 129 years, like its original tongue and groove pliers, provides the following tips:

1. Pliers are not wrenches. Pliers are designed primarily for

gripping objects or cutting by using leverage. They require different jaw configurations to grip, turn, pull, crimp or cut a variety of items. These tools are commonly used in trades and occupations requiring dexterity.

A wrench is a single-handled tool. Adjustable wrenches utilize a jaw adjustment mechanism, while open-end and box-joint wrenches feature a single, fixed jaw capacity to accommodate different sizes of bolts, nuts or other items.

2. There are several types of pliers that perform a variety of functions.

Some common types include tongue-and-groove pliers, cutting pliers, linemen's pliers, needlenose pliers and slip-joint pliers.

Tongue-and-groove pliers feature multiple jaw capacity adjustments by means of grooves or "channels." They're especially good for gripping and applying torque to round, square, flat and hexagonal objects. Tongue-and-groove pliers can be used primarily on plumber's supply lines, drain lines, assorted nuts and bolts and various automotive applications.

Cutting pliers include end-cutting nippers and side cutters. End-cutting nippers have cutting blades on the end and are used to make clean cuts flush with a working surface. Cutting pliers are great for pulling small nails, rivets and wire ends. Side cutters, or diagonal pliers, are the most common form of cutting pliers and are used on virtually all forms of electrical wiring in the home, on the job and in automotive applications.

Linemen's pliers are perfect for cutting, holding, shaping and twisting wire. Some even have built-in crimpers for electrical terminals. These pliers are heavy-duty, sidecutting pliers designed for all regular wire-cutting needs. In addition to cutting edges, the pliers also have gripping jaws. Lineman's pliers can handle various moderate- to heavy-duty commercial and residential wiring tasks.

Long nose pliers, also referred to as needle-nose pliers, feature a long, pointed nose for working in tight places. These are most frequently used for electrical and electronics work. Some feature side cutters for cutting wire.

Needle-nose pliers excel at retrieving items in tight areas, cutting wire, holding items in place and tightening nuts in close confines.



Slip-joint pliers can be found in nearly everyone's toolbox. They are a versatile form of pliers that provide two jaw positions. One adjustment forms a jaw-to-jaw mating of the two halves-perfect for grabbing extremely thin objects. The second adjustment leaves a gap between the jaws and allows for a larger overall jaw capacity. Slipjoint pliers can be used in a number of varied gripping and turning operations including specialized functions such as removing hose clamps and pulling steel strapping bands, along with a host of traditional nut-and-bolt turning operations. Some slip-joint pliers also feature integrated wire cutters. CHANNELLOCK® even makes a model with specially designed recesses in the jaws for gripping hose clamps securely and keeping them from slipping from the jaws.

3. Always follow safe practices when using pliers.

When using any tool, always wear safety glasses for eye protection. Never extend the length of handles to secure greater leverage; use a larger pair of pliers instead. It's crucial to discard



any plier that is cracked, broken, sprung or has nicked cutting edges. Make sure to inspect, clean and oil pliers occasionally. A drop of oil at the hinge will lengthen tool life and ensure easy operation. Unless specified as insulated handles, the cushion grips on pliers are not intended to give any protection against electrical shock and shouldn't be used on live electrical circuits.

There are many choices and grades of quality in pliers. One of the determining factors between those that hold up under stress

and time and those that do not is the manufacturing process. When looking for a pair of pliers, consider whether the tools are forged or die cast. CHANNELLOCK® pliers are forged, which helps to reduce the imperfections and strengthens the tool. Die casting allows for porosity and micro-voids in the steel, creating weakness and, ultimately, less durability.

Remember that spending a little more to purchase a pair of reliable pliers will save money over time. Properly cared for, they will be in your toolbox for life. **EHT**















By Mark Clement

Is workshop organization kind of a part time job for you? Or, with a bite of humble pie, should it be?

I know I spend a lot of time on it—and actually would like to spend more.

I get the bug for getting organized because I know I can do more once I'm streamlined.

Nothing puts a finer point on that for me than seeing DIY'ers on Facebook displaying workshops and work

areas of such messy magnitude. It's painful to watch; materials are everywhere with trip hazards galore. Chaos! I think my palms are sweating. And I am far from a neat freak.

For example, I know a guy who boasts having no less than seven caulk guns. He keeps losing the one he had in the heap of stuff he calls a shop, so he has to stop what he's doing midstream to go get another one.

If you count the time to go get the tool he already owns and the time not working, that's one heck of an expensive caulk gun.

We all lose and misplace things; that's inevitable. But the fewer times it happens—and the more room we have to work—the better home improvement and workshop life is. Conversely, the fewer places I have to store things, the slower things go. (Except screw-ups and frustration; those things accelerate.)

Piles like this are the problem.

So whether it's for the project d'jour or the l-know-l'm-gonna-need-this-someday project, all the materials clogging up my life need a place to live that's not under my feet or leaning on the table saw. Therefore, I designed this lumber and materials cart. I hope you get as much juice out of it as I do.





Homemade storage solutions and shop organizers let you custom-build to suit your needs.

Placing the cut-offs bucket right behind where I'm cutting means I can almost effortlessly manage cut-offs and stuff that tend to litter shop floor.

It works well in small and large shops. Essentially a ladder on wheels, it is super easy to build and even easier to customize. You can slam it together in a weekend—even in a single day.

This workshop organizater makes a place for it all: power tools, new trim, extra pieces of flooring, a rainy-day hunk of drywall, and that old door that's just too cool to throw away.

MATERIALS

This lumber cart is both cheap and shop-proof. It's built with 2-by stock, OSB, four rolling casters and deck screws. You probably have half of it laying around your shop right now.

Base. For the base, I used 2-by-6 and made it 8-ft. long by 3-ft. wide.

Four-inch rolling/locking casters on each corner mean you've got mobility when you want it, even when it's loaded. I set the casters with 2-in. washer-head screws.

Frame. The frame that holds the "ladders" inside the base is made of three blocking assemblies. The ladders are 18 inches wide, which is wide enough to accept 2-by-12 material (Which is especially helpful if you have to load them on an angle due to an obstruction like the furnace in this basement shop).

Build the frame assemblies so the ladder legs can slot into the gaps. I like to leave a little wiggle room so the ladders fit. In theory, you can build them with really tight tolerances. *In theory*. In reality, 2-by-4s are far from perfect. Ladders. Assemble the ladder pieces together. Fifteen-inch wide rungs plus 3 inches of rail give you 18-in. width. Vertically, spacing them 12 inches apart worked nicely to maximize room.

Install the frame assemblies, then slot the ladder rails into the blocking gaps and fasten. Use construction adhesive and fasteners to hold this in place for the long haul. I used glue on the corners of the base, too.

Side rails. I screwed the side-rail assemblies to the inside of the base and made them 30 inches above the base surface. The base is skinned with 1/2-in. OSB. The

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notching here is a little less fun than I like, but it works, and further locks everything together. You could use 2-by or 5/4 deck boards too.

ORGANIZE

I got a lot of mileage and production stacking my cart with some semblance of organization. There's no point in building the cart and then just making it a tall pile. I try to keep the longest stuff—trim, usually—on the top, so if I have to walk by it I can duck beneath rather than be tripped. Doors, sheets, and little stuff like buckets or a box fan can live on the sides—and the side you use the least. The front rail gets tools

and stuff that I'm currently using or will soon use.

Honestly, it can take a day or more to organize all the stuff piled on tables and leaning in corners of your shop onto the materials cart. Don't be afraid to throw stuff



Build one blocking assembly for each ladder in the frame. Then slot the ladders in the pockets. Glue and screw. These get a lot of pressure applied to them when you want to move a loaded cart.



The 4" rolling, locking casters are the key to mobility and keeping the cart where you put it.



SHELF BRACKETS

Utilizing walls is one of the keys for DIY success and sanity for me. Not only are materials easier to store and access, but they stay straighter. They're less likely to be destroyed by anything from pulling the lawn tractor in for the winter to rolling a hand truck loaded with bags of concrete over them.

Many store-bought hooks and brackets ... what's the technical term I'm searching for here ... suck. Plus, I usually have a hunk of wood laying around so I make my own. Free is good. Here's one simple design.

It only has three pieces: Top, Back, Brace.

The top and back are the same. Twelve to 18 inches each seems to work nicely. I rip them to 1-1/2-by-1-1/2 inches on the table saw.

To figure out the bracket I lay it out with my square. Or, just cut a few trial versions until you get a bracket you like. For me that means a 16-in. brace for an 18x18 bracket and an 8-in. brace for a 12-by-12 bracket. Both measurements are long-to-long-point of the 45-deg. miter.

I set the top on the back, hold it square then predrill, countersink and pop two deck screws into the connection. Then, I fit the bracket, predrill and countersink through the miter. I use my miter saw to hold the pieces stable while I drive the screws and—boom—I'm done.

To install I either screw to the face of a stud or to the side of a stud. Or, in my shop, I screwed right through the 3/4-in. OSB wall I'd installed so I could hang anything anywhere. Spanning the brackets by 6 feet means storing 8-ft. stock is a snap. Add more brackets as you need them.

Individually, they're also great for cords, hoses and all kinds of other awesome tool stuff.



Cut a 45-deg. miter on one end of a brace. Set the top and back in a T. Place the brace where you like it on the back. Run your layout square across the brace and get the top parallel with the square's blade. Mark the brace. That's

your cut.



Rip the top, back and brace parts to 1-1/2x1-1/2".



I use my miter saw station to help hold pieces still while I fasten them.



Fastening to the sides of wall studs is easy with larger shelf brackets. A few screws means you can even use the bracket to store things like my wife's tool belt.





away. You know what they say: If you haven't used it in a year, you probably won't. It's a little more applicable to sweaters than a load of primo lumber, but you should

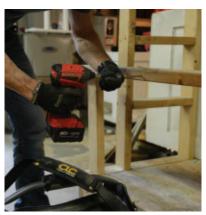
still get real about the heap.

On the lighter side of hoarding, it takes almost zero effort to customize this workshop organization center.

CUSTOMIZE

Drills and impact drivers almost always have a driver bit on them, so I drill 1/2-in. holes in the side rail tops about 12 inches apart. There's plenty of room to slot a drill so it is always ready for work.

The same idea goes for the recip saw. Simply plunge-cut a slot and store the saw vertically. If you don't use it often (and who does?) leave it on the back side of the unit. Or, hang it on a screw.



For heavier items like tool bags loaded to the gills, I predrill the side of the rail about half-way through, then sock in a structural screw until it almost pokes out the back. The big head holds odd items well, and the screw won't bend because it is well-supported.



Drill 1/2" holes to accept drivers with driver bits on them.

This will really make a tool-lover's holiday.

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Making the ladder rungs wide enough means you can store wider materials more easily—and fit them in there if you have to work around obstructions.

Structural screws carry larger items, everything from tool bags to demo bars. For heavy hand-carry tool bags, I drill a 3/8-in. hole half way through the side rail horizontally, then sink a 6-in. screw the rest of the way. There's just enough left proud to catch a tool bag handle.

Maybe my favorite customization: a deck screw and a 5-gallon bucket. Hook the bucket on the screw and you've got a built-in trashcan. Now you can stop





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tripping over blocks and litter on the floor.

My miter saw workstation is placed directly across from the cart, so all the little blocks

and cut-offs that can easily clog up a workbench get tossed instantly into the bucket. Forget farm-to-table; think saw-to-bucket.





A 6" structural screw or two is great for storing heavy or awkward items on the ladder rails. No kidding.



Use your recip saw to create a space for your recip saw. All it takes is a simple plunge cut.

It takes a little effort up front to make, stack and organize this cart. However, it requires far less work than living in a slow-moving tornado of building materials that refuse to be where you want them when you need them to be there. With the cart loaded and organized, I can do weekend DIY, woodworking or repairs, and maintain what little sanity I have to focus on getting good work done. After all, isn't that the point? **EHT**

Editor's Note: Mark Clement is co-host of the MyFixitUpLife show.

SMART JARS

In three simple steps, stuff goes from distributed clutter to organized and ready for action. Here's how it works: First, put your stuff in a SmartJar. Snap the SmartJar Dock onto a pegboard. Place the SmartJar into the Dock. That's it. The system is an excellent way to organize and label small items such as screws, nails, nuts, bolts, fishing tackle, craft

items-you name it.

When stowed, the SmartJar gives you an easy view of whatever you decide to store in it. The docks are easy to insert and remove in standard pegboard. You lay them out and arrange them for the look and aesthetic you want. SmartJars are transparent, air-tight, durable and food-safe (BPA free).

You can also place a label on the lid for quick reference. On the pegboard, the dock takes up 3 inches by 3 inches and can be arranged directly adjacent to each other, either vertically or horizontally.

The docks are currently available in black, blue, gray, red, white and yellow, and are 100-percent Made in the USA.

Pegboard Compatibility: The SmartJar Dock is designed to snap easily and securely into standard pegboard measuring between 1/8 to 3/16-in. thick, with 1/4-in. diameter holes on 1-in. spacing. (This product is not compatible with thin, metal pegboard or pegboard panels with smaller holes).

Visit Smartjars.com.





With this cart it's easy to store bulky items like that century-old door that would work great when you remodel your basement. I store items like this on the back side and just wheel it away from the wall when I need it.



rimming out a room is a hot project for DIY homeowners who want to dramatically accent an otherwise lackluster ceiling, wall or window. In addition to traditional baseboards, chair rails, crown molding and casing, homeowners can also consider options such as fireplace mantels, cornices, medallions and more.

CHOICE OF MATERIALS

MDF (medium-density fiberboard) is often the trim material of choice because it's less expensive than solid wood. Trim pieces made from finger-jointed wood are widely used in remodeling applications because they don't have knots and imperfections like solid pieces can have. Most home centers sell both MDF and finger-jointed trim pieces in factory-primed standard lengths. An experienced carpenter can also fashion unique moldings made from solid woods, such as mahogany, maple and poplar. Solid wood can be stained instead of painted to reveal the natural grain.





TRIM TIPS FOR DIY'ERS



Urethane, composites and other synthetic materials are popular choices for paint-grade trim. Although the products cost more than wood trim, they don't have the same maintenance problems and are suited for outdoor use. Synthetics and composites resist insects, cracking, peeling, chipping, swelling, splitting and rotting, making them ideal for exterior use—as well as areas exposed to moisture, such as base molding in a bathroom or crown above a shower.

Most paint-grade trim products are sold pre-primed. If your selection is not pre-primed, you might consider both priming and painting all the trim pieces before you install them. This will reduce the time you spend working on your knees (for baseboards) or a ladder (for crown molding) and limit your post-installation painting to touchup work.

LEARNING HOW TO COPE

When installing baseboards, crown molding and chair rails, it's tempting to cut 45-degree miters at the corners and hope for a sure fit. The problem is that most walls aren't 90 degrees. Joining two 45-cut molding pieces may give you a square joint, but a square joint may not work for your crazy corner. This problem might be due to a framing error or a buildup of drywall compound in the corner. But even a perfect miter joint can develop gaps when the wood dries and contracts in winter.

Unlike miter joints, cope joints have one trim piece butted against

the adjacent wall at the corner. The joining trim piece is carefully cut to nest against the profile of the first. These joints eliminate the problem of out-of-square corners when installing trim, and they're less likely to reveal a gap when the wood shrinks.

To make a cope joint, butt the first piece of molding into the corner and fasten in place. The second piece of molding should be cut a few inches longer than its final length. On the intersecting end of the second piece, cut a 45-degree inside miter. Run a carpenter's pencil along the edge of the mitered profile, marking the shapes and curves for better visibility.

The traditional way to make the joint is with a coping saw. The thin, flexible blade of a coping saw is designed especially for cutting out intricate patterns. Clamp the second piece of molding securely to a work surface and use the coping saw to cut along the pencil line that marks the decorative pattern. It may help to angle the blade to back-cut the molding. Keep the blade about 1/16 inch to the waste side of the cutline.



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TRIM TIPS FOR DIY'ERS





When most of the wood is removed, use a file to finish up the cut and clean the profile, revealing a shaped edge that will be the only point of contact between the intersecting molding pieces. Remove all the wood in front of the profile to create a socket that fits over the face of the first piece. A "rat tail" file, which has a round, slender shape works well for fine-tuning small curves and edges. A flat file works well on square edges

Test-fit the molding against the first piece. Check for any gaps and sand or file away any high spots for a good fit. Nail the molding in place and finish by caulking the seam. Proceed around the room to complete the installation.

INSTALLATION SEQUENCE

When coping base or crown molding, follow the installation sequence shown in the diagram for the best appear-

ance. Begin on the wall that is opposite the door and install a piece that is square at both ends, flush between the two adjacent walls. This way, anyone walking into the room sees the best side of the joints. On the two adjacent or "side" walls, cope the joints where they meet the installed molding, but cut the opposite ends square and butt them against the "door wall." The molding on this fourth wall should be coped in both corners, but the joints on the "door wall" are the least noticeable in the room in case of any minor imperfections. All moldings should be fastened securely into solid framing with two nails driven at offset angles per stud location.

Coping sequence for crown and base molding

Opposite Wall Butt 1 Butt Cope Cope 3 Butt Butt Cope 4 Cope

QUICK TIPS FOR MOLDING & TRIM

Make sure that each length of molding you purchase has the exact same decorative profile width and thickness. This is important because building supply stores purchase their own trim from several manufactures, each using their different fabrication standards/tolerances, and dissimilar pieces won't fit together correctly.

Door Wall

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Always check the square of your saw before you begin. For every degree your saw is out of alignment, you will get twice that error for each joint you cut.

When cutting molding or trim

to the wall's length, it is best to make the first cut at least 1/2 inch into the waste side of the crown or trim, and then make small cuts until you reach your length mark.

For added strength, use adhesive in all joints.

Caulk all joints and the top and bottom of your crown and trim. Use a shrink-free spackling for nail holes. (Caulking nail holes will leave visible dimples.)

COMPLEX MOLDINGS

Crown molding, baseboards, chair rails and casing are available in simple geometric profiles as well as elegant, intricate profiles that mimic complex classical designs assembled from multiple strips of different shapes. DIY'ers can purchase these moldings preformed at the factory or they custom-build their own from individual trim strips sold at home centers.

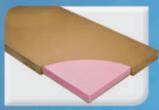
Dentil molding, for example, is a series of repeating rectangular blocks that adds depth and character to millwork such as fascia trim and crown profiles. This style of moulding has been popular for centuries, but traditional installation was a time-consuming and labor-intensive process that required combining all the individual pieces.



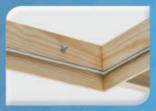
Today, wood moldings are available with the dentil molding preattached to the profile by the manufacturer. For paint-grade trim, synthetic moldings offer similar design advantages. You can purchase single-piece polyurethane foam or vinyl molding, which weigh less and resist shrinkage, peeling and other



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TRIM TIPS FOR DIY'ERS

problems associated with built-up wood molding. Plus, with paint-grade projects, minor errors in the installation can be repaired with caulk and painted over.

Some larger crown moldings

will have a gap at the rear that makes it difficult for nails to penetrate solidly into the house framing. To create a solid nailing surface on which to hang the molding, install wood blocks along the

perimeter of the ceiling. Measure the angle of the molding profile using a combination square, and then

cut triangular blocks from scrap wood to fit behind the molding. Nail the blocks every 16 inches into the wall studs. Then, nail the molding into the blocks.











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HANDY TOOLS

Accurate wall-to-wall measurements are critical for installing crown and base molding. Although a tape measure will work, a laser range finder will make the task easier. Just aim the device from one corner to the other. With the push of a button you have the exact measurement recorded in

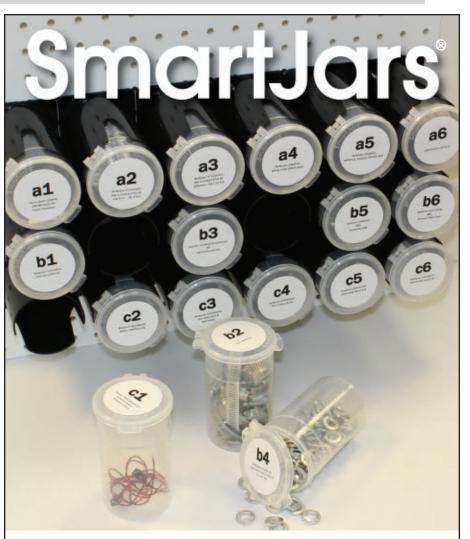
digital readout, and you're ready for a trip to the saw to cut the molding to match.

If installing crown molding by yourself, check the local hardware store for crown molding hangers. To use them, tack a couple of nails about 6 feet apart just below the ceiling. Hook the Crown Hangers on the nailsthey're sold two per set. Then, hang the stick of molding on the two brackets. You can then adjust each of the hangers by sliding the brackets upward and finger-tightening with a lock nut, which positions the molding against the ceiling, ready for fastening.









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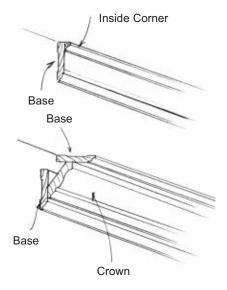
Get Organized

Know where to find the supplies you need and where they go when you're done.

Docks lock on to pegboard and can be rearranged, jars nest securely in the docks.

TRIM TIPS FOR DIY'ERS

Don't be afraid to get creative and develop your own moldings from any of the wide range of shapes and profiles on the market today. Practice the assembly on a workbench and be sure to keep your reveals consistent. (The "reveal" is the exposure of one trim piece beneath another.) Make sure your built-up molding is securely attached with nails and glue, and the sky will be the limit on the designs you can come up with.



create skirting for a mantel shelf. Use a piece of baseboard turned upside-down to line the upper portion of a book case. **EHT**







Fireplace mantels, built-in bookshelves, bar areas and more make great candidates for decorative trim enhancements. Think outside the box when designing and selecting your trim packages, and don't feel limited by the traditional use of the materials. Instead of crowning a wall, use molding to



CEILING MEDALLIONS

A ceiling medallion is an easy trim upgrade that adds elegance to a hanging light fixture. Some ceiling medallions come in two halves for simple application over an existing fixture. Others are single-piece products that require removal of the fixture. Some medallions are made of thin plastic and install with two-sided tape, but we prefer the solid urethane versions that can be securely glued to the ceiling. To install, all you need is a power drill/driver, a handful of trim-head drywall screws, wood filler and some construction adhesive.

To begin, test-fit the medallion and make note if it needs to be centered, in case the base of your light is slightly smaller than the medallion's inside diameter. When you're satisfied with its position, mark the ceiling around its perimeter for easy replacement after you add the adhesive. Liberally apply beads of adhesive to the medallion's back (use polyurethane glue for urethane medallions). Replace the two halves around the light base and interlock the joint.

Countersink a couple of trim-head drywall screws through the medallion and into the ceiling joists to hold the trim piece while the glue sets. Conceal the small screw heads with plastic wood filler. Caulk the seams and paint if desired.









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By Rob Robillard

love using plinth blocks in finish carpentry, especially when the door casings I'm installing have deep and ornate details.

Originally plinth blocks were masonry support bases, but have since evolved into more of a decorative add-on for many interior decors, adding a touch of style and class to a room. If you are in the process of upgrading your interior trim, consider adding plinth blocks to your doorframes.

Often referred to as "do-hickies" and "thingamajigs" by a customer of mine, plinth blocks act as a decorative base for door trim, pilasters or columns, and are often seen in higher end trim work and older homes where the trim and baseboard intersection do not visually meet well.

Plinth blocks stand proud at the bottom of the casing, adding a reveal and shadow-line depth between the vertical and base trim. Plinth blocks can be a wonderful visual element to virtually any room, adding a nice aesthetic detail to a molding, baseboard or door frame.

WHAT DOES PLINTH MEAN?

"Plinth" is an architectural term used to describe a support or base for a column. Plinth blocks are located on the floor and below

door casing to create a transition to the baseboard. These molding pieces create a classic appearance to door surrounds and are commonly used with either rosettes or a door header, but can be used with mitered casing, too.

The plinth block should always be at least 2 to 3 inches taller than the baseboard, it must be thicker than both the casing and the base. It should be 1/4 inch wider than the casing.

WHEN DO YOU NEED A PLINTH BLOCK?

Usually when the door casing or architrave is thicker than the baseboard skirt, you do not need



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TRIM TECHNIQUE: PLINTH BLOCKS



a plinth unless it is part of the design (or the lower part of the trim needs protection). If, on the other hand, the baseboard skirt is thicker than the casing, a plinth block is a good solution.

THE GOLDEN RULE FOR SIZING

For a plinth block to look right it needs to clear, or at least meet, the baseboard and base cap height. The other issue is proportion. Plinth blocks look best when the height is 1.5 to 2 times the width. Many designers follow the "golden rule" which is to make the height equal to 1.6 the width.

STORE-BOUGHT PLINTHS

Many lumberyards and millwork companies sell or make plinth blocks that match the profiles of specific door trim molding they sell. This is an easy way to accomplish plinths in your design, as long as your baseboard trim work with the plinth you bought.

In my experience, there are not that many commercially available

Sketch a template.

plinth block sizes available for all the different trim that I deal with.

Sometimes making your own plinth blocks gives you the flexibility and versatility of making the exact height and thickness for whatever door trim you're installing.

DIY PLINTH BLOCKS

I typically use 5/4 trim for my plinth blocks. In this particular job I used 5/4-by-4 and duplicated the existing plinths found elsewhere in the home.

Base your plinth design on existing blocks throughout the home.

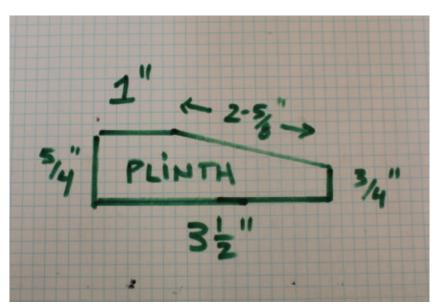
These plinth blocks have a bevel that took the thickness from 1 inch, on one end, down to 3/4 inch. I'm guessing this was originally done to mimic the narrowing of the casing used.

DETERMINING BEVELS

To determine this bevel, I marked up a scrap block measuring inward 1 inch and then marking the 3/4-in. thick edge. I then used a bevel to connect the lines and measured that angle. This angle was transferred to my table saw where I cut the bevel first on the test piece and then on the plinth block, once I was satisfied I had the bevel angle correct.

MAKING THE BLOCKS

The first step is to rip your board the width of the plinth block. When ripping, leave enough material (usually 1/16 inch), so you can plane and sand the edges to clean up the cut and remove the saw marks.



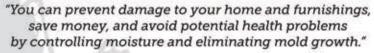




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TRIM TECHNIQUE: PLINTH BLOCKS

Determine your bevel by mimicking an existing plinth block or making a test piece. Then cut bevels on the table saw.

Cut your beveled plinth block stock to the height you want.

Next, add 45-de. bevels to the edges. If applicable, you might



Transfer the measurements to your trim stock.

want to ease the edges of your plinth blocks. This can be done with a hand plane, table saw or a router bit. Not all designs have this look.

Use a block plane to remove saw marks. Sand the end-grain smooth, and break all edges slightly to accept paint better.



Use an angle gauge to measure the bevel.

ADDING PLINTH BLOCKS TO EXISTING TRIM

The easiest way to install plinth blocks is when there is no existing door or baseboard trim in place. If there is, you need to measure your plinth block location and use a

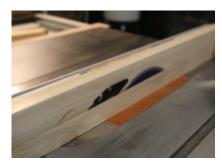


Set your table saw blade to a matching angle.





Arrange an outfeed roller or other system to support the workpiece.



Lock down the rip fence and make the bevel cut.



Shown is the fresh bevel cut.

multi-tool to cut back the trim in order to insert your plinth. It should fit tightly underneath the cut-off molding, and tightly against the side of the cut-off baseboard

NEW TRIM INSTALLATIONS

Measure and mark your reveal marks on your doorjamb. I use a

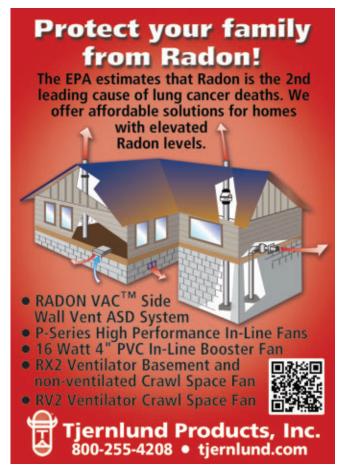
small combination square set to 3/16 inch to make two small pencil marks, one at the top edge and one on the lower edge. The 3/16-in. setback is to provide the reveal, lip or edge between the plinth block and the side of the iamb.

Place the plinth block at the base of the doorjamb on the edge of your reveal mark. If your jamb is plumb, then your plinth will be, too.

If the plinth block does not fit flush, use your hammer to flatten in the plater or drywall a bit until you get your desired fit.

If hand-nailing, predrill four holes through the plinth block with a 3/32-inch drill bit. Drill two holes, one high and one low, into



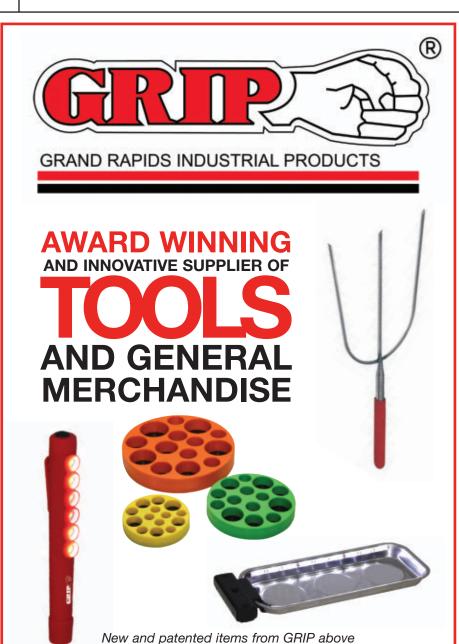


TRIM TECHNIQUE: PLINTH BLOCKS

the door jamb side. One the other side, drill your low hole so you can hit the bottom 2x4 plate, if applicable. On the upper hole, if no wall stud or nailer is present, drill at an inward angle toward the

door jamb. The angle helps lock in the plinth.

If using a pneumatic nailer simply install in the same locations. Install nails slightly recessed for wood filling.



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Slightly round the corners with a hand-plane.



A shop-made jig can speed up production when you need to cut several blocks of the same length.



Fasten the jig in place to serve as a temporary stop when cutting the trim stock.



The size of the blocks will be determined by the prevailing trim design throughout the house.

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TRIM TECHNIQUE: PLINTH BLOCKS

The presence of framing will dictate your fastening pattern. When possible, install fasteners into wall studs and use care placing fasteners on plinth bevel lines or other aesthetic details. Try to nail 3/4 to 1-inch diagonally

from the bottom corners, and diagonally down from the profiled edge of the plinth block.

Once all the plinth blocks are installed it's time to install door casing and baseboard trim. **EHT**



Sand the surface. Here's the finished product.



Plan your reveal to create a shadow line.



When possible, nail into solid framing.

Finish by filling nail holes and caulking joints, then prime and paint.





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Warm Your Floor

Installing In-floor electric radiant heat



y wife and I recently bought a home built with an unfinished basement and a concrete floor that we decided to turn into a welcoming space our kids could use as a playroom. They are still very young and spend a lot of time playing on the floor. We decided to install a lightweight rollout in-floor electric radiant heat system below a new floating floor as a way to supplement the natural warmth in the room and make it a cozy space for them to play. I did most of the work myself.

The first thing I did is cover the concrete floor with a roll-out vapor barrier. I then built a plywood subfloor.

Here's how I installed the radiant system.

STEP BY STEP



Step 1: Sweep the subfloor to remove all dust, dirt, stray nails and screws and other debris to have a clean working surface. Leave nothing behind to telegraph through the underlayment or finished flooring.

Step 2: Draw a sketch of the intended layout of the radiant heat system, including the intended locations of the floor sensor, the

thermostat and the junction box, making sure the factory-attached wires at the ends of the radiant mats are on the same side of the room as the junction box. Be careful to follow instructions. The system I used requires at



least 6 inches left between the edges of the closest mats and the wall to have enough space to run the wires to the junction box.

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PROJECT NEXT

Step 3: Here I rolled out a radiant-heat-ready underlayment called QuietWalk from MP Global Products, which covered the entire floor area. The underlayment includes a vapor barrier to help

manage moisture above the subfloor and below the finished floor. It also cushions the floor to absorb sound and minimize the clicking noises from walking on a floating floor, and has an R-value of 0.5.





which will help keep the basement warmer in the winter.



Step 4: The next step is to butt the seams of the underlayment, using duct tape to hold them in place. This underlayment has good compression resistance so it did not compress under my knees while I was taping.



Step 5: I then rolled out the panels of QuietWarmth Radiant Floor Heating. I fit them to the layout of the room by cutting with scissors along the dashed lines between the radiant ink elements. I taped and insulated the cut edges with the included Kapton insulating disks. The panels come in several width/length configurations, so it was easy to fit the layout of the basement with minimal cutting.

I chose Perfectly Warm Radiant Heat Film because it was designed specifically for floating engineered wood and laminate floors (and some floating tile floors) and can be installed over underlayment. The ultra-thin wireless filament is just 0.016-in. thick.



Step 6: The wires for the elements are factory-attached on one end, which is opposite the end that can be cut for sizing. Here I used my utility knife to cut a thin shallow slot in the underlayment to recess the electric wires, which will keep the floor free of high points.



Step 7: Now it's time to recess the wires and duct-tape them down into place so they don't move.



Step 8: Roll out the second panel, abutting the first (leaving no gap).

Step 9: Next, I installed the infloor sensor, which monitors the temperature of the floor (not the room) and aims for a setting just a few degrees above room temperature. Then, I ran the floor sensor

wire in the same channel as the lead wires and duct-taped them down.

After some more adjustments, I ran all the lead wires and the floor sensor wire to a junction box on the



PROJECT NEXT



wall, and from there I ran a set of wires to the thermostat on the wall.

Step 10: The next step is to check all electrical connections with an ohm-meter to make sure the connections are proper to this point. One nifty feature of this system is that the heating film strips are laid out in parallel on the pad, so if one strip becomes compromised or damaged, the rest of the strips continue to heat.



At that point, after the check with the ohm-meter, my electrician wired the thermostat to the service panel for the house wiring, as per instruction in the installation manual that came with the radiant heat system.

Step 11: I was the ready to install a wood-look floating floor over the electric radiant heat panels. The radiant system, which features gradual supplemental

warmth from low-wattage resistance heating of the ultra-thin, flexible radiant heat film, uses just 12 watts per square foot and conforms to the warranty requirements of my floating floor (and most other floating floors as well).

Kids and the family dog love playing on the floor, which, by the way, feels really good when I walk on it in bare feet. **EHT**

Editor's Note: MP Global Products L.L.C. an innovator and leader in the manufacture of made-in-America eco-friendly fiber acoustic underlayments and in-floor electric radiant heat systems for floating floors and for tile floors. Learn more about the products at www.quietwalk.com, www.quietwarmth.com or call 888-379-9695.







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Replacing the Old Dishwasher



By Larry Walton

have plenty of home-improvement projects on the planning board in my office, but this one went straight to top priority. This one was personal. It didn't take many meals of hand-washing water glasses, plates, forks, spoons and knives before I was headed to the appliance store to buy a replacement for our old dishwasher.

We often joke on the jobsite that a dishwasher is the simplest

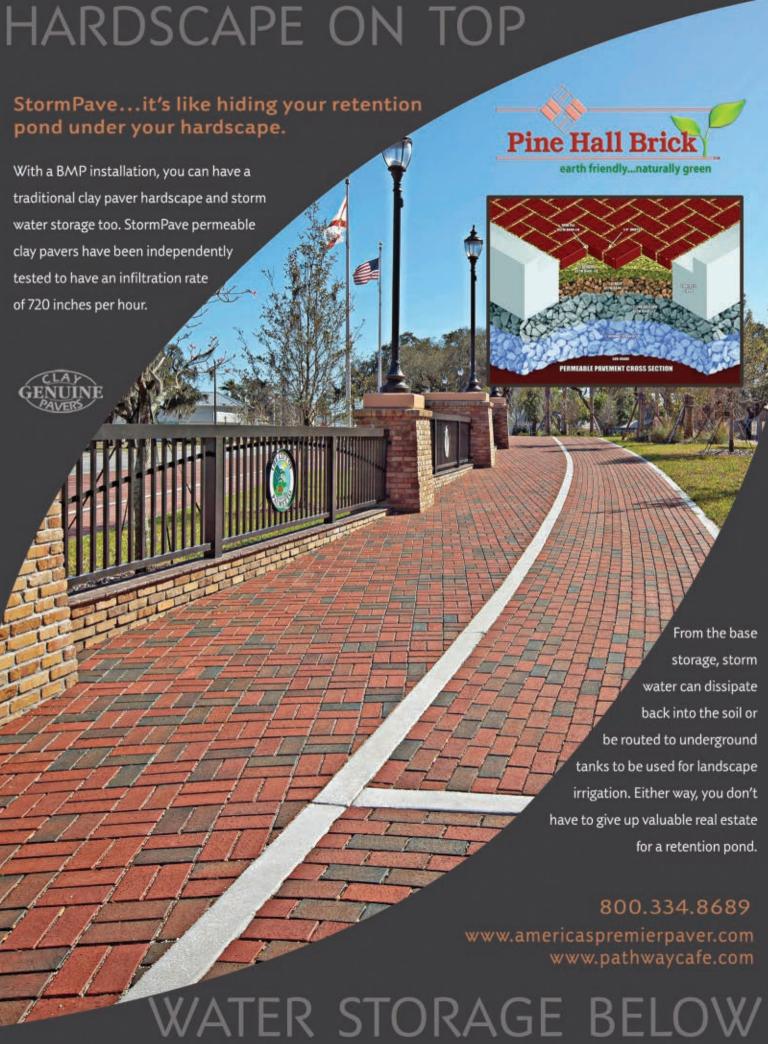
installation, but it takes three trades to get it done. Even with the proper cabinet opening, power source, water supply and water outlet, it still takes a plumber, electrician and carpenter to finish the job. In your own house, you can do it all yourself with a few simple tools.

I didn't need to select a dishwasher because we had done that a few months ago when we bought a new fridge. The new dishwasher was the same brand, stainless steel finish and handle style as the fridge—all part of the plan to get matching stainless appliances as part of our ongoing kitchen refresh.

There were a couple of design features of the new dishwasher that had impact on the installation procedure. One feature gained considerable room inside the machine compared to previous models. Rather than leaving empty space under the floor of the dishwasher, the capacity was increased by making use of the area just above the floor. The power and water connections must be made in front, leaving no room to coil extra water hose and power cable. In our case this meant changing from copper to a braided stainless water line and trimming the power cable to only what was needed.

The other design feature that was different from the previous generations of dishwasher was the preferred option of anchoring into the cabinet stiles at the sides of the appliance (rather than into the countertop at the top of the cabinet). This will be an advantage for us in a few months when we install the new countertops.

When installing a dishwasher, pay close attention to the instructions about routing the drain hose. There is a minimum elevation the drain hose must reach in route to the sink cabinet. There is also a requirement to avoid a large belly in the hose in the span between the high point and where it connects to the disposal or sink drain. The installer of our old dishwasher brought the drain hose into the sink cabinet just below the sink



QUICK FIX

bottom and gained the high point with a clamp inside the dishwasher cabinet. To avoid interference with the larger appliance dimensions, I drilled a new hole in the cabinet partition to route it high enough to avoid using a clamp inside the dishwasher cabinet. This allowed us to pull drain hose slack into the sink cabinet and out of the way of the appliance as it was slid into place.

After shutting off the power supply at the breaker box and the water supply under the sink, here's how I avoided worsening my dishwater hands by installing a new dishwasher:



This crowded dish drainer above our old dishwasher indicated why I moved the new dishwasher up the list of home-improvement priorities.



Removing the lower front panels to access water and power connections involved removing four screws.



I took the electrical junction box cover off, removed the wire nuts and removed the ground screw. You can also see the drain hose



clamp in this photo. I loosened it to disconnect the drain hose.

I used an open-end wrench to remove the nut from the compression fitting that held the copper water supply line to the dishwasher.



I used a screwdriver to remove the mounting screws, which attached the tabs at the top of the dishwasher to the countertop.



After detaching the hoses, cables and mounting tabs, the dishwasher slid right out of the cabinet opening.



The drain hose then gets detached from the disposal. The new dishwasher came with a drain hose attached.



I removed the old copper water supply line from the stop inside the sink cabinet.



I attached a new braided stainless water supply line, which can more easily make the corners necessary to hook up to the new style of dishwasher.

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QUICK FIX

The drain hose line threaded through a new hole I drilled high in the partition between the dishwasher opening and the sink cabinet.

I tested the mounting brackets at the cabinet face frame to see how much of the brackets could be broken off for a proper fit.









The extra bracket material can be snapped off by grabbing it with vice grips and bending it several times.

CUSTOM FIT

Our bowls did not like the new dishwasher rack until I bent two rows of the posts to fit the angle of the bowl sides. You might check with the spousal unit before customizing a new dishwasher like this—just sayin'...







I put the brackets into their slots along the sides of the dishwasher.



The power cable and the water supply lines need to be aligned with the openings in the bottom of the dishwasher before sliding it into place.



I checked the dishwasher for alignment with the cabinet stiles and parallel with the countertop before predrilling through the mounting bracket holes into the cabinet stiles.

The water supply line is attached to the dishwasher with the use of a right-angle connector supplied by the appliance store.

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QUICK FIX





I connected the power supply to each of the three wires, white to white, black to black and green to the bare ground wire.



I used a hose clamp to attach the drain hose to the opening on the disposal.

Be sure to remove all packing materials, paperwork and product samples from the interior of the dishwasher before testing and running a cycle without dishes. **EHT**







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Where is My Coolant Going?

Hopefully your car coolant is going where it should be, through your engine! The coolant in your vehicle actually takes two different paths depending on whether or not your car is warm or cold. Even though you probably weren't actually asking what path the coolant takes on its normal journey, understanding that will help you understand why your vehicle is losing coolant. Since the purpose of your engine's cooling system is just that, to keep it cool, it actually isn't needed for the first few minutes after you start up your engine, especially in cold weather since it is far from its normal operating temperature. However, most vehicle's cabin heating systems today are actually heated by the warm engine coolant which is usually desired just minutes after the engine has been started.

To accomplish both of these goals, when your vehicle is cold the water pump will pump the coolant from your engine block, where it is warmed by the combustion process, then up through your vehicles heater core which is usually under the dashboard, and in the case of some large SUVs also under the rear seats. The heater core is just a radiator that your vehicle's cabin fan blows air through to warm the cabin. The coolant then returns by a hose to the engine where it can be warmed again and returned to the heater core. Once your vehicle's engine warms up to the operating temperature designed by the engine manufacturer there is a thermostat that will open. The thermostat is just a valve that when open allows coolant to flow not just through the heater core, but also through the vehicles radiator. The radiator is mounted usually at the front of the vehicle or at least somewhere it can get a large amount of outside air flowing over it. Here most of the vehicle's coolant is cooled back down before it can go back to the engine block to continue cooling the engine.

If you can look under the hood of your vehicle and identify the components of your cooling system it will give you a good place to start tracking down the leak that is causing your vehicle's coolant to disappear. The radiator is often in the front of your vehicle, but will always be behind the AC condenser and any oil coolers. Because of this, the radiator is located closest to the engine and will have a fan attached to it or near it. It should have a hose at the top and the bottom. The bottom hose usually will connect to the inlet of the water pump and the top hose to an outlet either on the block or intake manifold. The hoses that take coolant to the heater core will likely be the only coolant hoses in the engine bay and will be $\frac{1}{2}$ " to 1" in diameter. They will connect to hard tubing at the fire wall and likely be close together. One hose will be connected to the block near the water pump outlet and one will return to the block or the cylinder head likely near the rear of the engine. Your heater core can often be very difficult to locate as it is likely deep under your dashboard covered by electronics, air ducts and maybe insulation. The water pump is the only rotating part in your cooling system so it is driven by a pulley connected to your engine's crankshaft by a belt. Often times there is a diagram under your hood that will label which parts are which. Usually, the water pump will be the largest pulley besides the crank pulley and will usually be located right above it and be the only pulley driven piece of equipment large diameter hoses going to it. The thermostat will be located where one of the radiator hoses is connected to the engine.

While your engine is running, check all the components of your cooling system for signs of leakage. This could in include dripping coolant, but also may include steam from hot coolant. If it is a very slow leak you may just see an area with an excessive amount of grime or build up as the slow leak is too slow to drip but the wet area will collect dust and dirt more quickly than a dry area of your engine.

If you discover your leak is coming from the end of one of the hoses in your engine it may be time to replace the hose. If it is swollen and appears too big for the end connection, has cracks, rips or tears it is time to replace that hose. If you discover your leak coming from another location use BlueDevil Pour-N-Go Head Gasket Sealer to seal your leaks.

BlueDevil Pour-N-Go is a specially formulated to seal the leaks in your cooling system without damaging or harming any other equipment. BlueDevil Pour-N-Go is a non-particulate sealer that reacts to the temperature differential created at the leak point. BlueDevil Pour-N-Go is safe to circulate in your cooling system and will only activate at the leak point bonding to metal or plastic. For V8 engines, vehicles with large cooling capacities or very fast leaks use BlueDevil Head Gasket Sealer. BlueDevil Head Gasket Sealer is a more aggressive sealer and will require a complete cooling system flush and a removal of your





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