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WOOD VS WEATHER BUILDING OUTDOOR PROJECTS THAT LAST



WOOD GLUES FINISHES

Hheavy rain in the spring, extreme heat in the summer, and dry, cold air in the winter—it's hard to believe that anything made of wood can withstand this kind of punishment. But if you start with the right materials and follow up with some occasional maintenance, outdoor furniture can stay in like-new condition for years to come.



In this Tools & Technique article from PlansNOW, we'll show you which products to look for when starting your next outdoor project. You'll find out which kinds of wood resist decay, why certain adhesives resist cracking, and how to apply outdoor finishes for long life and low maintenance.

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Beautiful arches make an attractive addition to any yard.

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START WITH THE WOOD

RED CEDAR FOR RESISTANCE

You'll only have a few choices when you shop for wood that can survive harsh weather and resist decay. The list of woods for outdoor use is short, but in most cases, you'll find cedar at the top. Why? Cedar has a unique type of oil that not only repels water, but works as a powerful repellent to insects. And although it's one of the lightest softwoods (great for moving the chair around the back yard), it's surprisingly strong and durable. You'll also find that cedar doesn't warp as much as other woods, even when left out in the rain.

Two common types of cedar that you'll find at your local home center are Western Red Cedar and Inland Red Cedar. Both are ideal choices for building decks, outdoor furniture, planters, fences, trellises, play structures, and sandboxes.



Both types of cedar give off the unique cedar aroma, but not quite as strong as what you normally find in closet walls and shredded hamster cage bedding (this comes from Aromatic Eastern Red Cedar).

When left outdoors unfinished, Red Cedar will turn light gray with a silvery sheen. And although a protective finish isn't really necessary, you can extend the life of a cedar project by adding a simple coat

of sealer or paint. Cedar is free of pitch or resins, so it readily accepts most glues, paint, and finish.

Most home centers stock Red Cedar in 1x2, 1x4, 1x6, 1x8, and 1x12's. These 3/4"-thick boards often come with one side smoothly planed and the other side rough-cut. This textured appearance looks nice for projects when a rustic or "outdoor" look is wanted. However, for chairs and play structures, just be sure the rough side faces away from where legs or small hands could pick up a splinter.

ALTERNATE WOODS

If you can't find Western or Inland Red Cedar locally, you may want to consider these alternatives for outdoor projects:

- Redwood
- Douglas Fir
- White Oak
- Mahogany
- Teak
- No. 2 Whitewood (if well protected with paint)

Red Cedar boards are available at your local home center in a variety of sizes. One side is usually planed smooth and the other side rough cut for a rustic appearance.



BRINGING IT ALL TOGETHER

OUTDOOR ADHESIVES

Most woodworking glues need a tight mating of surfaces for the glue to form a rigid bond. This can be a problem with outdoor projects since rough-sawn lumber rarely provides this tight of a joint. To keep outdoor materials permanently bonded, you'll need an adhesive that can bring together a relatively loose construction *and* hold up to changes in weather.

Although it's often overlooked by woodworkers, *construction adhesive* is the perfect choice of glue when you need a durable, waterproof bond. The thick, tacky consistency easily bridges gaps in rough joinery. Plus, construction adhesive stays flexible, which means the joints in outdoor furniture will do a better job of withstanding the stress of rocking and tilting every time someone sits down.

Which Type?

Although the construction adhesives you'll find at a home improvement center are all labeled waterproof, most are designed for indoor applications, like installing ceramic tile

or hanging drywall. For outdoor projects, look for a *heavy-duty* or *polyurethane-based* adhesive. Polyurethanes may cost a little more, but they form a stronger bond, which means you can get by with using less. There are also *adhesive caulks* that provide light-duty (non-structural) holding power for lightweight panels, thin



tiles, and applied moldings. Most are waterproof so they can also be used outdoors.

When applying construction adhesive on wide joints or panels, trim the nozzle to lay down a $\frac{1}{4}$ "-dia. bead. Apply it in a zig-zag pattern, keeping about 1" from the edges.

To speed up bonding, press the two pieces firmly together,



then open the joint back up to "breath" for a few minutes before clamping the pieces together.

Clean up

Construction adhesives are hard to clean up, especially on skin. So be sure to wear gloves when applying the glue. To remove *uncured* adhesive from tools, use mineral spirits or WD40. To remove *hardened* adhesive, try a product from Liquid Nails specially

designed to remove both hardened adhesive and cured caulking from tools.

Safety

Construction adhesives contain powerful drying agents that can be extremely toxic. Be sure to follow label warnings in regard to breathing vapors and contact with skin.

COMBAT CORROSION

OUTDOOR WOOD SCREWS

When you leave a piece of wooden furniture outdoors, you can expect to see some wear on the finish over time. What you might not expect to see is rust on the wood screws, especially where you scratched the heads last spring tightening up the joinery.

Keep in mind that the moisture in wood alone is enough to rust a plain steel screw. The iron in these inexpensive fasteners will quickly rust when exposed to any amount of moisture. Although most common wood screws feature a rust-resistant coating of zinc, they're still not the best choice for outdoor projects. The coating is just too thin. One small scratch and the exposed steel will quickly rust.

For outdoor projects, it's best to use screws designed specifically for outdoor use—solid brass, stainless steel, and silicone bronze. Although each type has its advantages and disadvantages in regard to things like corrosion resistance, strength, and appearance, the following overview should give you a good idea of which type of screw is best suited to your particular outdoor project.

Solid Brass

For years woodworkers have relied on solid brass screws for outdoor projects. Solid brass screws are easy to find and won't rust when exposed to moisture. However, brass

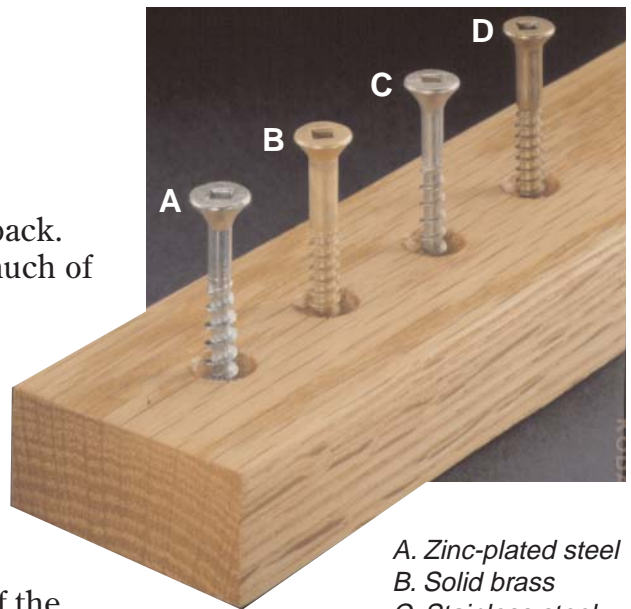
screws have one drawback. They're soft. Not too much of a problem if you're working with soft wood like cedar. But if you've ever removed a brass door hinge from an oak door, you know how easy it is to strip or completely break off the head of a brass screw.

Stainless Steel

Like brass, stainless steel will never rust. The advantage here is that stainless steel is much stronger than brass. One drawback is that the gray color may not blend very well with certain colors of wood, especially the warmer tones of cedar. However, if your project's joinery is somewhat hidden from view, stainless steel screws are a great alternative to brass for added strength and endurance.

Silicon Bronze

Here's the wood screw of choice by professional boat builders. Composed of an alloy of copper with a little silicon mixed in, silicon bronze screws are about as tough as it gets for resistance to the elements. It's no wonder they cost nearly four times as much as common steel screws. As you might guess from the name, silicon bronze screws have a bronze tint to their color, which is a nice complement to the color of redwood.



A. Zinc-plated steel
B. Solid brass
C. Stainless steel
D. Silicon bronze



Rust-resistant steel screws

Rust-Resistant Steel

If you're not that concerned with the color of a screw, consider using steel screws with rust-resistant coating. They're a little more expensive than ordinary zinc-plated steel screws but offer better resistance to corrosion. Their improved resistance comes from a base coat of yellow zinc-chromate followed by additional coats of clear, rust resistant compounds. When these screws were tested in a scientific lab, they lasted 500 hours in a controlled moisture chamber before showing any signs of corrosion. By comparison, ordinary zinc-plated wood screws lasted about 100 hours before rusting.

AGAINST ALL ODDS

OUTDOOR FINISHES

Outdoor finishes have a pretty tough job. Shielding wood from pummeling rain, scorching sunlight, and extreme changes in temperature is not an easy task. Yet outdoor finishes seem to do it all—and still let the beauty of wood show through.

When you start thinking about a finish for your outdoor project, you'll have plenty of choices available at your local home center.



Penetrating Oil

Even though it darkens the wood, it's still the most natural looking finish.



Polyurethane

The glossy finish provides a tough shield against rain and picnic spills.



Paint

A coat of paint is hard to beat for resistance to harsh weather.

Although different types of outdoor finish have different effects on wood in regard to color, surface luster, and ability to withstand moisture, you should be able to find the right balance for your project in one of three basic types of finish: penetrating oil, polyurethane, and paint.

Penetrating Oil

With its unique mix of oil, water repellent, and UV blocking, penetrating oil will keep just about anything from penetrating wood. It's by far the easiest to apply, and probably the best choice for preserving the natural look of wood. Plus, penetrating oil doesn't form

a hard finish on the surface, which means you'll avoid the cracking and peeling problems that come with other types of finishes. At your home center, look for penetrating oil in products labeled *deck stain* or *water sealer*.

Over time, penetrating oil will lose its ability to ward off moisture, so you'll need to apply a fresh coat every two or three months.

Penetrating oil is best suited for large projects like decks and tool sheds. You'll know why when you compare the price of penetrating oil to the more expensive varnishes and polyurethanes.

Polyurethane

Although more commonly known as an indoor finish, polyurethanes have a long history of outdoor use. The tough, exterior grades were once used on wooden ships to withstand the harsh conditions at sea. The exterior varieties go on a little thicker than the indoor versions, but this will give you a harder and more durable finish.



At your local home center, look for exterior-grade polyurethane in products labeled *Spar Urethane* or *Marine Varnish*.

Three heavy coats of outdoor polyurethane should last 2-3 years before showing wear or losing its resistance to UV rays. However, a fresh coat each spring is a better guarantee for keeping your project in top condition. Be sure to lightly sand down the entire surface before applying a new coat.

Consider Paint

If you don't really care about showing off your project's wood grain, a solid coat of paint is hard to beat for holding up to the elements. Keep in mind that paint is not necessarily the easy alternative. If you want a professional-looking paint job, you'll need to prepare the surface like a pro. This means starting with a heavy coat of penetrating oil followed by a good quality oil-based primer before you apply the top coat. Be sure to let the penetrating oil dry for about two or three days before applying the primer. When it's time for the top coat, use a latex paint. Why? Latex is more flexible than oil-based paints, and will do a better job of resisting cracks.