

JHON MC CONNELL J.

WOODWORKING OUTDOOR PROJECTS

THE ULTIMATE GUIDE FOR GARDEN
WOODWORKERS:
24 EASY-TO-BUILD PROJECTS
FOR PLANTERS,

BENCHES, PORCH SWINGS,
MODERN-STYLE BIRDHOUSES,
AND MORE

Woodworking Outdoor Projects



**The ultimate guide for garden woodworkers:
24 easy-to-build projects for planters, benches,
porch swings, modern-style birdhouses, and more**

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Woodworking Outdoor Projects

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INTRODUCTION

Woodworking can be a satisfying and fun hobby. It is one of the most fulfilling activities you could partake in. There's just something about taking a plain sheet or block of wood and be able to create something beautiful and useful from it. There are endless possibilities on what we can make from wood, from small wooden toys, boxes, and ornaments to bigger functional items like cabinets, shelves, beds, chairs, and tables. We can just fill any space in our house with our woodworking projects. In this book, I am giving our woodworking projects for your outdoor spaces. Here you'll find 10+ woodworking projects that range from patio furniture to garden needs like planter and trellis. Each project has a list of materials, step-by-step instructions, and an image or diagram showing what you're making. They are pretty much easy to follow and can be used by any level of skills one has in woodworking. You can also do this as your first project or your learning stage in woodworking.

Figuring out how to make "woodwork" doesn't occur in an instant. Researching about it and watching carpenters on TV or video will get your creativity going, yet it is the hands-on training that really sharpens your carpentry skills. It's a given fact for all disciplines: A craftsman never figures out how to draw by watching another person draw.

It's a learning process, and once you get to the point that you can make all of your own furniture, as well as enjoying the craft, you will ultimately save a lot with your finances as well. When you can make a kitchen table just as nice as the furniture store, this is a definite bonus.

Woodworking can also be as simple as you want it to be or even challenging if you're up for it. In woodworking, you have the freedom to experiment with a variety of techniques, tools, finishes, and so on. Young or old, there is something for everyone, regardless of skill level.

Woodworking can be a very exciting venture for you, but there is a list of things you must always keep in mind before handling a hammer and a nail.

Before you start your woodworking venture, be sure to have a proper and adequate place to work in. Of course, no one would want to have sawdust flying all over your living space. Also, some woodworking materials such as paint strippers, stains, and varnish have toxic fumes. It is ideal to have a separate shop, garage, or shed to work in, but outside space will be the most

optimal.

Second, gather all the tools ready for the projects you will do. Keep in mind to have a tape measure and calculator handy all the time, especially when you purchase wood materials—Double-check specialized tools required in some projects and make sure to purchase them beforehand.

Third, it is a must to be familiar with the tools and equipment you will be using. Both advanced woodworkers and beginners can benefit from this. Do know the different functionalities and limits of each tool. Spend ample time to layout tools, compare them and learn them one by one, especially new tools you have purchased.

Fourth, work safely when handling tools, some items you will utilize common cause dangers and even fumes. Equip yourself with safety glasses and allow an ample amount of fresh air for ventilation whenever using products that are oil-based and strong-smelling. Again, always read the guidelines before use.

As a beginner, it's always a good idea to projects that are simple and easy such as birdhouses and carts. You can even do this as an activity you can do with your child. In this way, you'll be able to practice cheaper on small crafts. Some would even use recycled wood and wood scraps when they want to practice first. In the end, this will save you lots of money that you can allow for bigger, more challenging projects.

Lastly, as your main protection, do wear the right proper clothing when doing your woodwork. Clothing choice must not be loose-fitting, as wearing such leads to greater chances for it to get caught up in spinning equipment. Long hair must also be tied in a bun to avoid having it become tangled with the drill, saws, and so on. Never wear dangling, loose jewelry while in the process of woodworking as it can get caught up too in a power tool.

Now let's start! I hope you enjoy doing our different outdoor woodworking projects and enjoy or use them by yourself!

PART I:
MATERIALS, TOOLS,
AND TECHNIQUES

Chapter 1

MATERIALS



Wood

Picking the ideal wood for the projects could make the difference between failure and success. We can't work wood if we don't have any. Don't worry; it's easy enough to get your hands on some. Going out and purchasing planks is the best and easiest way to get started as these are already cut into workable sizes, and they have already been treated (unless you are working with untreated woods). Some people will bring home used or scrap woods and begin their projects this way, as it is cheaper than purchasing new.

Not every type of wood is the same. There are softwoods and hardwoods, of course, but even within these categories, there is lots of room for variation.

Pine

While I mentioned above that there are hard pines, the vast majority of pine is softwood. Pine is a global species, found all over the world. It has a light color that borders on off-white. This color changes depending on the

particular kind of pine being used, but it never ranges far from white or yellow.

Along with the color, pine is a great choice for woodworking generally. It might be a softwood, but that shouldn't be equated with it being weak. Pine is actually very strong, and it is even shock resistant.

One of the reasons that pine is a good choice for beginners is the simple fact that it doesn't cost as much as other types of woods do. Pine trees grow fast, so there is less time and maintenance required to plant a crop of pine through to harvesting. Less time to grow means less money to grow, and that means less money you need to spend to get started. Pine's lighter color might be a detriment to some, but its ability to change color easily during the finishing process is a major benefit. It would cost you more to select a wood that is naturally darker than pine is. It still costs money to purchase the supplies needed for the finishing process. Still, if you purchase them once, then they can be used on several projects, making the additional cost irrelevant for additional creations.

Pine isn't the strongest of the woods, but it is quite strong. It has the benefit of being quite stiff, which in turn allows it to be much more resilient than other softwoods might be. Yet, surprisingly, it isn't all that heavy. The lightweight can be a blessing if you make use of it. For example, if you consider building a wardrobe, then it is going to be quite big and bulky. If you use a heavy wood like oak, then you'll find it to be a real pain to move. But a lighter wood like pine will be much easier. Plus, since pine is shock-resistant, it can withstand being dropped during a move without any worries of it breaking. However, it must be noted that this only applies to minor drops. If you toss it off the roof, then it's still going to break apart when it hits the ground. Pine also doesn't change its size due to temperature in the drastic way that some other woods do. It still expands and shrinks slightly because the overall change in size is so minor that you don't need to worry about these changes warping the shape.

Redwood

Redwoods are known for growing over three-hundred feet tall and twelve feet thick. While these are representative of older trees that have been given a chance to grow over the decades, it points towards just how much one of these trees can produce. However, because they take such a long time to grow, they aren't particularly cheap.

Redwood is a softwood, and it is quite light, like pine. The grain of a redwood board is much more evenly distributed compared to many other species. This is due to the way that the tubes within the softwood form. As the name suggests, redwood has a red appearance. People often seek out redwood because of its color, as it is easier to make the red of the wood pop through finishing. Pine is often selected because it can change its color in the finishing process, but it doesn't have an easy time reddening the same way that redwood does. However, the color is only one of the reasons that redwood is used as often as it is.

Redwood has a natural tendency to resist decay and insects. It also doesn't shrink much, similar to pine. While the lack of shrinking is nice, these other two features are amazing. Redwood is often selected in carpentry as a wood of choice for the outside of a house or shed. Because it can resist insects, it makes it harder for the tastier woods inside to get infected. Pests would need to eat through the resistant redwood, and this isn't easy for them to do. Redwood is a great choice for carpenters because of this, but woodworkers should also consider this. If you are making something for outdoor placement, like a teeter-totter or a birdhouse, then redwood should be a strong contender for the wood you select.

Cherry

Cherry is a good choice of wood for pretty much any project that doesn't require a tough wood. Baseball bats are out again. But cherry has a beautiful reddish color to the heartwood. Cherry is one of the best furniture choices because of its beautiful look and the fact that it is easy to work with. Unfortunately, cherry can be quite expensive, and it is rarely carried at most home improvement stores. If you're going to be working with cherry, then chances are you'll need to purchase it directly from a lumberyard.

When choosing cherry to work with, you'll want to check for a few different features. The easiest to check is the color. The heartwood of cherry has a reddish color, but the sapwood is white. When selecting boards, look at both sides of the board to ensure that it is entirely heartwood. You'll also want to check for gum pockets and knots. Gum pockets present as dark spots or lines throughout the board. One or two of these isn't a big problem, but you should aim to minimize the amount present as they lower the overall quality of the board. With high-quality cherry, knots aren't very common, but they do still occur. The knots you're likely to encounter will be quite small,

but even small knots can quickly reduce the integrity of a board or a project if there are too many of them.

One problem that cherry does have is that it can burn easily. This is very important to realize before taking any tool to it. Say you're drilling some holes into it in a tight cluster. The heat from the power drill could actually burn the board around the hole. You'll notice it blacken up and the burn will stand out clearly against the color of the board. Sandpaper is used to remove burn marks, as well as any scratches that happen. Trust me, and they will happen, cherry's tight grain makes it more likely to scratch. This can be detrimental if you're looking to create a very clean and even looking product, but being prone to scratches is arguably better than being prone to breaking, as some woods are.

Cedar

Cedar is softwood, even more so than cherry, with a straight grain. One of the reasons that cedar is deeply loved in the woodworking community is the aromatic flavors it gives off when it is being cut or sanded. Cedar is a commonly used wood, although it should be noted that it comes in several varieties which each have their own unique benefits. We'll look at these each in a moment, but one thing they have in common is that they're a great pick for outdoor furniture. While water and moisture will cause wood to rot, it isn't a uniform process. Instead, it changes depending on the wood in question. Cedar, like redwood, is a top pick for any of your outdoor projects.

Maple

Maple is found in both softwood and hardwood varieties, by a long shot. If you decide to work with hardwood maple, then you're going to quickly find out that it is really hard to work with the stuff. Softwood maple is easier to work with, but it is still harder than pine. Yet despite the difficulty that maple poses, it is known for having a very thin and straight grain. This means that if you're looking for a wood that can last, maple is hard to beat.

Maple has some issues when it comes to applying a finish and shrinking. Maple doesn't seem to take well to finishing, and so you can end up with lots of spots that either don't take to the finish or take too well and have a splotchy appearance. Shrinking occurs due to changes in temperature. If you need to purchase maple and have it brought into your climate, then you will need to let it acclimatize before you begin to work with it. Areas in which the

temperature fluctuates wildly aren't particularly suited to use maple in their projects.

Recommended Wood for Beginners

With these five kinds of wood, we have barely even scratched the surface. There are more than 100 different families of trees which we can select from, some of which have several kinds beneath them. For example, you could choose to work with oak, but then you would need to figure out if you wanted to use white oak, English oak, or red oak. Three choices might not sound so bad, but there are ten types of white oak alone!

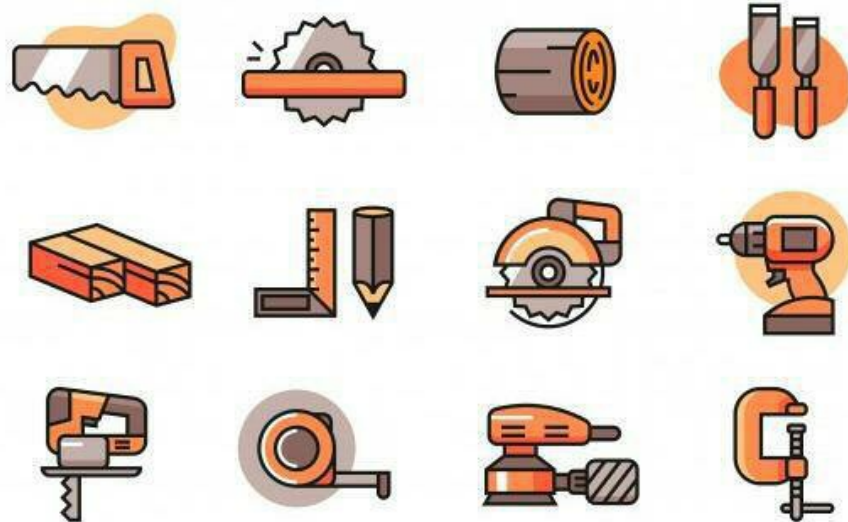
To cover each and every type of wood would take far more space than we have available here. But more than that, much of this information would be irrelevant to you at this stage in your woodworking journey. Nobody would ever recommend that a beginner sit down and learn about each of these woods. The better option is to start with one or two woods. Beginning with these lets, you get a sense of how the tools work and how to physically work the wood. It'll also give you a sense of the problems and challenges that arise from working with wood, as well as some of the frustrations that can make you want to pull your hair out.

I recommend that you begin with pine. It is easy to use, and it has lots of appealing features that make it highly attractive. However, pine is most strongly connected to a rustic style. If you enjoy this style, then great, you have nothing to worry about. But if you aren't into the rustic look, then you should try working with a softwood maple. This is a little bit harder than pine, and it will present its own unique challenges. Lots of people suggest poplar, but if you are looking at poplar or pine, then I would recommend pine. If you're comparing poplar with maple, then I will argue for maple, as I believe that the softwood maple serves well to branch the gap between beginner woodworker and intermediate woodworker.

However, ultimately, which you select is going to be determined by the needs of the projects you choose to work on. Let the projects guide you towards whichever wood fits the aesthetic you desire. Remember to balance those aesthetic needs with the difficulty of the wood, as well as its pros and cons. But when starting out, remember to keep the costs low so that you have no reason to get upset over a broken board. There are going to be plenty of mistakes in the beginning, after all.

Chapter 2

TOOLS FOR WOODWORKING



The tools of the trade of woodworking are numerous. You'll find anything from simple hand tools to large, boisterous power tools that could seriously injure you. It might be best to start out with hand tools only and move on to power tools when you're more comfortable with woodworking. Besides, working with hand tools will allow you to learn the texture of the wood, and you'll be better at using the power tools when the time comes.

For beginners, I'm going to talk about hand tools first.

Hand Tools

There are hundreds of woodworking specific hand tools available to novices, but we're going to start with the basics that you can find at any hardware store.

Hammers



Most of you know what a hammer is, but did you know there are different types of hammers? For woodworking, you need the traditional ballpoint hammer.

Screwdrivers



You're going to need various sizes and types of screwdrivers, so it's best to get a kit where there is a base handle with attachments for Philips, flatheads, and hex attachments just to be safe. Depending on your projects, you're going to want very small screws such as eyeglass screws and larger ones for things like tables. So be sure you have the right screwdriver and attachment for the project.

Nails and Screws



It depends upon your project, but you may need nails, or you may need screws to make your joints more secure or attach pieces together. There are hundreds of different nails and screws, so you have to be sure you have the correct ones for the project you're doing.

Chisels



Chisels come in all shapes and sizes. There are very tiny ones to create small grooves or flatten out a tiny area, and then there are ones that you're going to need to use a hammer on the end of to get it to work. Again, be sure you have the right size for your project. Better yet, get a kit.

Saws



Keyhole saws, crosscut saws, coping saws, and backsaws are just a few of the different types of handheld, manual saws you can buy. They all have a

different use, so be sure you're using the correct one. Otherwise, you may end up hurting your project or yourself.

Speed Square

Nifty squares that not only tell you if something is square, but they have measurements so that you can be sure your parts are the proper lengths.

Clamps



Imperative to woodworking, you're going to need clamps to keep your joints together when you glue them. Clamps come in all different sizes, and there are several different types: spring-loaded, bar, C-clamps, trigger clamps, and many more. Know which ones you're going to need for your project and use them accordingly.

Hand Plane



There are numerous different kinds of planes available, and all of them are used in woodworking. Sometimes you can get away with not using a plane, but they're really handy to have available when you have an uneven thickness in a piece of wood. If you're working with a raw piece of wood, meaning it's a log, you're going to need a hand plane.

Tape Measure



Tape measures are great to have if you need to figure out the length of something, but be careful with them. If the little piece at the end, the metal piece, is wiggling too much, then your measurements might be a little off because it's worn out. Sometimes it's best to use a ruler instead of a tape measure as they're more accurate.

Sand Paper



Unless you want your piece to look rough and have rough edges and snags, you're going to need sandpaper. It's best to have very coarse all the way down to the finest grade for woodworking in order to get a smooth, nice finish. Even if you have a belt sander, you're still going to need handheld sandpaper to get into those small crevices.

Power Tools

While you can complete any project with hand tools, sometimes it's nice to have a powerful tool that can do the job in a fraction of the time it would take you to do it by hand. However, there are some things you should remember when using power tools. Never take off the safety guides and never wear loose clothing or jewelry. You don't want to get caught up in

the blades.

Drill



Having an electric drill is going to cut back on your time spent tapping all those holes and drilling them by hand. Besides, you can get attachments that will allow you to drill dowel holes for your joints.

Jigsaw



Jigsaws allow you to cut pretty much any angle or any type of edge you'd like, even circular. However, they're difficult to be accurate with, so be aware that you must have precision when handling the wood and a jigsaw.

Circular Saw



These are for cutting straight edges. A circular saw is built into a table and sticks up out of the table, in most cases, although you can get handheld ones. It's best to have a mounted table version so that you have more control and are less likely to injure yourself.

Belt Sander



If you need to sand off any rough edges, a belt sander is an excellent tool to have in your repertoire. However, you'll still need sandpaper for all those little niches and grooves you'll have to get into with some of the more difficult pieces.

Jointer Planer

Planners are used for when you want to put two pieces of wood together and have them fit flush, such as when you're making a tabletop. While you don't have to own a planer in order to get some of these techniques accomplished, it makes the job a lot easier, and the end result usually looks a lot better, too. There are many other tools out there that you can get ahold of for woodworking, but remember that it's best to start with the basics and work your way up to the electrical equipment when you're comfortable with the hand tools.

Chapter 3

TECHNIQUES



Those with woodworking skills will tell you that many individual techniques can be learned. Unfortunately, they're too many to comprehensively list in this text. Rather than drown you with a quick, but not necessarily effective, list of each technique we will focus on just a few and offer advice on how to continue learning.

My first piece of advice when learning woodworking is that there is only so much that can be conveyed and understood with the written word. Visual learning is almost essential in this case. It is recommended that you seek out a class or two that offers hands-on experience with someone that is trained in the craft that can teach you the intricacies of each technique. If you are not able to easily find classes in your area, look up woodworkers, or even lumber suppliers in your area. See if anyone would be willing to make a little extra money by allowing you to witness them in action, and possibly work alongside them in apprenticeship style.

Finally, if you are coming up empty with an opportunity for hands-on

work, turn to the internet. There are endless woodworking videos available for free viewing, and you will have the opportunity to witness various individual styles and techniques. Just make sure that the videos you are watching are from reputable sources and skilled woodworkers. The downside to this approach is that absolutely anyone can post a video on the internet, but that doesn't mean that they have a firm understanding of the craft.

Joints are absolutely essential to some projects as they reinforce the strength and durability of certain builds. Mastering joints early is one of the best things you can do to advance your craft. Start by learning how to make a simple butt joint. This type of joint is made of two pieces of wood joined together at a corner or edge. While there are stronger joints that can be made, this one is very simple, and mastering, it will open the doorway for creating more pieces and learning other joining techniques.

Learn how to use a story stick. While seeming almost primitive, especially today where electronic measuring and leveling devices are available, a story stick is an easy way to measure and prevent design mistakes in your pieces. Using a story stick is as simple as taking a stick and marking measurements on it within a certain plane of measurement, for example, the width of horizontal measurement, and simply using those markings to accurately measure against the piece as you build. Story sticks are economical to use and result in fewer errors, especially if more than one woodworker is working on a project. Using another numbered device can result in small reading errors, leading to larger project defects. A story stick is an exact marker of measurement. If you are mostly making smaller pieces, you may not find sticks to be all that useful, but smaller pieces are ideal for trying this out. Sites like woodcraft.com offer excellent descriptions and illustrations of story stick use.

Finally, take time to learn the techniques involved in using each piece of power equipment that you own. This will not only advance your craft but is absolutely necessary from a safety standpoint. Always follow manufactures instructions for use and care and know what to look for in the case of defects and broken equipment. Contact the manufacture of each piece directly and ask them if they have a thorough user's manual available either in hard copy form or online. It usually doesn't make for the most interesting reading, but the more you know, the more you can do, and the safer you will be.

Here are some tips and tricks that make woodworking efficient:

- **Try doing smaller projects first**

It is a good option to start doing simple projects rather than start complicated ones, especially when you are a beginner. Not only will it lead to fewer expenses when you're unable to achieve it, but it will also not give you outright discouragement and frustration when you fail at first. Once you succeed with the smaller projects, build it up and go on to more complicated ones. Learning does take some time and its knowledge and practice that will lead to success.

- **Enjoy what you're doing**

It's true when they say the end product will reflect if you did not enjoy and put your heart into the process. Enjoy woodworking, and don't let it get you stressed when mistakes are made.

- **Investing in High-Quality tools**



Expensive doesn't necessarily mean good quality. So, don't go on and buy the most expensive one. What I mean here is, take time to research, study, and canvass different tools and equipment that are available in the hardware or online for you. Study each pros and cons and weigh where you will get the most benefit from. Also, get ones with a least a year of warranty.

- **Be well-rounded and flexible**

Wood is unlike metal, paint, and clay. Unlike other materials, your wood pieces will always be unique. Trees and lumber will have knots, cups, soft spots, bends, and imperfect. Sometimes, those imperfections can even work to your advantage and can be a design highlight as well. So, you must be knowledgeable of the differences between your wood and do go out and experience various grades of wood. Learning how to choose the top-quality lumber will prevent you from facing several problems in the future, as you are doing your projects. If possible, go look for a supplier that will ensure the best quality lumber all the time.

- **Measure everything 2x**

To avoid making mistakes and wasting materials, and it is best to measure your pieces twice, then just cut it once. Do not rush when fabricating your lumber pieces and ensure you have the proper number of woods at the correct length and width. Not being able to do this will cost you time and another journey to the supply store to purchase more boards, Thus, taking your time even in the starting stages of your project.

- **Clean days**

Make sure to allow at least one day per week or per month to do some deep cleaning on your workshop or working place. It may surprise how fast saw can accumulate and take over your shop. Take time to vacuum or sweep up the place from the countertops to the tolls and floorings. Be organized when it comes to your tools and place them back in their allotted storage areas and better to label them too. Having a well-organized, clean working area will give you much needed kick to work efficiently with less stress.

As with every activity that involves handling sharp tools and heavy materials, safety comes first. For those only starting out in woodworking, this cannot be stressed heavily enough. Those who lack experience cannot simply settle on the thought that “it won’t happen to me.” New woodworkers should learn about these safety guidelines, so they will have a safer and more enjoyable experience.

- **Wear appropriate clothing and safety equipment**



Wearing safety glasses and latex gloves can save you from getting wood chips in your eyes and a nasty splinter. The gloves are also necessary when you work with wood treating chemicals such as finishes. If you are working with noisy tools, it is advisable to wear hearing protection. Do not wear loose-fitting clothes, and remove any dangling articles of clothing as they

might get caught in saw blades.

- **Stay sober**

Just as you cannot drive under the influence, you cannot handle sharp instruments under the influence as well. Note that you are still a beginner in woodworking, so stay sober when working on a project to prevent any untoward accidents.

- **Unplug every tool after use**

This way, you cannot accidentally set off a power tool that you do not need when you least expect it. A good way to enforce this rule is to use only one extension cord for all of your 110-volt power tools. That way, you would have to unplug your tool from the extension cord before you can use another one.

- **Always keep your tools sharp**

Dull tools are inefficient. You need to exert more effort to use them. They also produce very rough cuts. Sharpening your tools and cleaning them regularly can help produce cleaner cuts, and are less likely to bind into the material or kick back at you, which is a common cause of injury.

Additionally, check for any metal objects that may obstruct the path of your cutting tool, as this can cause damage to it.

- **Never put your body near a blade that is still spinning**

This is an important rule to observe, especially when you are changing bits or blades on a power tool. You do not want your power saw's blades spinning at 5800 rpm as you are trying to jam your hand in the assembly to change its blade. Rule #3 is very important in observing this rule. Unplug the power tool first before trying to replace any part of it.

Always wait for the blade to stop before you try to put any part of your body near it. If you absolutely must do something that involves putting your hand near the blade, say, pushing waste and cut-offs away from the blade, use a piece of scrap or a stick to do so.

- **Consider the tool you are using as the most dangerous tool**

There is a possibility of injury from any tool in your shed, and injuries typically occur not because of tools carelessly strewn around but during usage. For this reason, handle every tool with care, even if they are merely hand tools. Always return them to a secure area, or their corresponding case, when done using them.

PART II

OUTDOOR LIVING
PROJECTS

Chapter 4

POTTING BENCH OR POTTING TABLE



Working the soil is part of the fun of gardening, but crouching down all day can be exhausting.

Material List

- 2= 1 x 4" x 8 ft. pines.
- 1= 1 X 2" x 8 ft. pine.
- 4= 1/2 x 4" x 8 ft. pine.
- 1= 1 3/4 x 5 1/2" x 6 ft. pine.
- 4= 3/4 x 8 ft. deck boards.
- Exterior- rated screws (1 1/4', 2").

Cup hooks

Cutting List

Key Part	Dimension	Pcs.	Material
A Long leg	1½ x 3½ x 62¾"	2	Treated pine
B Mid length leg	1½ x 3½ x 29"	2	Treated pine
C Short leg	1½ x 3½ x 12"	1	Treated pine
D Back strut*	1½ x 3½ x 54¼"	1	Treated pine
E Front strut	1½ x 3½ x 20½"	1	Treated pine
F Outside cross supports	¾ x 3½ x 22"	4	Treated pine
G Middle top cross support	1½ x 3½ x 19¾"	1	Treated pine
H Middle bottom cross support	1½ x 3½ x 16"	1	Treated pine

*Not Shown

Key Part	Dimension	Pcs.	Material
I Bottom rails	1½ x 3½ x 60"	2	Treated pine
J Back rails	¾ x 3½ x 60"	2	Treated pine
K Front rail	¾ x 1½ x 30"	1	Treated pine
L Hook rail	¾ x 3½ x 30"	1	Treated pine
M Shelf supports	¾ x 3½ x 7"	2	Treated pine
N Shelf/shelf back	1¼ x 5½ x 31½"	2	Treated pine
O High worktop	1¼ x 5½ x 33½"	4	Deck boards
P Low worktop	1¼ x 5½ x 62½"	4	Deck boards

Steps

- Cutting the parts of the frame

Cut the total of the shelf and frame parts to the needed dimension. Mark a 3 ½ ' range on the front base corner of every rack support. Cut along the radius lines using a bandsaw or jigsaw. Sand the profiles smooth. Apply a strong shade outside deck and siding stain to all sides of the casing and rack parts. Painting on a different color on these parts isn't obligatory, yet it's a chance to modify your workbench, and the stain will expand the life of the parts.

- Assembly of the frame

Connect two back rails and one base rail to the back strut, long leg, and back right mid-length leg with 2" deck screws. Inspect all the pieces across at 90-degree points. Connect the front rail and one base rail to one side front mid-length leg, short leg, and front strut. Attach the front and back assembly by appending them to the cross backings.

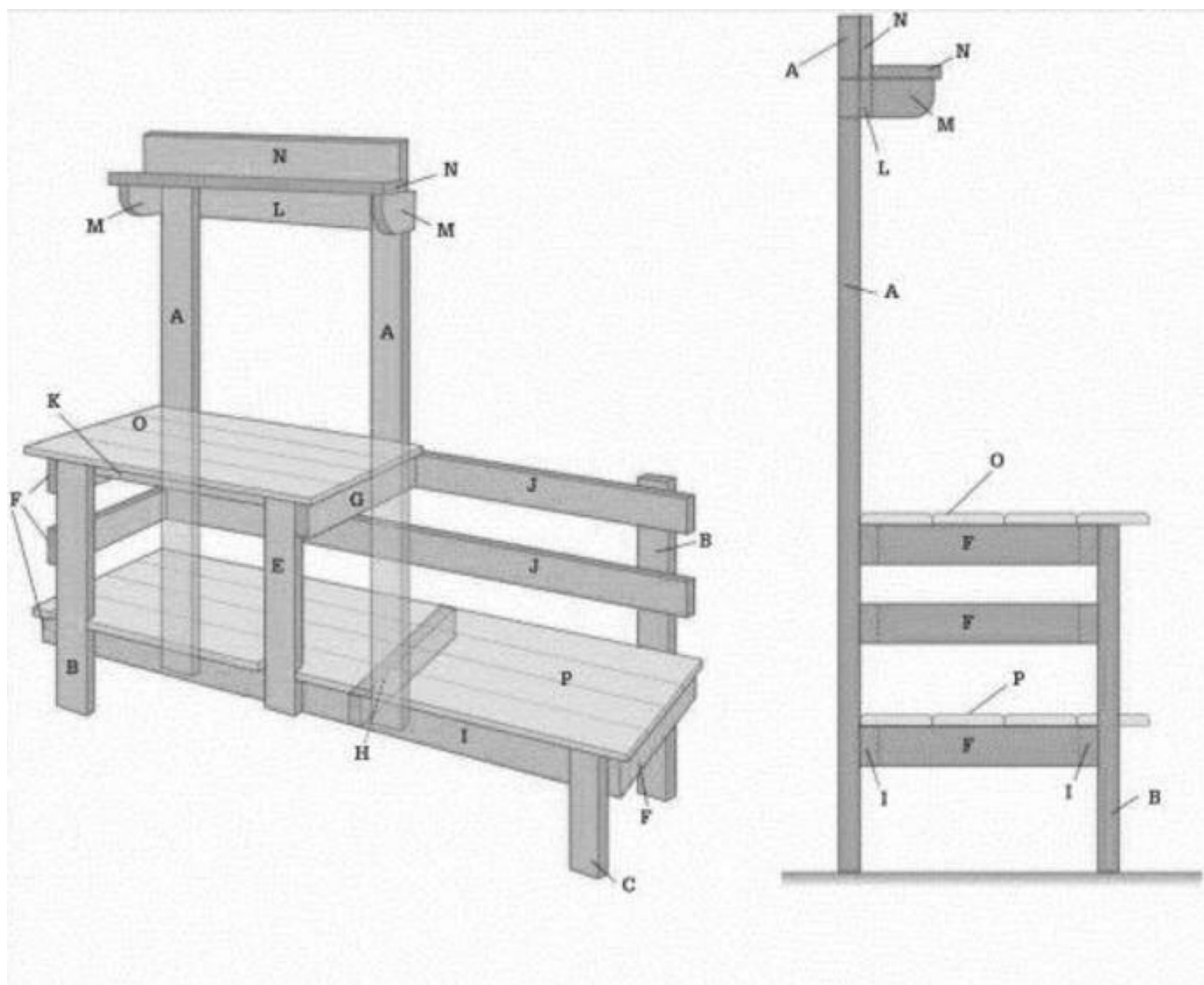
- Attaching the worktop planks

Fabricate the deck sheets that will be utilized to make the work surfaces to length. We used composite deck boards because they require little maintenance and are easy to clean. Place the front deck board for the lower work surface against the backside of the front left leg and front strut. Mark the point where the front leg and strut intersect the deck board. Using these marks, draw the 3 3/4" deep notch outlines and cut out the notches with a jigsaw. Lay the bottom and top deck boards on the cross supports, leaving a 1/4" space between the boards. Drill two pilot holes that are centered over the cross supports in each deck board. Attach the deck boards with 2" deck screws. If you are using composite deck boards, use specially designed decking screws.

- Attach the shelf & rack

Connect the shelf hook rail, shelf supports, and the shelf back to the back strut and long leg using deck screws (2 1/2 inch). Affix the rack support to the rack with deck screws (2 inches). Affix the hooks to the rack hook rail.

Diagram



Chapter 5

THREE BENCH



Large woods with big dimensions may recommend decks, yet here they are consolidated to make a contemporary, eastern-style bench for your garden. Showcasing, interlocking joinery (in the best Asian artistry) and little utilization of metal clasp, this bench will remind you of the post-and-pillar construction highlighted in numerous old Japanese carpentries. The precast solid docks, intended to hold a deck undercarriage, are spruced up with stain

to work as legs of the bench.

The seat is fabricated from usual joist wood and deck posts (4 x 4s and 2 x 10s). You just need a couple of power tools to assemble this garden bench, a jigsaw, circular saw, and drill. A few number tools can make your work fast: a 12" miter saw, due to its ability to cut 4 x 4s in one passing and a router to adjust over the cut edges. The stable and strong mix of intersection half joints and parts makes an exceptionally sturdy bench, but on the other hand, this bench is pretty heavy too. Luckily, this kind of joinery removed the requirement for some clasp, making it simple to dismantle the seat into pieces so you can move it around your backyard wherever you prefer it to place, then reassemble it rapidly and without any problem.

Materials

- 2= 2 x 8" x 8 ft. cedar.
- 1= 2 X 6" x 8 ft. cedar.
- 1= 2 x 10" x 8 ft. cedar.
- 4= 4 x 4" x 8 ft. cedar.
- 4= Precast concrete deck piers.
- 2 Y/ exterior-rated screws.
- Exterior wood stain.
- Concrete stain.

Steps

- Making the cross supports

The cross backings are the indented end pieces that help the beams of the bench. Slice them to length from 2 x 10 stock. Likewise, slice the cross-support braces to the required measurement from 2 x 6 stock (these sandwich the cross backings, to keep the cross backings from shaking). Blueprint the notches that will keep the front and down onto the cross backings. Drill 2"—dia. Starter gaps for the jigsaw edge, situated inside one corner of each scoring area. Slice out the indents with a jigsaw. Mark 2" range lines outwardly corners of the cross backings, and cut along the span lines with a jigsaw. Sand the corner span cuts smooth and round over the outside edges of the cross backings with a switch and A"—sweep steered round over piece.

- Making the back and front seat

Fabricate the front and back pieces to length and width from 2 x 8 stocks. These parts should be cut with different profiles, including round overs on the top, scallops on the base, and scores to mate with the indents in the cross backings. To begin with, mark the layouts. Cut the indents in the cross backings. Drill a starter opening for your jigsaw cutting edge in one corner of each score. Tidy up the edges of the indent with an etch, if important. Next, cut out the indents with a jigsaw. Mark a concave, 6"—span line on each base corner of each front and back part to make cutting lines for brightening scallops with refined profiles.

Sketch around over convex line—at each top corner measuring 2" in diameter. The cuts must be made smooth by sanding them and rounding them over the outside ends of the back pieces and set fronts using a switch and 2"—range round over piece. The back and front parts likewise have shallow circular segments cut into the bottoms. To design these curves, mark an inside point (start to finish) 4" down from the highest point of every workpiece and afterward drive a screw most of the way into each middle point. Sketch the end purposes of the curve and afterward twist a 40" long flexible wood or metal over the screw to shape the circular segment profile. Follow the circular segment profile next, cut along the span and curve profile lines, and afterward sand the bends smooth. Then ease the edges with your round over bit and router.

- Making the beams of the bench

The gap between the back and seat front is loaded up with seat bars cut from 4 x 4 stock. This aids in keeping the weight (and cost) of the project low, in comparison to utilizing strong 2 x 8s right over. Slice the seat shafts to length and width. Clasp the seat bars together and mark the indent edge lines over the highest points of every one of the four shafts. The circular saw must be set to a depth of 2 ¼" and make a few crosscuts between the indent format lines to eliminate extra wood. Smooth the saw kerf edges staying in the score bottoms with a wooden hammer and a chisel (don't utilize a mallet).

- Finishing and staining the bench parts

Apply exterior-rated wood stain to all of the wood parts. Redwood and cedar tones are traditional colors, but for a look that's more appropriate to the design, try using a dark stain color. A penetrating, semitransparent wood stain is easy to apply and gives the wood a durable finish. Cut notches into the seat beams. Eliminate excess material from the notch area by producing

multiple kerf cuts with a circular saw set to 2" cutting depth. The concrete piers can also be stained with concrete stain to blend in better with the wood bench parts. Apply a concrete stain to all surfaces of each of the concrete base piers.

- Assembling the bench

Position the top edge of each cross-support brace between the cross-bolster scores and 2 1/4" beneath the top edge of the cross help. Connect the cross-bolster supports screws. These are the only mechanical connections you need to make. Place the four concrete piers in the location where the bench will be set up. Position the piers in pairs that are approximately 3 ft. Apart. Place one support brace across each side pair of concrete piers. Place the seat front and back on the cross supports. Shift the concrete piers and cross supports until the notches align. Place the seat beams between the front and back pieces. Adjust the parts so that all notches sit fully on the adjoining parts.

Image/Diagram



Chapter 6

PORCH SWING AND ADIRONDACK CHAIR



The Porch Swing

After the long hectic day, you want to release your stress and tension. One of the easiest things that you can do in this regard is to make an indoor pallet

swing chair for your home by yourself. This is really a great woodworking project for those who love swing.

But before you start this project, make sure that the roof of your home is strong enough to support this swing chair and your weight as well. If the roof is not that strong, then don't choose it for indoors rather than outdoors.

To make this indoor swing chair, you need to gather and secure some pallets. Paint them in white and place a cozy white mattress over it. But before placing the mattress, you need to do some other things. Such as use some rope or metal chair to fasten this swing chair with the roof (or with a tree in case of outdoors).

Materials

- Vertical boards of pallet wood or your choice of wood.
- Basecoat and topcoat.
- Screws.
- Eyebolts.
- Carabiners.
- Nails and hammer.
- 150-grit sandpaper.
- Glue and nail gun.

Steps



Take wood pallets and cut them into vertical pieces to make a photo frame. Sand the wood with 150-grit sandpaper after cutting the wood. You can select

the shape and design of your photo frame with a saw, fabricate all the needed parts for the swing. I include some gingerbread trim with the jigsaw on the top board of the backrest.

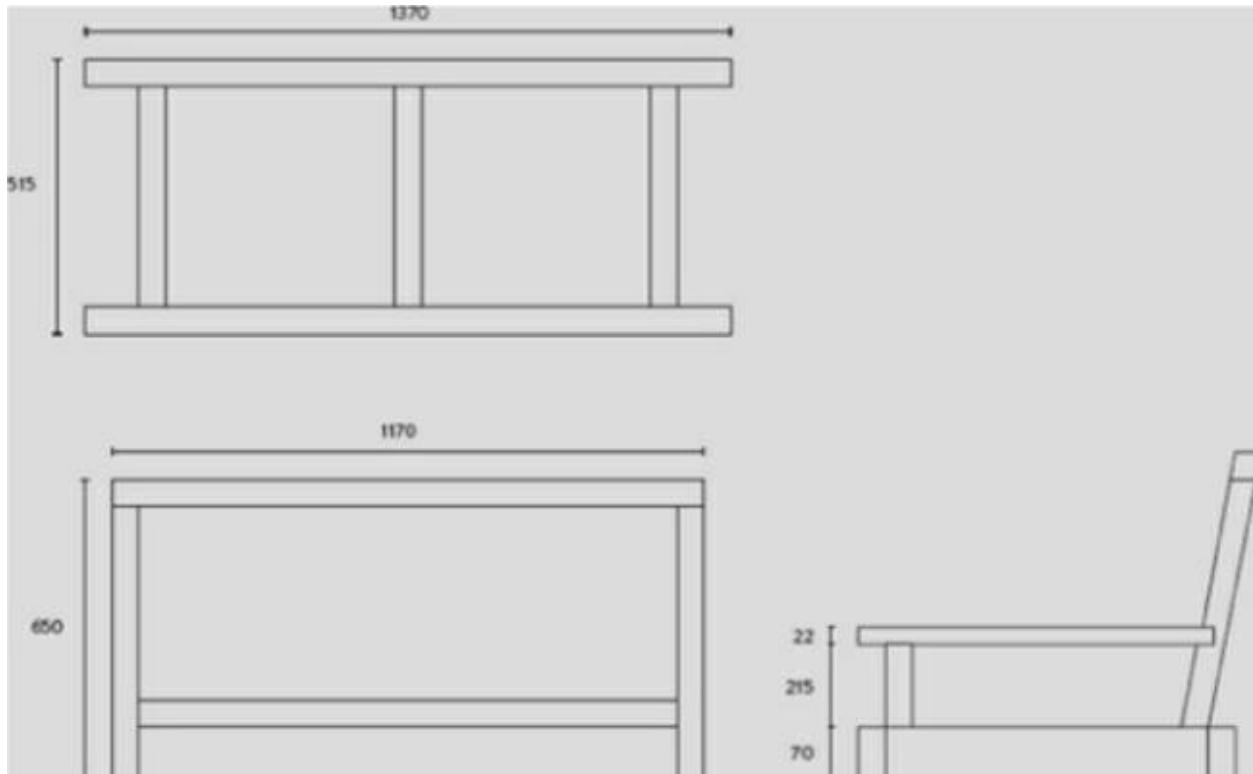
Apply a base coat and afterward the topcoat. It is consistently simpler to paint the pieces before amassing them. It will be good to choose white or brown paint to give a unique touch to your photo frame.

Making use of screws, construct the framing for the seats. Recall that the braces must have a shade since that is the place the hanging instrument will be connected to. Screw on another crosspiece in the seat to add steadiness and sturdiness to the braces. At that point, affix the braces individually with screws. The backrest is worked similarly as the seat. However, the upstanding pieces will extend descending underneath the seat to let you secure the seat and back pieces along with screws.

Connect the upstanding pieces on the facade of the framing of the seat with screws. That is the place the armrests will be joined. Connect the backrest to the framing of the seat. Affix the armrests to the front upstanding piece and the backrest.

Then, include the swing connectors: Drill gaps for eye bolts on the front and backbit of every one bit of the framing's short sides. Connect the eye-bolts. Measure and slice the chains to the ideal length using an angle grinder. Affix the chain in the eye bolts with carabiners.

Image/Diagram



Adirondack Chair



This project could be quite useful for anyone who wants to invite friends over for a grill session, or just to sit around a nice fire, but doesn't have anywhere for people to sit. You don't want to take your indoor chairs outside and risk getting them dirty or wet.

These "Adirondack" style chairs are perfect for building with pallet wood,

and they are not as difficult as you might think. People tend to assume that any useful furniture has to be incredibly difficult and expensive to make. That's certainly not the case.

Keep in mind that these chairs are going to be seeing a lot of weather. They are, after all, most likely going to be left outside all of the time. Use weather-resistant screws, glue, paint, and anything else you think might be ruined by the rain, wind, snow, etc.

Materials

- Pallets (one per chair should be enough, depending on how big yours are).
- Screws (for outdoor use).
- Wood glue (waterproof).
- Jigsaw.
- Compound miter saw.
- Power drill.
- Driver.
- Table saw.
- Belt sander.
- Palm sander.
- Safety goggles.

If you're missing some of these items, such as the more expensive power tools, you can often make do with the hand-powered equivalents. Just be prepared to put in some good, old' fashioned elbow grease.

Steps



You'll need to cut some plank pieces from your pallet. Since all pallets might be a different size and shape, you'll need to use your own judgment here. Take a look at the above picture to see how to put the frame together.

When you're happy that the pieces are the right size for you, and whoever will be sitting on your chairs, glue, and then screw this basic frame together. You can use clamps to hold it all together until the glue dries, but the screws should work fine here.

To make your seat back, take two pieces of wood to make the cross-section, and then line up plank pieces to make a comfy flat part for your back. See how the top of the seatback is rounded? You can cut this to your own desire to get this effect.

The seat part is made by laying plank pieces over the seat part of the frame, which you make earlier. Now you can attach your seat back to the frame. Sand everything down and paint or finish the wood as you desire.

Image/Diagram



Chapter 7

ADIRONDACK TABLE AND PICNIC TABLE



Adirondack Table

Great on a deck or patio. This table is sized to sit alongside an Adirondack chair—ideal furniture to place your glass of juice—and can be made quickly with common homeowner tools. Western cedar is one of the few roughsawn kinds of wood always available from lumberyards. Long pole-barn nails are

used to secure the parts.

Materials

- Two 8-ft. cedar 5/4×6 decking.
- One 6-ft. cedar 1×8.
- 15/8-in. and 11/4-in. stainless-steel or decking screws.
- Polyurethane construction adhesive with a caulk gun.
- Wood plugs (plus plugs that you cut yourself).
- Exterior wood glue.
- Stain and sealer, or primer and paint.
- Chopsaw.
- Table saw or circular saw.
- Jigsaw.
- Compass.
- Utility knife.
- Trammel (long compass) made of cardboard, screw, and pencil.
- Belt sander.
- Router with a round-over bit.
- Hand sanding block.
- Large square.
- Drill with a screwdriver, pilot/counterbore, and plug-cutting bits.
- Chisel.

Steps



Rip the 1×8 in half to make two pieces 35⁄8 in. Wide. From these pieces, cut five pieces 24 in. Long for the top slats. Cut 4 ft. from one of the decking pieces. Rip this 4-ft.-long a piece in half to make pieces about 25⁄8 in. wide. Cut one of the 16 in. Long for the upper stretcher.

From the remaining 25⁄8-in.-wide pieces cut two horizontal supports 18 in. Long. Use a compass to mark the ends of the horizontal supports for curve cuts, cut with a jigsaw, then rout the edges and hand sand.

From the full-width board cut two pieces 18 in. long for the feet. On one of the boards makes small marks 5 in. From each side. Position a 5-gal. Bucket against the two marks and draw a curved cut line. Cut the line with a jigsaw. Use two plates (or other round objects of your choice) to draw an S-curve on a top corner of the foot. Before cutting, experiment on scrap pieces to achieve a look you like. Cut the S-curve with a jigsaw.

Use the cutout as a template to mark the other side of the foot and cut with a jigsaw. Use a belt sander to smooth out the curves, then use the first foot as a template for marking the second foot. Cut it as well.

Equip a router with a round-over bit and adjust and test on scrap pieces until it rounds edges to look like factory-rounded decking edges—rout all the cut lines.

From the remaining full-width board cut two legs 23 in. Long. On each, place horizontal support at one end and afoot at the other end. Use small boards to align these pieces with the leg's ends. Measure to be sure that the

foot is centered on the leg, then scribe a line that follows the foot's lower curve. Also, scribe a line at the top of the foot, as well as a line that follows the bottom of the horizontal support.

On each leg, cut the curved bottom line with a jigsaw—Belt sand, rout, and hand sand the curved cuts.

Set your circular saw's blade depth to 1/2 in., the depth of the dado you will cut in the top and bottom of the leg. Slit the outside pencil marks you made in step 7 with a utility knife to prevent tear-out, then cut a series of closely spaced kerfs.

Tap the wood slivers with a hammer, then use a chisel to scrape away all the protrusions. Finish with the chisel's bevel side down, as shown. Do this completely; even one little bump can make the joint sloppy looking. Place the dado-cut leg on top of the foot and the horizontal support and check that the joint looks tight; if not, clean out the dado more thoroughly. Apply polyurethane adhesive to each joint, then drill pilot holes and drive four widely spaced 1 1/4-in—Screws into each joint. Check for square as you work. Repeat for the other leg.

The lower stretcher rests on the top of the feet; the upper stretcher butts up against the bottom of the horizontal supports. From the outside of each leg, measure and mark the locations for the pilot holes, centered on the leg—three for the bottom stretcher and two for the upper stretcher. Drill the pilot holes using a pilot/ counterbore bit.

Position the bottom stretcher on top of the feet and centered on the legs and drive screws to attach it to both legs. Then attach the upper stretcher also centered on the legs as shown.

Lay the top slats on the horizontal supports and use nails or thin strips of wood to keep them evenly spaced. Drill pilot/counterbore holes, then drive screws to attach.

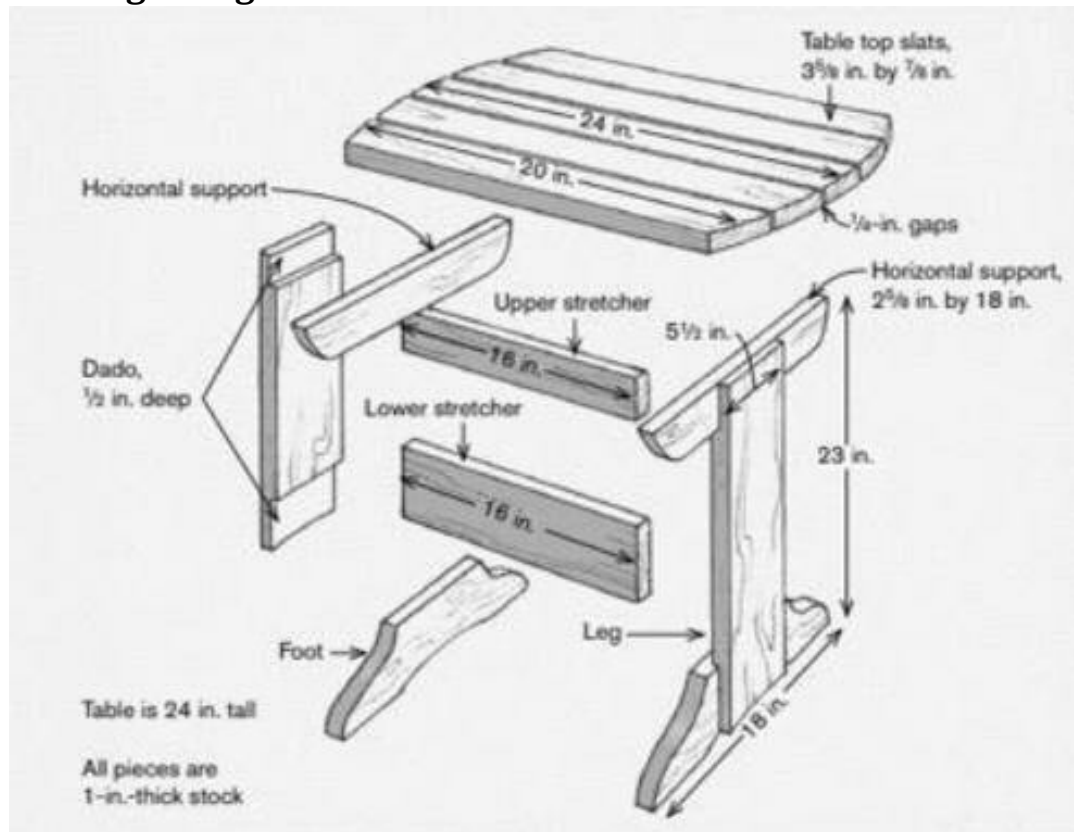
Make a trammel out of a strip of cardboard, a screw, and a pencil, as shown. Partially drive the screw through the cardboard and into the center of the center slat, near its end, and draw a curved line on the other end. Repeat on the other side.

Cut the curved lines with a jigsaw. Then use a belt sander to shape a more perfect curve; go over the edge with a router with a round-over bit.

Use a drill with a plug-cutting bit to make wood plugs, insert them with drops of wood glue, and allow drying. Then scrape nearly smooth with a

sharp chisel. Hand sand the surface of the table, so the plugs are smooth and on the same plane as the slats. Apply stain and sealer or primer and paint.

Image/Diagram



Decorative picnic table



Materials

- Pallets.
- Hammer.
- Nails.
- Stain.
- Saw.

- Pencil.
- Screwdriver.
- Screws.
- Measuring tape.

Steps

Start by completely disassembling the pallets, and set all the wood aside in the piles it belongs in. Next, take your pencil and measuring tape, and measure equal lengths for the table of the legs. I cut mine to be 4 feet long, angled at both ends to stand flat on the ground while supporting the table at the top. Cut these and set them aside.

Next, you will need to set aside 18 of the boards. These will be cut to be a total of 6 feet and laid end to end on the frame. You now have all the wood you need for the legs and the top of the table, so all you need is the 2 boards to support either side.

Start by laying out 2 legs side by side, then screwing 2 boards to equal 9 feet across these boards. These are the support arms for the seat, so place them across the legs, as you see in the photo. Repeat on the other side.

Stand the legs on end now, and with the assistance of a friend or propping them against a wall, screw the board on lengthwise, to each end of the legs. You are now making the bench and top of the table. I suggest you add more boards in the center beneath the table for added support after you have screwed the mainframe in place. Once this is entirely assembled, sand down all of the rough edges. Apply a stain first, then paint the color of your choice. That's it! Your new picnic table is ready for a party!

Image/Diagram



Chapter 8

BACKYARD PRIVACY SCREEN



This screen you can put in your patio or backyard can give much-needed privacy you need. Aside from that, it can also make temporary division on areas that are full of clutter. The plan uses clear steps for building and assembly, including the application of a couple of basic procedures. A mortiser is practically fundamental for cutting the various mortises for the screen joints to accomplish the consistent accurate required for a uniform appearance.



Materials

- Pencil Combination square.
- Mortise gauge.
- Tenon saw, or band saw.
- Bevel-edged chisel.
- Tape measure.
- Marking knife.
- Mortiser or mortise chisel.
- Sandpaper.
- Wood glue and brush.
- Sash cramps.
- G-cramps.
- 4 “Soss hinges” and screws.
- Router Straight router cutter.
- Drill with bits.

Cutting List

CUTTING LIST					
Item	Material	No.	Length	Width	Thickness
Upright	Ash	6	1600mm (63in)	35mm (1½in)	20mm (¾in)
Rail	Ash	9	550mm (21½in)	35mm (1½in)	20mm (¾in)
Slat	Ash	60	500mm (19½in)	45mm (1¾in)	6mm (¼in)

Steps

- Make the Bridle Joints in the Rails

Make markings with a pencil the shoulder of the T-harness joint mortise on the edge of a rail by scribing the width of the upstanding, flush placed to the end grain. Square the shoulder mark over every one of the four sides of the rail, making of a combination square and pencil

Utilize a mortise gauge to mark the width of the mortise with dimensions of 10mm (¾in)—over the end grain and onto the two edges to the shoulder marks. Scribe the waste. Fabricate the mortise with either a band saw or tenon saw. When you are cutting by hand, utilize a combination square to set the wood at a 45-degree edge in the vice.

Diagonally fabricate down each edge of the mortise one way. At that point, change the spot of the lumber in a vice to cut corner to corner the other way. Then, slice vertically to the shoulder down each edge and make a vertical allowance cut in the middle point of the waste. Remove the excess waste using a bevel-edged chisel. Do this procedure again on the opposite finish of the rail and on the two closures of the staying eight rails.

- Mark the Tenon positions in the Uprights

Make markings on the spot of the three joins, each to a width of 1 ⅜ in, on one of the six uprights. Imprint the main tenon 1 3/16in from the upper grain end.

Imprint the beginning of the second and third joins 21 ⅝in and 58 ⅞in individually from the end grain—Square all the imprints around all sides. Utilize the mortise measure as recently set—¾in—to mark how thick the joins are between the imprints on the two edges. Imprint the waste.

Reinstate the shoulder marks using a marking blade. At that point, cut a V-

groove using a chisel to make a perfect edge. Cut the joints by hand making use of band or tenon saw, make vertical allowance slices into the waste.

Cut out the excess using a chisel and make the area clean. Do the steps again for the rest of the uprights. Test the fittings of the joints inside their coordinating mortises in the rails and change if vital.

- Make the Slat Mortises on the Uprights

Imprint the places of the support mortises within positioned upward edges. Make a line across one upstanding $\frac{9}{16}$ in from the upper join to demonstrate the highest point of the main mortise. The mortise length is $1\frac{3}{4}$ in. Imprint a further eight mortises at 15mm $\frac{9}{16}$ in stretches until the center join is reached. From the center join, make more marking of about 12 mortises of a similar length at $\frac{9}{16}$ in spans.

Mark the width of the principal mortise (focused within the edge and set the mortise measure to 6mm ($\frac{1}{4}$ in) and) by marking between the two length marks. Set the mortiser fence to the checked mortise position and the profundity to 10mm ($\frac{3}{8}$ in). Cut all the mortises and sand (inset).

Check the fittings of all components in each board: first fit the rails into one of the uprights, at that point, embed the braces into the mortises, and afterward connect the other upstanding. When the fitting meets your requirements, glue the harness joints on each of the three boards and clamp with G-cramps and sash cramps. Test for squareness.

- Fit the Hinges

Make marking onset area of two Soss pivots $\frac{3}{8}$ in from each end grain of the board uprights, at that point square the imprint over the outside edge. The pivots are situated on the two uprights of the focal board and the upstanding of every one of the sideboards.

Mark and measure the length of the pivots square over the edges of every one of the uprights, utilize a router with a fittingly estimated shaper to slice a casing to coordinate the pivot measurements in each checked position. Cramp a square close by the upstanding to help the switch. Check the fittings of the pivots in the casings, and make any essential changes using a chisel.

With the pivots put in each casing on the focal board, drill pilot openings into every one of the pivot screw positions, at that point screw set up. Make certain to situate the pivots in contradicting bearings on each side of the board to empower the screen to overlay in a crisscross.

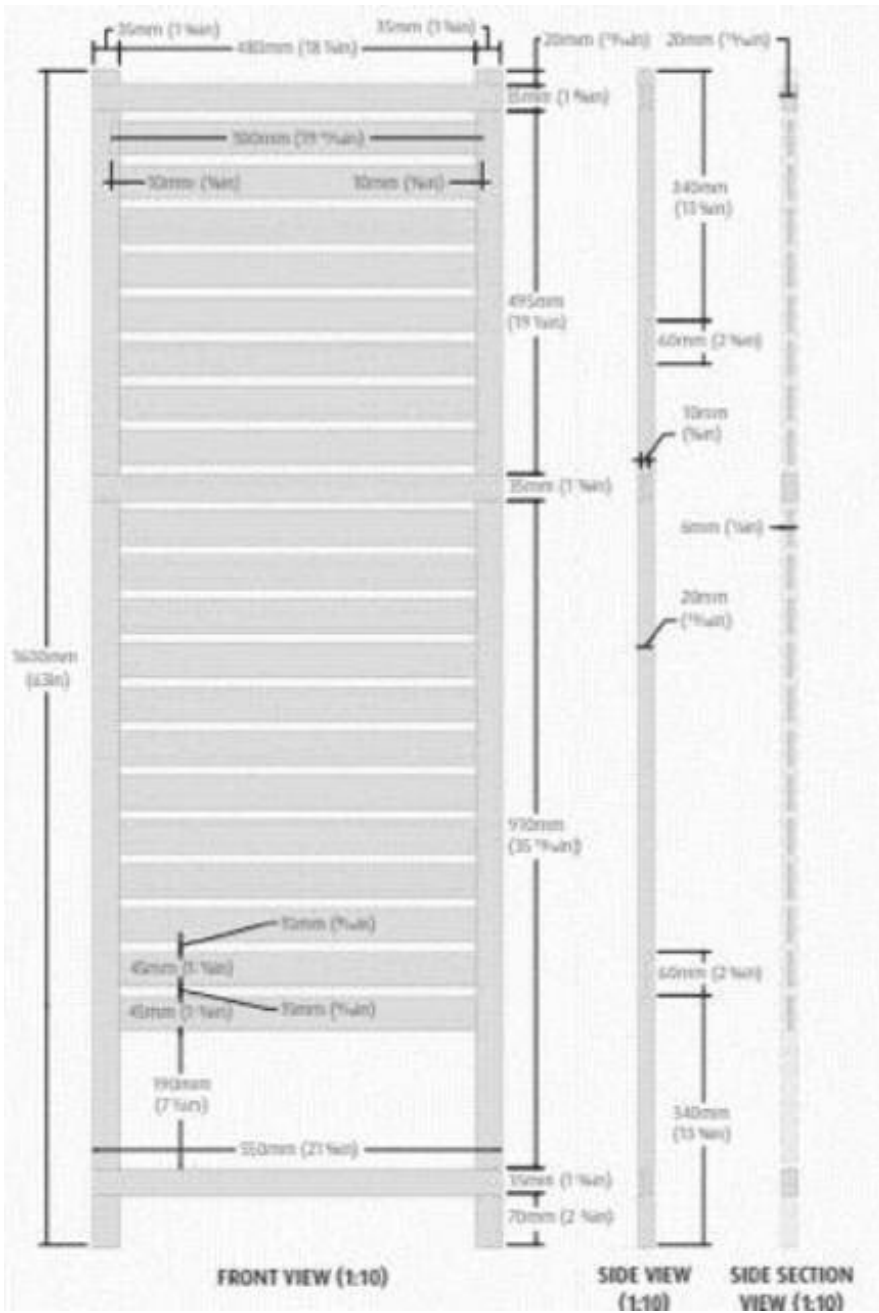
Set the primary sideboard to be attached with its pivot lodgings over the

relies on the focal board, at that point opening in the pivot. Screw-in position as in the past. Do the same for the staying sideboard.

- Finishing

The screen can be left incomplete, yet if you would like to apply a stain, make certain to do it before building it. It would be extremely difficult to apply wax or finishing oil into all the corners once glued together. A few layers of clear acrylic varnish would be a decent decision to finish here as it would not stain the wood along these lines abstaining from adding an undesirable look to your project.

Image/Diagram



PART III

GARDEN PROJECTS

Chapter 9

RAISED BED AND ROMANTIC ARCH/ARBOR WITH BENCH



Raised Bed Planter

Are you yearning for something more in your garden than grass and maybe a few edge plants? How about being able to grow something that you can actually put to good use—like some fresh food?

This planter is a great idea for people who want to get into the hobby of gardening, especially people with children. Since you won't need much pallet

wood, or any fancy tools and expertise, this is an especially fun project to do over the summer with kids.

By filling your planter with soil and standing it over in an out-of-the-way place in the garden, you can reap the rewards of fresh produce. Okay, so you're not going to become self-sufficient with just one, or even a few, of these planters. The real reward comes from growing something yourself and knowing where it came from. They also look great and are very stylish right now.



Materials

- One pallet per planter (with six or nine pallet planks across the top).
- Hammer.
- Nails.
- Hand saw (although a power saw will make things a lot easier).
- Soil, fertilizer, bedding material, etc. (this is up to you).
- Seeds, saplings, etc. (this one's also up to you).



Steps

Cut your pallet into three equal pieces, going across the joining pieces of wood. Check out the below picture if you're not sure how to do this. You should have two end pieces, and one from the middle. Split this middle piece in half, taking the top and bottom apart. Cut the end pieces so that they appear as in the image as well.

Attach your sides using your hammer and nails, and use those extra pieces you cut off to create a bottom. Remember, this doesn't have to be watertight or anything. In fact, drainage for the soil is essential. You should have some blocks of wood leftover. Use these to create little feet for the whole structure. You should now have a nice planter. Fill it up with some garden bedding material at the bottom, for filler and drainage. You can put your soil up to near the top, along with whatever you want to plant.

Romantic Arch/Arbor



This arbor can span a path, a chair, or a collection of potted plants, or it can just sit in the garden beckoning people toward the view. It is definitely a decorative rather than a structural element: It won't be strong enough for kids to climb on, but you can let vines clamber all over it if you like, and it will last for a good many years if unmolested.

The only poles that reach across a horizontal span of any length are the beams, so we've made them of thick 3-in. bamboo; smaller poles might sag over time. All the other pieces are sized for appearance. A variety of sizes are used symmetrically. If you like, use thicker poles for a more substantial look.

Materials

- Bamboo poles, 8 ft. long, of various thickness: one at 3 in., four at 2 in., two at 1½ in., two at 1 in., two at ¾ in., and two at ½ in.
- Stainless-steel screws.
- Bonsai wire or twine.
- 3⁄8-in. hardwood dowel, 4 ft. in length.
- Saw.
- Large square.
- Drill with screwdriver bit and Forstner bit.
- Hammer.
- Clamps (optional).

- Rasp and utility knife.
- Circular saw.
- Ratcheting garden shears, or loppers.

Steps

Cut four 2-in.-thick bamboo poles to 7 ft. long for the uprights. Cut 3/4-in. bamboo poles into six 2-ft.-long pieces for the ladder-rung pieces. Lay two uprights next to each other, hold them, so they won't roll, and mark for where the rungs will be inserted.

Use a Forstner bit to bore the holes in the uprights at the marked locations. Test to see that the ladder rung pieces will fit in the holes. Ideally, they should fit in snugly without having to be forced. If they are loose, that's not a problem; if they are too tight, use a knife or a rasp to enlarge the hole.

Tap the rungs into the holes of one upright, using a scrap piece of bamboo as your hammer. Insert the rungs into the other upright and tap the whole ladder together.

Check the ladder for square. Here and throughout construction, check at various points and don't expect perfection; the average of the three rungs should be close to square.

You could use a large clamp or two to hold the pieces together. Here's another traditional method: Tie with bonsai wire as tightly as you can by hand. Then push or tap the wire at an angle to more firmly clamp the pieces together.

Use a handsaw to cut a number of hardwoods dowels a little shorter than the thickness of the pole you will be joining. With a forstner bit drill a 3/8-in. A hole through the upright and most of the way through the rung piece. Drill the hole about 3/8 in. Away from the hole where the rung is inserted and at a slight angle. Use a hammer to tap in a dowel. You could cut the dowel flush, or just leave it protruding out a bit.

From the 3-in.-thick bamboo pole cut two 4-ft.-long pieces for the beams. The beams rest on top of the uprights, so the tops of the uprights (that is, the tops of the ladder sections) need to be curve-cut for a neat joint. Hold the end of the upright against a beam and mark for the curve. Cut carefully with a circular saw, slowly eating away at the bamboo until you've come close to finishing the curve cut.

Test the fit; it probably won't be ready for prime time. Use a rasp to fine-tune the curve until it fits snugly (though probably not perfect, but that's

okay) against the beam.

From the 1/2-in poles cut four 42-in.-long pieces for the lattice, and attach with bonsai wire. A simple crisscrossed wrap is fine, though you may want to tie a frapped joint.

From the 1 1/2-in.-thick bamboo poles cut five 30-in.-long pieces for the rafters. Three of these rafters will go on top of the beams, but two will be attached to the top of the ladder uprights, just under the beams. Hold the upright and the rafter in position and drill a pilot hole through the rafter and through just one side of the upright. Drive screws to attach them together.

Position the ladder assemblies and the beams together. At each joint, drill a pilot hole and then drive a long screw down through the top of the beam and into the rafter.

Space the three middle rafters evenly along the beams. Drill pilot holes, then drive screws down through the rafters into the beams to attach.

Check that the arbor is basically straight out of a 1-in. Bamboo pole cut four angle braces. Use the assembled arbor to determine the length. Attach the braces to the beams and the uprights by drilling pilot holes and then driving screws. You may choose to wrap these joints with bonsai wire or twine.

Chapter 10

CLASSIC WOODEN YARD CART



A decent wood cart makes your work more efficient and easier. This project doesn't include any fancy bells or gadgets whistles; however, it's adaptable, sturdy, and handled pleasantly so you can easily move this cart and materials around your yard. It is likewise simple to construct. The pulling

bed for this truck is sufficiently enormous to hold a fourth of a cubic yard of mulch or yard waste, a large mortar mixing tub, a dozen cans of paint, or several potted plants. The front gate lifts out for ease of access when loading contents in the front and makes dumping your cart even easier. This yard cart is designed to roll on a pair of 26" bicycle wheels. The large-diameter wheels won't get hung up on rocks, bumps, or any other rough yard terrain. You can use pneumatic (air-filled) tires, but airless, solid tires are less expensive and won't go flat when you need the cart most. In addition, this cart is built with pressure-treated lumber and corrosion-resistant hardware, so it will hold up to years of helping you haul wet or dry materials.

Materials

- 4 2 x 4" x 8 ft. treated pine.
- Exterior-rated screws.
- 1 1 x 2" x 8 ft. treated pine.
- 2 1/2 x 8" stainless steel bolts.
- 1 1/2" x 4 x 8 ft. ext. plywood.
- 2 1/2 "stainless steel locknuts.
- 1 1"-dia, x 24" 6 conduit.
- 2 26"-dia. Wheels.
- 6 1/2 "stainless steel washers.

Steps

- Build the Frame

Cut the base rails, cross supports, legs, and axle blocks to length. Cut a 1 3/4' radius in one end of each base rail and leg. Cut a 1 1/2 X 3 1/2" notch in each leg to fit around the base rail. The bottom of the notch is located 12" up from the bottom of the leg. The handle is secured between the base rails inside round mortises that are 1"-dia. X 3/4"—deep. Measure in 2 1/2 from the end and 1" up from the bottom edge of the base rail to find the center of the handle mortises. Bore the handle mortises with an 1" Forstner bit mounted in a drill press or use a 1" spade bit in a portable drill. Cut the 22 1/2' long piece of 1"-dia. Dowel or aluminum conduit that will be the handle. Clamp the handle and cross supports between the base rails. Attach the cross supports to the base rails with 2 1/2" screws. Attach the axle blocks to the base rails with 2 1/2" screws. Attach the legs to the base rails with 2 1/2"

screws.

- Attach the Panels

Cut the bottom, sides, back, and gate to length and width. Round the corners of the gate with a jigsaw or sander. Then, cut the grip hole in the gate. Cut 3"-radius curves into the top corners of the sides. Attach the bottom panel to the base rails and cross supports with 1 1/4" deck screws. Attach the back to the legs with 1 1/4" deck screws. Attach the sides to the base rails and legs with 1" screws. Cut the gate guides to length and attach them with 1" screws.

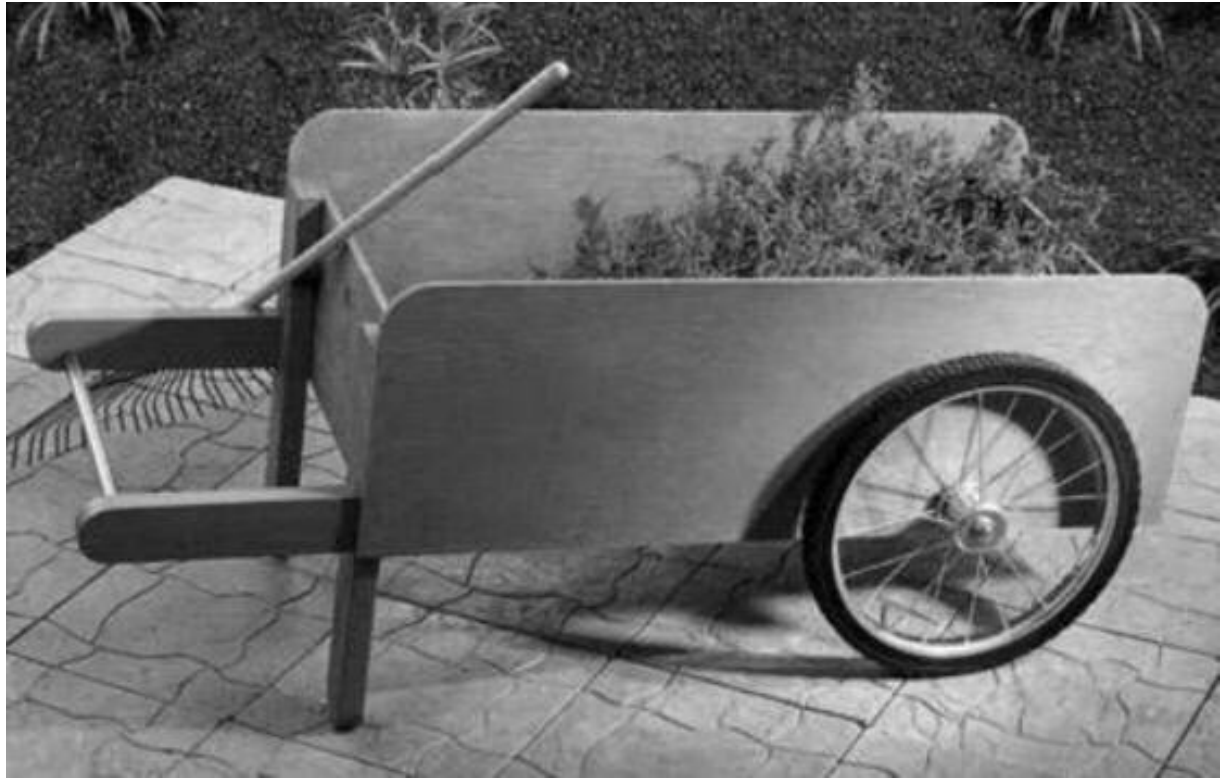
- Attach the Wheels

Bore 1/2"-dia. gaps in the base rails for the hub jolts. Take extra care to keep these gaps opposite to the base rails. Affix the wheels with 1/2"-dia. x 8" hot-dipped galvanized jolts or stainless steel. Put level washers at each finish of the jolt and between the sideboard and wheel.

- Varieties

Yard and garden carts come in many sizes and shapes designed for various purposes. Some, like the bicycle tire cart featured in here, is designed to haul a relatively large volume of yard waste or supplies. But if your primary need is for a manageable cart that can be used to transport tools (especially long-handled garden tools) from your garage or shed to your gardens, one like this may be more to your liking—made from solid cedar, its 4 cu. Ft. won't handle more than one or two bags of potting soil on the cargo side. But the handle racks make transporting shovels and rakes much easier and safer.

Image/Diagram



Chapter 11

BUTTERFLY HOUSE



Materials

Letter	No.	Item	Stock	Inches T	(MM) T	Inches W	(MM) W	Inches L	(MM) L	Comments
A	1	front	Pine	1/2	(13)	5 1/2	(140)	15	(381)	
B	2	Sides	pine	1/2	(13)	3 1/4	(89)	15		
C	1	Back	pine	1/2	(13)	5 1/2	(140)	15	(381)	
D	1	Roof	pine	1/2	(13)	5 1/4	(140)	7	(178)	
E	1	Floor	pine	1/2	(13)	5	(127)	6 1/4	(159)	
F	n/a	roost	Bark/ branch							Cut to fit

Steps

Butterfly houses can be almost any size, although about 3" square and 12" tall would be a good minimum. I've used 1/2" pine for the house here, but any untreated wood up to 3/4" is fine. I like the look of unfinished wood, especially after it begins to weather, so I've left this one natural. Still, painted houses provide an additional splash of color to your landscaping. (Some butterfly aficionados insist that painting flowers on the houses attract more butterflies, but the claim is difficult to quantify).

Once again, I've used a 10° angle for the roof slope, but instead of cutting angles and bevels first, this house is small enough to do that slope another, easier way later in the construction process. For that reason, note that the vertical components are all the same length. The most complicated part of this house is the front with its multiple 1/2" × 3 1/4" entrance slots. Mark the front for slot locations, starting with the middle one centered left-to-right, and 5 1/4" from the bottom. All four of the outer entrances are set in 1 1/2" from the side edges. The two lower entrances are 1" from the bottom edge, while the two upper ones are 2" from the top edge (once the roof is sloped, all holes will be evenly centered on the house front). Start the entrance slots by drilling a 1/2" hole at each end, then clamp the workpiece to a secure surface and use a jigsaw to connect the holes.

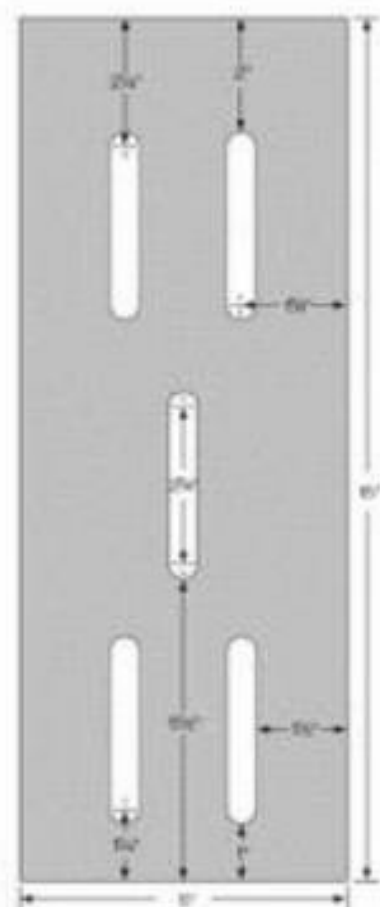
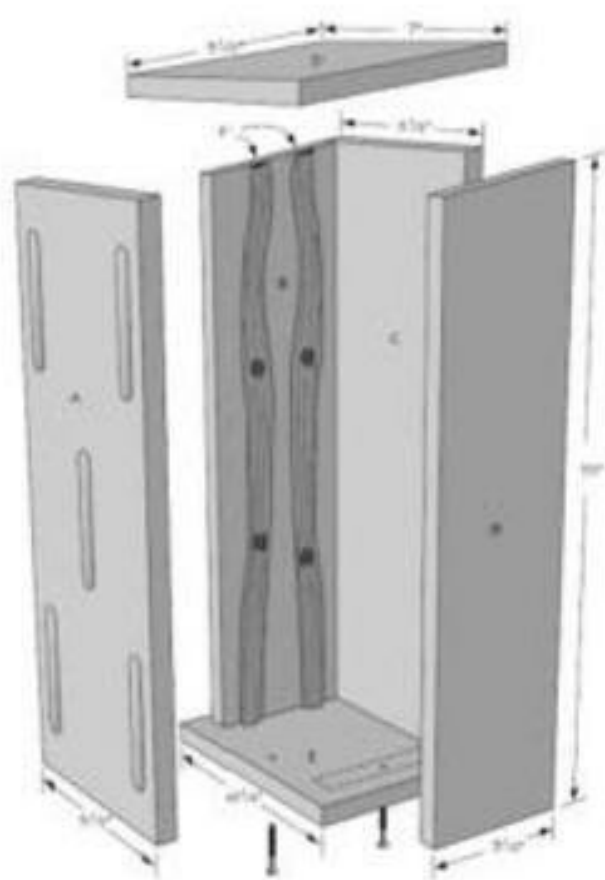
Sand all the entrance edges smooth. Butterflies like a natural, rough surface to cling to, and there are a couple ways you can do this. A large strip of solid bark the size of the sides can be glued or stapled in a place like wallpaper on one or both sides of the house. I opted for halving some branches on the band saw and stapling them in place. Since we'll be cutting

the roof slope later, be sure the highest staple is placed at least 1 1/2" from the top. Attach the front of the house to the two sides with glue and nails, then attach the back the same way.

Again, upper nails should be at least 1 1/2" from the top edge to avoid cutting through them in the next step. Mark a cutline for the roof slope, and cut the 10° angle on your marks with a band saw or other saw and sand as necessary. You can make the roof angle steeper or shallower if you like. For that matter, you can eliminate the angle and go with a flat roof if you prefer. Attach the roof with glue and nails. Make the bottom removable for cleaning by mounting it to the house with four screws, one through each side.

When it comes to maintaining the cleanliness of the home, butterflies could win the Good Housekeeping award. However, leaves and other debris can get into the house through the multiple entrances, plus bark can deteriorate over time, and you may wish to replace it. Locate your finished butterfly house near your flowers, as a ready source of nectar, will attract the butterflies to the area. The house should be mounted on a slender post driven into the ground but should be no more than a foot or two off the ground. Again, the key is to keep the house as close to the flowers as possible.

Image/Diagram



Chapter 12

COMPOST BIN, BIRDHOUSE, GARDEN TRELLIS, AND CLOSET



Compost bin

Materials

- 5 Pallets.
- 6 stakes of 18-inch, 1 x 1.
- Mallet.
- 2 stakes of 72-inch, 2 x 2.
- Staple Gun.
- Garden Netting.
- Wire Ties, 1 bag.
- Scissors.

Steps

Layout three pallets vertical to make a three-sided box in a place that you want to select for your compost bin. Now glide a wire tie via the corner at the middle, top, and bottom of the pallets to tie them together. Now put a wire tightly and slide stacks all through the middle of the side pallets of the compost bin. Lay these pieces at the front edge of the side and force the stakes into the floor. They will be flushed with the top boundaries of the side pallets.



Image/Diagram

Birdhouse



Materials & Steps

If you want to design a birdhouse, you can get the advantage of pallet wood. You can follow the given plans and blueprint to design your birdhouse. You have to create a door at the bottom edge of the front piece, but mark it with a

pencil. You can cut out the rectangle or round door.

Line up the back panel and the panels on both sides and fix them with the nail and hammer along the length of the panels. Now secure the front panel with hammering electrified nails.

It is time to set the wooden frame on the top of the bottom piece and fix it with two to three nails on each corner. Keep a flat panel in its place with hammer and nails and keep it secure. Add adhesive constructions and let the pet house dry.

Image/Diagram



Materials

- 5 Pallets.
- 6 stakes of 18-inch, 1 x 1.
- Mallet.
- 2 stakes of 72-inch, 2 x 2.
- Staple Gun.
- Garden Netting.
- Wire Ties, 1 bag.
- Scissors.

Steps

Select a place in the garden for vegetables, such as pumpkin or squash, to grow in A-frame trellis. Keep two boards across the plot to make a 45-degree angle with two pallets and make an A-frame. Glide wire ties all through the pallets at the top junction, and space should be 6 inches along the joints. Tie them tightly.

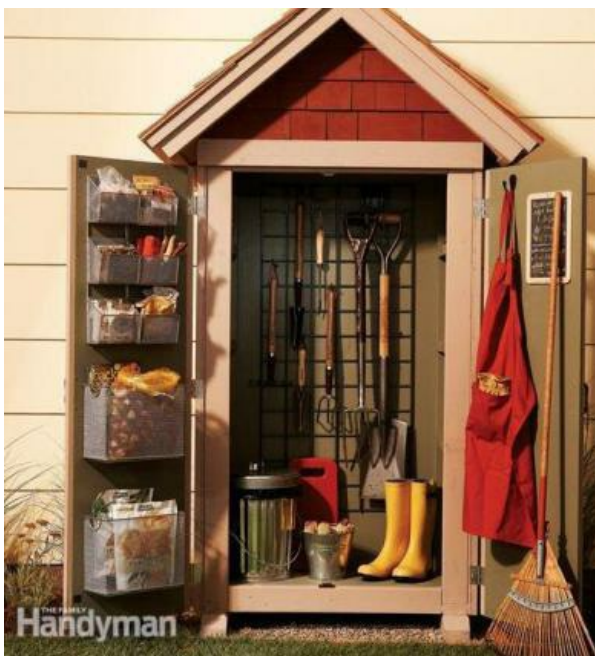
Now drive 3, 1 x 1 stakes of 18 inches through the bottom of every pallet of the a-frame and secure the frame in its place. Keep one on every end and another in the middle. Roll the garden net to the frame and staple it for

security. Clip extra netting, and it will help vegetables to grow on the trellis.

Image/Diagram



Garden Closet



Materials

- Circular saw.
- Brad nail gun.
- Straightedge.
- Drill bit set.
- Miter saw.
- Wood chisel.
- Caulk gun.
- Framing square.
- Drill/driver—cordless.
- Speed square.
- Hammer.
- Tape measure.

Steps

- Framing the walls

First, you must sheathe and frame the wall then connect them with joists and plates. Utilize the most optimal pieces of lumber in the front where it shows. The side walls must be nailed together then square it the side panels (plywood). Next, the 3/8 inch at the front must be over hanged with the panels—this will not show the gap at the edge when you put the doors. Connect the two sides with the bottom and top rim joists and plates. The top, bottom, and sides are all mirror images of each other than the ½ inch top front rim joist; this will hinder the door from moving. Make use of screws to join the framework together, but not the front where fasteners will be obvious—utilize 2-1/2-inch casing nails. You must then screw the 4x4 footings to the bottom plates then nailing on the base of the plywood.

- Building the Roof

On your workbench, you need to build the roof. Begin with a frame, L-shaped with 2x4 sizes, add the trim, soffit, sheathing, and nailers. Shingle with asphalt and cedar shingles. Trim and screw the two pairs of rafters then nail on the ridge and fascia boards. Affix the soffit and roof sheathing. Screw on the rear and front nailers, then screw on collar ties at the points. The shingle roof must be nailed with the roof trim on a layer of felt for the roofing. In the instance you are utilizing shingles made from cedar, affix them with siding nails or narrow crown staples. Allot 1/8 inches to ¼ inches gaps between shingles to expand it.

- Installing the Roof

On the shed base, set the complete roof. Screw the back and front panels to affix the base and the roof. Tilt the shed in an upright position, lay the roof on, then align the front rim joist, front collar tie, and center it sides to side. Nail the sides and cedar trim together, then align all 1x3s on the sides along the front edge of plywood overhanging. Screw and glue on the front and back panels to affix the base and roof together. Make use of the back panel to make the structure stable.

- Trimming the front and hanging the doors

Cap the front panel with shingles and roofing felt. Lay metal flashing suspending the trim in order to prevent water from seeping. Align with the side battens, the horizontal one by nailing on the piece on the front. Fasten felt and flashing onto the panel to the front, then cover with shakes. Lastly, build the doors, trim the hinge, and hang the doors. Make a space of about 1/8 inch between the trim and the door. Finish off with stain or paint, then put the shed on some grave. Ensure the shed is good at the sidings then screw it to prevent it from falling. Do this by drilling 2 (½ inch) holes through the woods near the joist. This is where you will insert the screw, and lastly, fasten your built shed to the wall.

Image/Diagram



PART IV

PLANTERS PROJECTS

Chapter 13

**CORNER PATIO PLANTER, SHORT
PLANTER WITH LEGS & PATIO
GARDEN POND AND PLANTER**



Corner Patio Planter

Materials

LIST OF MATERIALS

(finished dimensions in inches)

A	Top shelf sides (2)	$3/4 \times 2 \times 12$
B	Middle shelf sides (2)	$3/4 \times 3 \times 16$
C	Base pieces (2)	$3/4 \times 5-1/2 \times 24$
D	Posts (2)	$3/4 \times 3-1/2 \times 36$
E	Shelf slats (16)	$3/4 \times 1 \times 18$
F	Shelf center pieces(3)	$3/4 \times 3-1/2 \times 17-3/4$
	Flathead wood screws	#8 $\times$ 1-1/4
	6d finishing nails	

Steps



What we have here is an ideal option in contrast to putting lots of pots with plants in your window ledges: A display for your plants. This project will consist of three levels that will enable more daylight to shine down at the plants on the lower racks.

Start with ten feet of 1 x 12 wood. Use pressure-treated wood, cedar, or redwood if the display is proposed for outside use. Slice all pieces to measure on a table saw. Spread out and mark the different points on the closures of the best in class sides (A), center rack sides (B), and the base pieces (C). Cut these points utilizing a bandsaw and 1/4" cutting edge. Making use of a saw

attached with dado blades or router, fabricate 1/8"-deep rabbets and dados in the posts (D) for the rack sides and base pieces.

Drill screw openings in the base pieces and rack side, and pilot gaps in the posts. Drill pilot gaps in the rack supports (E) and center points (F). 6d completing nails (utilize one of the nails as a drill bit tool to guarantee that the distance across of the pilot openings is precisely drilled).

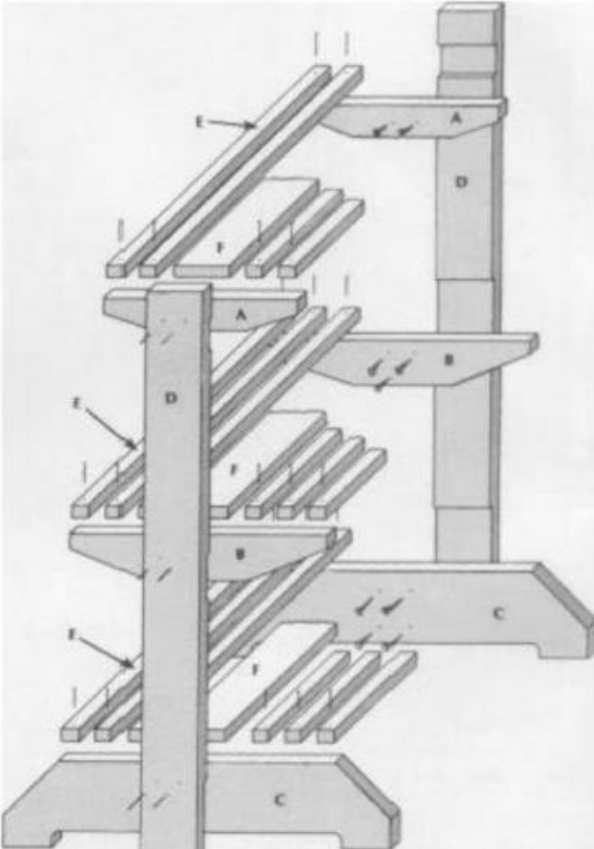
Sand the whole number of the pieces until smooth. The sawed edges must be sanded again or be cleaned up with a hand plane, to ensure they are adequately smooth.

Connect the supports and rack centerpieces to the sides with 6d nails. Connect the middle ones first, and afterward build the supports at 1" stretches. Set all nails underneath the surface and fill the gaps using putty that coordinates the completion you intend to use. Connect the racks to the posts utilizing #8 x 1-1/4" flathead wood screws.

Finish the plant display with polyurethane or some other water-resistant finish if it is not made of redwood, cedar, or pressure-treated lumber.



Image/Diagram



Short Planter with Legs

Materials

- (3) 1 x 8 in. x 8 ft. cedar.
- $\frac{3}{4}$ x 12 x 12 in. exterior plywood.
- Galvanized deck screws (1 $\frac{1}{4}$ in).
- Galvanized Finish Nails (2-inch).
- UV Protectant Sealer.

Tools

- Circular Saw.
- Jigsaw.
- Drill/Driver.
- Clamps.
- Hammer.
- Nailset.

Steps

- Fabricating the Side Panels for the Deck Planter

Each sideboard is made out of three sheets, which are joined together during the assembly procedure by a transitory cleat.

Fabricate six bits of 1 x 8 cedar (you'll need three pieces for each side). Slice two transitory spikes 3/4 in. long from scrap wood. Assemble the sides by laying gatherings of three sheets face-down on your workbench in two gatherings. Put in the middle a transitory fitting left-to-right along the top edge of each gathering of sheets, and attach each board together by driving 1 1/4-in. wood screws through the projection into the sheets.

Do a template for denoting the profiles of the different sides. Slice a bit of hardboard or hardened cardboard 1 1/4 in. wide by 2 1/2 inch long., scribe the points on the finishes and shapes of the bent pattern along the base edge. Slice the layout to shape using a jigsaw and sand the cut edges smooth.

Follow the profile from the layout onto the sideboards. Draw on the face side of the boards that don't have the spikes. Clasp each board safely to your workbench and cut the parts using a jigsaw.

- Make the Ends & Bottom

The end panels are each composed of two boards fastened together with a permanent cleat. Rip a 4-ft., 1-in. length of 1 x 8 cedar to 6 in. wide. Cut the ripped board into four 12-in. lengths. Lay each pair of boards face-down on your workbench and clamp them together with the ends flush. Cut two

The end boards are each made out of two sheets secured along with a durable cleat. Tear a 4-ft., 1-in. length of 1 x 8 to 6 in. wide. Slice board into four 12-in. lengths. Lay each pair of sheets face down on your workbench and cinch them along with the finishes flush. Cut two bits of scrap leftover from step 6 to 7/8 x 7/8 x 12 in. to frame two spikes. Drill countersunk pilot openings in the spikes. Collect the end boards by situating a projection flush with the base edges of each pair of sheets and attaching the parts with 1 1/4-in. deck screws, screwing through the spikes into the end boards, cut the base to estimate from 3/4-in. wood. Draw meeting lines from corner to corner to use as a guide for finding and penetrating five 1/2-in.-dia gaps.

- Assemble the Planter

Connect the end boards to the base. Brace the base set up between the closures so it will lay on the spikes when the grower is straight up. Drill through the spikes from beneath to attach the base. Connect the sides. Position the main sideboard on the base get together, so it is focused left-to-right, and the top edges are largely flush. Drive 2-in. Finishing nails through

the sideboard into the closures and the base, utilizing a nailset to drive the nails beneath the outside of the wood. Join the other side in a similar manner

Unscrew and expel the transitory spikes from the sideboards. Cut the four crown pieces. Tear cedar stock to 2 in. Wide. Measure your grower to check the length of the crown pieces. Within edges of the crown ought to sit flush within the planters when assembled. Slice the pieces to length with the finishes mitered at 45°. Join the crown pieces to the grower with finish nails.

- Finishing for Planters

Break all edges with sandpaper and test that all nail heads are set. You may decide to leave the planters incomplete, apply topcoat with paint, or a similar completion as you have on your deck.

Image/Diagram



Patio Garden Pond and Planter



Material

- What you will need:
- Pallets.
- Hammer.
- Nails.
- Paint.
- Lining.
- Pump.
- Saw.
- Pencil.
- Measuring tape.

Steps

Start by pulling all the pallets apart. When you have all the wood separated, you are ready to begin. Measure 20 boards to be 3 feet long. Cut all of the corners of these boards at an angle.

Next, measure 20 more boards to be 18 inches long, and cut all of the boards at an angle as well. Use the photo for reference.

You have 4 posts from the center of the pallets. Cut these, so they are 30 inches in length. Now, paint all the wood to be any color you wish.

Measure where you want your pond to be and dig holes for the posts at equal distances. You are going to hammer the wood to these posts at regularly spaced lengths. Use the photo as a reference for how to assemble completely.

Once the entire pond is assembled, place your liner inside, as well as the pump. You are now ready to add water or even fish!

Image/Diagram



Octagonal Planter & Wine Rack

Material

CUTTING LIST				
ITEM	QTY	TH	W	L
Staves	8	$\frac{3}{4}$ "	6"	24"
Lips	8	$\frac{3}{4}$ "	2"	$6\frac{1}{2}$ "
Bottom	1	$\frac{3}{4}$ "	18"	18"

Steps



Do the base from a piece of 12-inch-wide plywood. To avoid having to adjust the blade angle when you bevel the opposite edge of each stave, clamp the blank to the base as in step 1, but with its narrow end at the leading end of the base. Make sure the narrow end of the blank extends off the base by 1 ¼ inch and the wide end by 1/4 inch. Position the guide bar and stop block against the workpiece, and screw the pieces to the base from underneath. Remove the bar clamps and bevel each stave.

- Planter Assembly

Attach a dado head to your table saw and make necessary adjustments to its width and thickness of spline to about ¼-inch. Put the end of a stave over the blades centered, and butt the rip fence in contrast to once side of the stock and clamp a board that will serve as your guide to your table saw against the opposite face. Keeping the outside part flush against the face, affix the stave into the head. To know the measurement of the width regarding the plywood links, butt the wood pieces from end to end, affix two staves with hand screws, and calculate the total depth of the grooves. Slice the splines the equal length as the staves then ripping the pieces with the same ¼ inch wideness of your measurement.

When all the spline grooves have been cut, dry-fit the slats along with the splines. Utilize careful tubing to hold the get-together. To level the slats at the top and base, the two finishes of each piece well must be inclined. To decide

the slope edge, hold a board as a straightedge over the highest point of the get-together and utilize a sliding slant to gauge the edge between the outside part of a joint and the straightedge. Tilt your table saw cutting edge to the calculated edge and cinch an expansion board to the miter measure. Adjust the cutting imprint toward one side of the joint with the edge. At that point, knock a stop obstruct into the finish of the stock and clip it to the expansion. Edge the miter check so the closures will be cut straight over. At that point, holding the workpiece flush against the augmentation and stop square, slope the finish of each joint. Utilize a similar arrangement to bevel the furthest edges of the slats.



- Preparing the Staves for the Bottom

Cut dados over within countenances of the slats for the base with the same arrangement you utilized for crosscutting the slats. Change the width of the dado head to $\frac{3}{4}$ inch and tilt the sharp edges to a similar edge you estimated in sync 2. Set the height to $\frac{3}{8}$ inch. Clip the stop square to the miter gauge to find the dado $\frac{3}{4}$ inch from the base of the slats. Point the miter gauge as you did in the other step to make up for the tapered sides of the staves. Hold the workpiece flush against the expansion, and the stop hinder as you feed it over the saw table.

- Cutting the Bottom of the Planter

Dry-fit the staves and splines together. Center the assembly on a piece of $\frac{3}{4}$ -inch marine-grade plywood and outline the outside of the planter on the workpiece. At that point, mark a second blueprint with the primary plan, counterbalance from it by $\frac{1}{2}$ inch to make up for the dados in the slats. Utilize the second blueprint as your cutting example as you saw out the base on your band saw. When the base is removed, drill a couple of waste gaps

through it.

- **Assembling the Planter**

Test all the pieces of wood together to check if it all fits. Give much attention to the splines that fit just right in the bottom fits and grooves into the dados. If there are necessary adjustments, use a chisel to fix these ill-fitting joints. Next, stick together the staves on the bottom and splice grooves with wood glue. Push the flush, splines, and bottom pieces together. Properly affix the, with bicycle inner tube, surgical tubing, or band clamps.

- **Installing the Lip**

Trim the lip pieces to length by mitering each end at 22 ½ inches. Put glue to the contacting surfaces of the staves and lip pieces, and position each piece, so it ends align with the seams between the staves. Use two nails to fix each lip piece to its stave.

Image/Diagram



Wine Rack with Stemware Storage

Materials

- 1 full pallet with notched support boards.
- 2” screws.
- 1 wineglass (to use as a measuring guide).
- 2 scrap pallet slat pieces, about 2” wide.
- Medium-grit sandpaper.
- Speed square.
- Reciprocating saw (or circular saw, jigsaw, or miter or handsaw).
- Sawhorses (optional, depending on the saw used).
- Table saw (optional, depending on pallet slat widths).
- Tape measure.
- Cordless drill.
- Jigsaw.
- Palm sander (optional).

Steps



Lay the full pallet on the ground with the notched side of the support boards facing up. Use a speed square to mark a line on each support board of your pallet that lines up with the top of the second slat from the end on the backside of your pallet. Depending on the width of your pallet slats and how far apart they are attached to the support boards, you will end up cutting your support boards about 10–12” long and there will be 1 pallet slat attached to the front and 2 attached to the back.

Use your saw to cut each support board on your mark. I used a

reciprocating saw because I could just prop up that end of the pallet on 2 pieces of 2×4 scrap wood and cut. If you would prefer to set your pallet on a set of sawhorses, you could use a circular saw, jigsaw, or even a handsaw. You might not have this, but my support boards stuck out a little beyond the pallet slats at the end. If yours do the same, cut them flush with the pallet slat with a reciprocating saw. Measure the depth of your entire pallet. Remove a pallet slat of the right width (based on the measurement in step 5) from the pallet you just cut apart. Use your cordless drill to attach it to the bottom of your pallet piece with 2” screws, using 2 per support piece.

You might need to rip a pallet slat to size with a table saw, but I got lucky and had one just the right width. You could stop right here and just finish her off with some sanding and maybe a personalized message, but where there’s wine, there need to be wineglasses, so let’s add a rack along the bottom for some convenient wineglass storage. Cut off 1 more pallet slat from that same pallet with the same measurement. Using a wineglass as a guide and a tape measure to ensure the equal distance between each glass, mark how far apart you would like each wineglass to hang upside down from the rack as a frame of reference, my wine rack measures 40” long. I decided 5” looked like a good distance apart for the wine glasses.

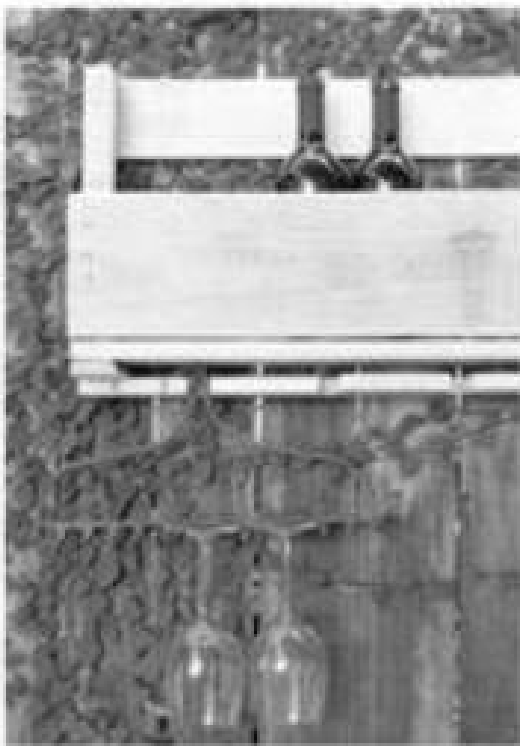


Using the equally spaced marks as a guide, use a speed square to mark U-

shaped openings that are about 3" long and 1" wide use a jigsaw to cut out each U-shaped opening. Cut the pallet slat scraps about 2" × 4" long. They will function as spacers when you attach the wineglass holder board to leave enough of a gap for the base of your wine glasses. Lay the wine rack on its back. Line up the 2" pieces of pallet slat with each end of the wine rack along the bottom side. Layer the pallet slat with your U-shaped openings (openings facing the front of the wine rack) on top of the 2" pallet slat pieces (so the 2" pieces are creating a gap between the wineglass holder slat and the wine rack).

Mark and then drill 2 pilot holes with your "drill bit; these holes will go through the wineglass holder slat and the 2" pallet slat pieces. Make 2 holes per slat piece about 2" apart Use your palm sander with medium-grit sandpaper to sand every piece of the entire project now, before you attach the wineglass holder board. It will be easier to sand in each of the wineglass holder cuts before assembly. Line up everything as you did in step 13. Use 2 (2") screws per end to attach the wineglass holder to the scrap pieces and onto the bottom of your wine rack.

Image/diagram



Chapter 14

STRIPPED-DOWN WINDOW PLANTER BOX



A window box brightens a home from the outside and the inside alike, with flowers that can be seen from each side. This one has a crisp, clean look, with squared edges and a painted finish. The simple trim in front adds classic lines. Use rot-resistant wood, such as the heartwood of cedar or pressure-treated lumber.

The cleat that attaches to the wall, as well as to the bottom, should be treated lumber. The box can be filled directly with soil, or you can have a local sheet-metal shop make a galvanized insert to fit. Here, the sill is an architectural feature, so the box is installed just below it because the sill protrudes 1 in. From the wall, a 1-in. A cleat is used for attaching the box. You may choose instead to attach the box even with the top of the sill.

Material

- Cedar or treated 1x 8, for sides, bottom, and trim.
- Pressure-treated board, for the cleat.
- Deck or stainless-steel screws.
- Masonry screws, if attaching to brick.
- Spray primer and paint.

Tools

- Power miter saw or miter box.
- Drill with screwdriver and masonry bits.
- Angle square.
- Clamp.

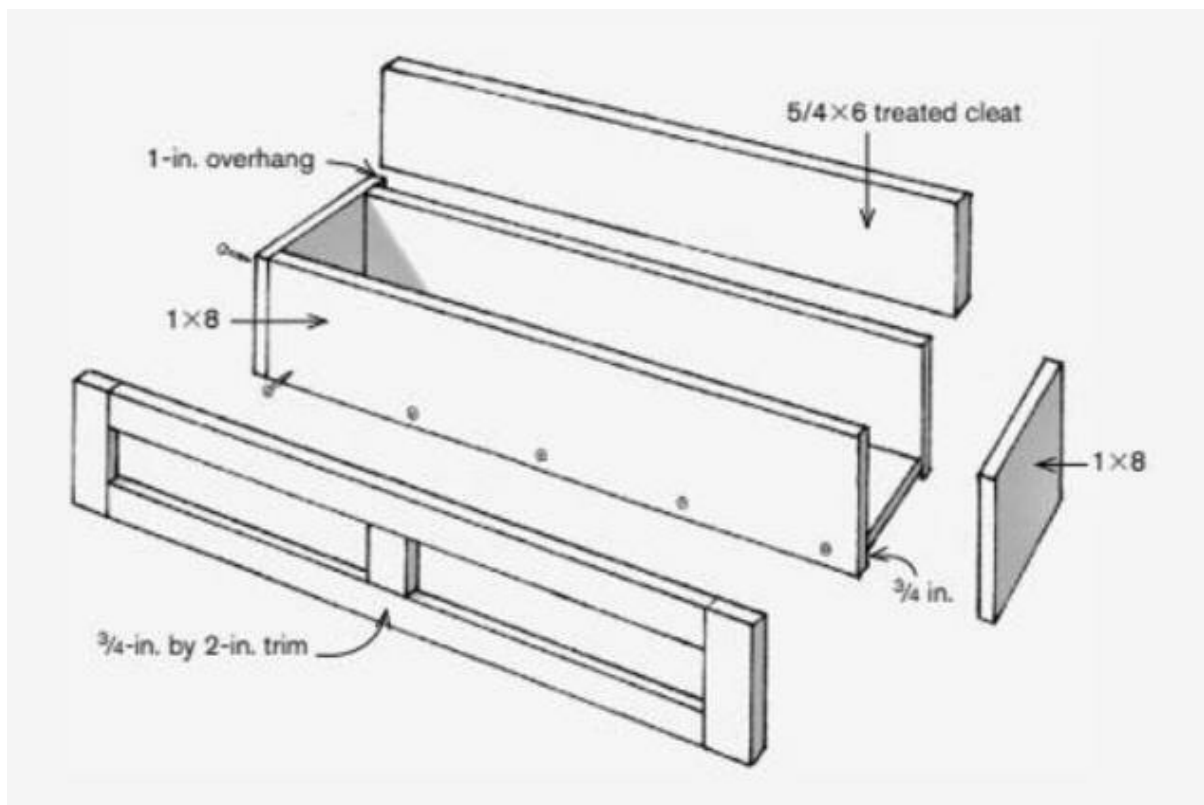
Steps

Measure the sill and determine the desired size of the window box. We've chosen to install a box that extends 1 in. Beyond the sill on each side. Use a power miter saw, or a hand miter saw to cut three 1×8s to the width of the planter minus 1 1/2 in. Place the bottom piece on pieces of wood to raise it 3/4 in. Or so. Make markings on the sides to denote the middle of the bottom piece's thickness. Drill pilot holes and drive screws to attach the three pieces together. Cut the cleat (which will be used for attaching the box in step 8) to the same length as the three pieces you just assembled. Hold it against the back of the planter and place a piece of 1×8 against the side. Use an angle square to mark the side piece for cutting. Attach the sides by drilling pilot holes and driving screws. These screws will show, so you may choose to sink the screws and fill the holes with wood filler, or countersink and plug.

Drill 3/8-in. Drainage holes in a grid pattern at the bottom of the box. Rip-cut trim pieces 2 in. Wide. Hold them in place to mark for cutting. To attach, drill pilot holes and drive screws from the inside of the box and into the trim. Make sure the screws are not so long that they will poke through. Apply primer and paint. You can use spray paint, as shown, or brush it on. Use a product that will last in your climate.

If you are attaching to a brick wall, measure to make sure you will drive screws into bricks, which hold better than the mortar. Drill holes through the cleat using a wood screw. Then hold the cleat in position and drill with the masonry bit to mark the location. Remove the cleat and finish drilling the holes in the brick. Use the correct bit for your masonry screws. Replace the cleat and drive the masonry screws to fasten the cleat. Attach the window box by drilling screws through the sides into the cleat from outside the box and through the back into the cleat from inside the box. Add soil and plant.

Image/Diagram



Chapter 15

BAMBOO PROJECTS



Bamboo Flower Planter or Container

Material

- 3 poles of bamboo, each 36 inches long, 1 inch in diameter.

Tools and Supplies

- Fine-tooth saw.
- Splitting knife.
- Mallet.
- Fine-tip permanent marker.
- Measuring Tape.
- Knife.
- Power drill and assorted drill bits.
- 6 drywall screws, 1 to 1 ½ inches long.
- Water sealer.
- Paintbrush.



Steps

Sweat the bamboo poles. Cut a 7-inch length from one of the poles. Use the knife and mallet to split it, creating two feet. Arrange the three poles side by side. Position the center area of each length, where the openings will be cut between nodes. Mark the center points. Keeping the centers lined up and measuring from the left side, mark one pole at 35 inches, one at 21 inches, and one at 27 inches. Use the saw to cut the lengths, straight across at the nodes. Cut the other ends on an angle to create an open elongated oval.

Now you'll make the center openings. Starting with the 35-inch length pole, measure 14 inches from the left end, and use the saw to cut straight down about halfway through the culm. From that cut, measure up 1 $\frac{3}{4}$ inch and saw on an angle into the culm to meet the cut. Pop-out the inner piece. Repeat this process with the other two poles, cutting the 21-inch length 9 inches up from the base. And the 27-inch piece 12 inches up from the base.

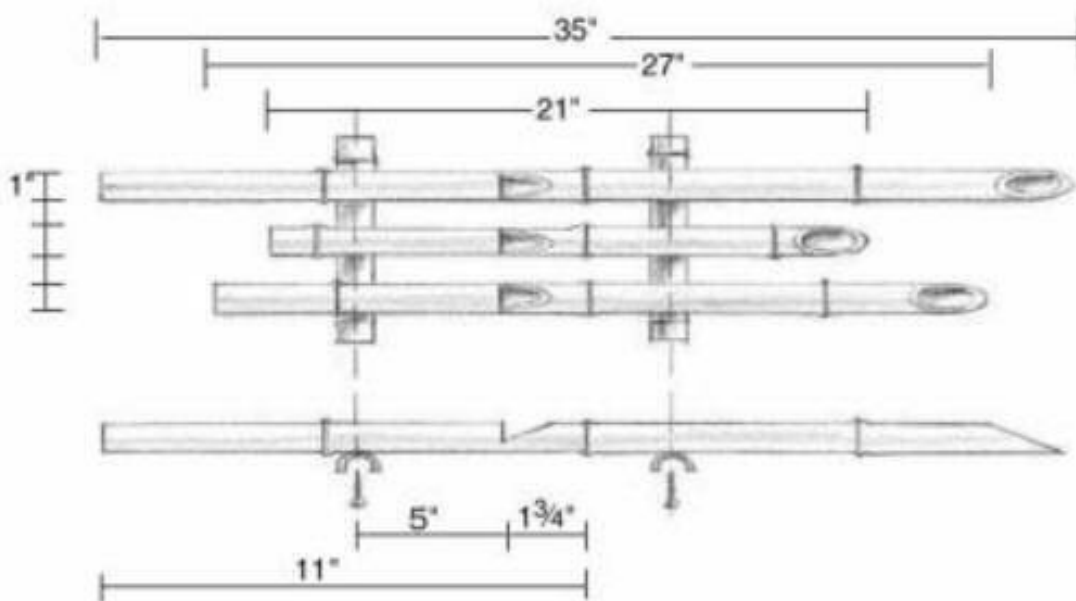
Use the knife to slice off the black outer layer of the bamboo and make decorative stripes on the ends, at the center openings, and on the feet.



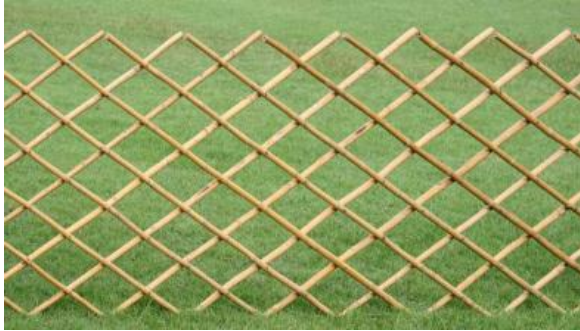
Attach the feet by centering the three poles with their opening facedown. Measure and mark 5 inches below the straight cut of the opening and 7 inches above it.

Center the feet, curves sides facing down, along with the points you marked. Drill pilot holes. And drive the 1-inch screws through the feet and into the poles. Use the brush to apply the sealer on the outer surfaces and inside the center and openings of the vase. Let dry.

Image/Diagram



Bamboo Fence



Material

- Circular saw or reciprocating saw.
- Drill.
- Countersink piloting bit.
- Wire cutters.
- Lumber (4×4 , 2×4 , 1×4 , 2×6).
- Pliers Deck screws ($3''$, $2\frac{1}{2}''$, $2''$).
- Bamboo fence panels with $\frac{3}{4}''$ -dia. (or as desired) canes.
- Level Tape measure Eye.
- Ear protection.
- Galvanized steel wire.
- Work gloves.

Steps



Install and trim the 4×4 posts according to the size of your bamboo panels, setting the posts in concrete (see page 243) for the 6×8 -ft. Panels in this project, the posts are spaced 100" on-center and are trimmed at 75" tall. Install the top 2×4 stringers. Cut each stringer to fit snugly between the

posts. Position the stringer on edge, so it is flush with the tops of the posts and with the back or front faces of the posts. Fasten the stringer with 3" deck screws driven through angled pilot holes. Use one screw on each edge and one on the inside face of the stringer, at both ends.

Mark the location of each bottom stringer. The span between the top of the top stringer and bottom of the bottom stringer should equal the bamboo panel height plus about 1". Cut and install the bottom stringers in the same fashion as the top stringers. Here, the bottom stringer will be installed 2" above the ground for rot prevention. Unroll the bamboo panels.

Flatten the bamboo panels over the inside faces of the stringers. Make sure the panels fit the frames on all sides. Using a countersink-piloting bit (inset), drill a slightly countersunk pilot hole through a bamboo cane and into the stringer at a top corner of the panel. Fasten the corner with a 2" deck screw, being careful not to overtighten and split the bamboo.

Fasten the rest of the panel with screws spaced 12" apart. Stagger the top and bottom of the screw, and drive them in an alternating pattern, working from one side to the other. Repeat steps 4 and 5 to install the remaining bamboo panels.

To shorten the length of a bamboo panel, cut the wiring holding the canes together at least two canes beyond the desired length using wire cutters. Remove the extra canes, and then wrap the loose ends of the wire around the last cane in the panel.

Cover the top and bottom ends of the panels with 1 × 4 battens. These finish off the panels and give the fence a similar look on both sides. Cut the battens, so the ends are flush against the inside faces of the posts and fasten them to the panels and stringers with 2 1/2" deck screws driven through pilot holes.

Add the top cap. Center the 2 × 6 top cap boards over the posts, so they overhang about 1" on either side. Fasten the caps to the posts and stringers with 3" deck screws. Use miter joints for corners, and use scarf joints (cut with opposing 30° or 45° bevels) to join cap boards over long runs.

Unroll and position a bamboo panel over one or both sides of the existing fence. Check the panel with a level and adjust as needed. For rot prevention, hold the panel 1 to 2" above the ground. Tip: A 2 × 4 laid flat on the ground makes it easy to prop up and level the panel.

Fasten the panel with deck screws driven through the bamboo canes (and

fence siding boards, if applicable) and into the fence stringers. Drill countersunk pilot holes for the screws, being careful not to overtighten and crack the bamboo. Space the screws 12” apart, and stagger them top and bottom.

Install the remaining bamboo panels, butting the edges together between panels for a seamless appearance. If the fence posts project above the stringer boards, you can cut the bamboo panels flush with the posts.

Variation: To dress up a chain-link fence with bamboo fencing, simply unroll the panels over the fence and secure them every 12” or so with short lengths of galvanized steel wire. Tie the wire around the canes or the panel wiring and over the chain link mesh.

Image/Diagram



Bamboo trellis



Material

- 2 lengths of rebar, 4 ft long.
- 60 drywall screws in lengths of 1, 1 ¼, 1 ½ and 2 inches.
- Galvanized wire, 16-gauge.
- Copper wire.
- Binder Twine.

Tools and Supplies

- Hammer.
- Measuring Tape.
- Power drill and assorted drill bits.
- Pliers.
- Wire Cutters.

Cutting List

Description	Qty	Material	Dimensions
Horizontals	3	Bamboo poles	1 1/2 " x 7"
Posts	2	Bamboo poles	1 1/2 " to 4."
Long Diagonals	11	Bamboo poles	1/2 "to 1" x 6."
Short Diagonals	3	Bamboo poles	1/2" to 1"x 4."

Steps

Working with the two-foot poles that will serve as posts, use the hammer and a piece of the rebar to knock out the lower 3 feet of diaphragms.

On a large, flat surface, lay the posts 6 feet apart. Place the horizontal stringers in the top, one 3 inches below the top of the post, once 3 inches above the base and one in the middle. Drill pilot holes at the intersections of posts and stringers and drive in the 2-inch screws.

Mark the center of each horizontal. You'll use the marks as reference points when placing the diagonals to form the diamond pattern.

Place five of the long diagonals and one of the short diagonals on the frame, all are leaning in the same direction. Center the diagonals, drill pilot holes, and use the appropriate screws to secure the ends to the frame.

Turn over the trellis assembly. Layout the remaining diagonal poles in the opposite direction. Ready, diamond patterns. Adjust, drill the pilot hole, and screw the intersections.

To install the trellis, mark the placement of the two end posts. Use the hammer to pound the rebar into the ground at those points. Lift up the trellis and slide the posts over the rebar.

Use the wire or cordage to reinforce intersections that need extra support.

Image/Diagram



Bamboo Tripod



A bamboo tripod can be dropped almost anywhere in a garden or

flowerbed. You can train vines to crawl up it, you can hook a small hanging plant from its top knot, or it can just sit there to provide a focal point or visual frame. This is perhaps the simplest project in the book. Still, it calls for a bit of knack and some practice to achieve a knot that is neatly wrapped with no crossing over. There are three basic components of the knot: a clove hitch on the first pole, wrapping around the other poles, and “frapping”—wrapping sideways to tighten the whole knot assemblage.

Materials

- Three bamboo poles, the same length and about the same thickness.
- Bonsai wire or twine.
- Lineman’s pliers.

Steps

In this example, our bamboo poles are about 3/4 in. in diameter, and we used a piece of wire about 16 in. long. To start, tie a clove hitch on one of the poles: Wrap the wire (or twine) around and pull down a length somewhat longer than the thickness of the other two poles. Move that length of wire up and wrap the longer length around it and back around the pole. Slip a loop under and pull it all the way through. Tighten the clove hitch.

Wrap the three poles together. Keeping the side of the wires by the side, wrap over one pole and under another. Wrap in the other direction with the longer length only. Continue wrapping, taking care not to cross over. Once you’ve wrapped three or four times, pull tight using lineman’s pliers.

It’s time for frapping. Loop the wire sideways. Wrap it sideways two or three times, pull tight, and wrap over to the other pole. Wrap sideways again and pull tight. Finish by twisting tight, then cut the loose ends. The three poles now are tied fast, but flexibly, so you can open them up.

Image/Diagram



Chapter 16

DIY BACKYARD BAR



You can impress your friends by starting a get-together or party with drinks served from your own, unique bar—one that you made yourself. A striking feature whether you set it up indoors in a den, game room, or converted basement, or on a deck in your yard, this bar will be practical as well as the centerpiece of the party. Don't let the scale of this project intimidate you—it may be large, but it's easy to put together.



Materials

- Flat-head screwdriver.
- Sandpaper, 80-and 120-grit, and woodblock.
- Tape measure.
- Pencil.
- Straightedge and string.
- Jigsaw Handsaw.
- Wood rasp.
- Hand drill with 3/16 -in/4-mm drill bit.
- Cordless drill/driver.
- Nails and wood screws.
- Electric sander.
- One 2-by-15 1/2 -by-59-in/5-by-39-by-150-cm board (for the top).
- Two 3/4 -by-17 1/2 -by-55-in/2-by-45-by-140-cm sheets of the manufactured board (for the base section and shelf).
- Two 3/4 -by-15-by-33 1/4 -in/2-by-38-by-84-cm sheets of the manufactured board (for the side sections).
- Two 4 3/4 -by-33 1/4 -in/12-by-84-cm semicircular fence posts (for the front posts).
- 14 ft/4.2 m of 1 1/4 -in/3-cm board (for the battens).
- Five 2-by-10-in/5-by-25-cm semicircular fence posts (for the feet; rough measurements, depending on available scraps).
- Twenty-nine 25-in 1×2/2.5-by-5-by-64-cm boards (for the front section).

Steps

The curve of the bar will be dictated by the shape of the top, so it's best to start here and work down. To give my bar a real woody feel, I decided to leave the rough appearance on the solid wood top. For the same look, simply clean away any loose bark or dead wood from the edge, using the flat-head screwdriver, then smooth out rough edges with 80-grit sandpaper.

Lay down the wood top onto the sheet for the base section, and draw around the top with the pencil to act as a guide for marking out the base section. Now, for the angles and straight sides, draw straight lines on the board that follow the sides of the outline drawn around the top, using the straightedge. To smooth out the curve along the front—if you are not good at making freehand curves—attach the pencil to a long piece of string, securing the other end of the string to a pivot point (such as a nail with a large head in a scrap board). The longer the piece of string, the gentler the curve. Using the tape measure and pencil, measure and mark the depth of the base section to extend it to 17 1/2 in/45 cm. using the jigsaw, cut out the base section.

Use the base section as a template for the shelf and trace around it with the pencil. Because the shelf will be sitting inside the carcass, you will need to reduce its width by the thickness of the side sections. Mark in from each short end the thickness of the sheet for the side sections—in my case 3/4 in/2 cm. cut out the shelf, using the jigsaw.

Measure and mark the two side sections, using the tape measure and pencil. My top is 2 in/5 cm thick, the feet are 2 in/5 cm high, and the base section is 3/4 in/2 cm thick, so I subtracted 4 3/4 in/12 cm from 38 in/96 cm, the height I wanted the bar to be, making my sides 33 1/4 in/84 cm high. Measure and mark the two fence posts to the same height, and cut them to length with the handsaw.

Make a curve on the top back corner of each side section to provide a smooth transition from the deeper shelf and base sections to the top. Using the pencil, mark a curve that starts above where you intend to fix the shelf and ends at the back edge of the top. Cut out the curve, using the jigsaw. Soften the edges with the wood rasp, then smooth them with 80-grit sandpaper.



With the main bar components cut out, it's time to start fitting together the pieces using battens and wood screws. Using at least 1 1/4-in/3-cm boards, cut four battens to the width of the bar's side sections. Drill three 3/16-in/4-mm pilot holes through each of two adjacent faces in each batten. Using the screwdriver and wood screws, attach one batten flush with the bottom edge on each side section, then measure up to the point you want the shelf to be—mine is 24 in/61 cm from the bottom—and secure the next batten here.

If you are able to get a helping hand, the next stage will be much easier. First, use the screwdriver and attach the base section to the side sections with the battens and wood screws. Now, line up the shelf and attach it to the side sections with battens and wood screws, too.



Measure, mark, and cut four battens to fit along the front vertical edge of the side sections, both above and below the shelf. Make pilot holes as in step 6 and secure the battens to the side sections with wood screws (but leave a gap of at least 1 1/2 in/4 cm for the batten to attach the top). Now, use the battens to attach the fence posts, driving wood screws through the battens and into the posts.

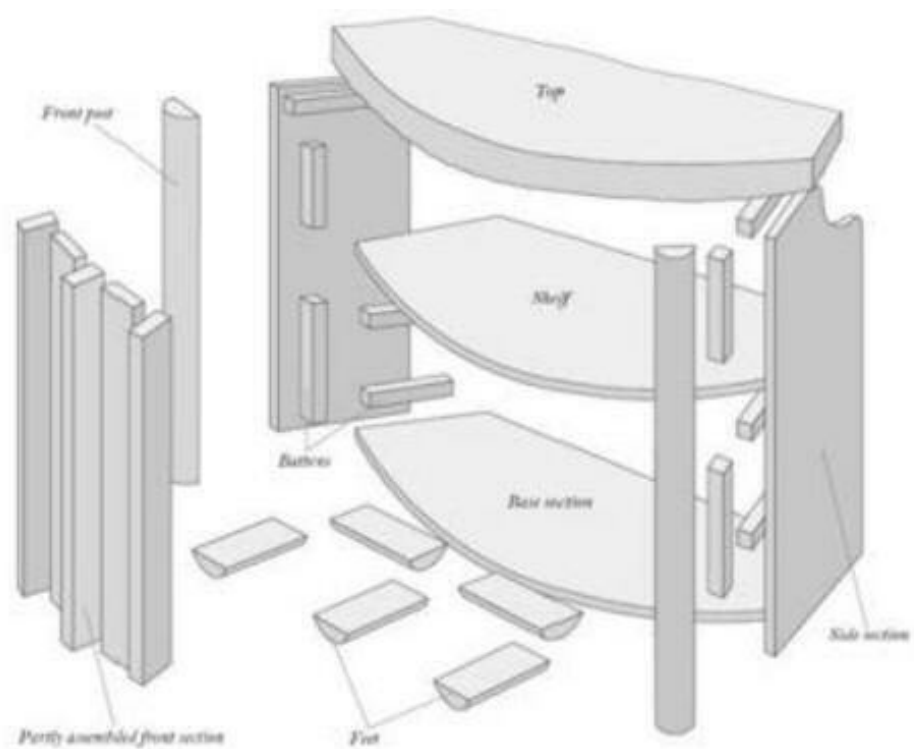
To make the front section of the bar, measure the distance from the shelf to the base section and mark it on aboard. Using the handsaw, cut it to size, then use this board as a template to mark and cut the rest of the boards for the front. To create the pattern on the front, start by nailing one board on its flat face to the edges of the shelf and base sections. Set the next board on its edge and nail it to the first board (not the shelf and base sections). Set the next board on its flat edge, nail it to the shelf and base sections, and repeat it.

It's time to fit the bar top in place. With the same techniques and type of board used for the battens in step 6, measure, mark, and cut two battens, then secure them in place flush with the top of the side sections, along the inside, using wood screws. Set the top in place, and secure it by driving in wood screws through the battens from below.



Flip the carcass upside-down onto its top. Use scraps from the fence posts as feet for the bar. Space the five feet evenly around the bottom, with one in the center, and draw around them with a pencil. Drill two 3/16 -in/4-mm holes inside each of the pencil lines. After placing the feet back within the pencil marks, secure them in place with screws driven through the holes from inside the carcass and into the feet.

Image/diagram



CONCLUSION

Congratulations on making it at the end of the book. Woodworking is one of the most useful skills a person can master. Not only will you be able to build a wide array of planters, furniture, decors, etc. for yourself, your friends, and family but also can be a good source of livelihood and income. Make it your personal hobby, woodworking and you put your creativity into something useful and will keep you busy. To top that, it is a fairly cheap and fun-full hobby. You can use different types of wood, even scraps and driftwoods.

Like any other skill, we must get through different stages of learning in order for us to finish wood projects with good quality and efficiency. For beginners, woodworking might seem like a complex and hard task. However, once you make your first wood item, you'll realize that woodworking is quite easy, especially if you have the right guide and plan to follow. Such plans give sufficient detail to make the wood project much easier to work. A great project to work in wood begins with a detailed plan.

Here in this book, you were given a variety of woodworking projects for outdoors. So, if you're keen, excited, and ready to follow the instructions, you can build with wood in no time at all. Always keep in your mind that woodworking gives you a lot of opportunity or chances to injure yourself or even other people. Practicing ample care all the time when doing these projects, especially when handling power tools, will help you prevent such hazards. Read and analyze all the guidelines in this book with care and be sure to also do the same with manuals given by the manufacturer regarding the tool and equipment you will be using.

But apart from having the best woodworking plans, other main factors that will measure whether you'll enjoy creating pieces of wooden art are your drive and passion. No matter how many techniques you know or how many tools you have, you won't really be doing woodworking properly if you don't put your heart and vision to it. Woodworking skills will also give you increased self-esteem because you'll feel proud of your accomplishments.

Now to be able to be good at woodworking, you must let go of the initial reluctance associated with it. In time you'll learn that there is no standard way to create a great wooden creation, but rather, a combination of your imagination, deftness, and past experience. The point is, do not hesitate to start these projects by yourself. There is a huge knowledge base of

woodworking insight available in print and online. If the undertaking does not end up as you'd intended, you can always start over, and you are going to have learned a lot along the way. We frequently discover more from our mistakes in working wood than from easy successes. Of course, you don't have to follow every single tip mentioned in this book to become a great woodworker; so, focus on learning from your mistakes as much as possible. You'll be surprised that after following several plans, you're the one coming up and designing your own plans.

So there you go, you may be able to do all the woodworking projects you discovered in this book. Hope it was useful and able to provide you with a good knowledge base you will need to achieve your goals, whatever they may be.