

Modular Backyard Kitchen made from Reclaimed Materials

by **adamtylernelson** on May 17, 2015

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Intro: Modular Backyard Kitchen made from Reclaimed Materials

I love my backyard. And I love sharing it with others. Over the last year, I've been on a mission to make my yard a place where my friends are regular and welcome guests. This Backyard Kitchen is the latest effort. It's made of two modular units, a hot unit and a prep unit, which feature:

- Charcoal grill and t urkey fryer,
- Butcher block countertop,
- Cold water sink,
- Fold-out/removable tables (seating for 6-10),
- Storage shelving,
- No visible screws, and
- 99% reclaimed parts

The only pieces of the units that were not reclaimed materials are the screws, plumbing, and polyurethane. Everything else, including the grill (already owned), turkey fryer (secondhand), butcher block countertop (leftover), sink and hinges (construction reuse), and wood (pallets and garden timbers), came from reclaimed, repurposed, or reused materials.

This project was also an opportunity for me to grow as a woodworker and maker, and features some modest joinery, some accounting for wood movement, making your own tools, recovering from mistakes, and SketchUp for Woodworkers. I'll include some additional information about these experiences as "Asides" throughout this Instructable.

I've entered this in the Reuse, Outdoor Cooking, and Backyard Contests - if you like it, please vote for it!

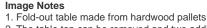
Also, I'm considering making measured drawings (re-drawn for common board sizes) of this project for purchase. If you're interested in that, please send me a message on Instructables and let me know - thanks!





Image Notes

- 1. Storage Shelving
- 2. Reclaimed Butcher Block
- 3. Construction re-use sink
- 4. Turkey fryer (secondhand)
- 5. Repurposd grill
- 6. Pallets and old garden timbers



- 2. The table top can be removed and two additional legs added to have seating for
- 6-10
- 3. Leveling feet added to the table legs and uprights



1. When folded down, the tables create a decorative front to the units.

Step 1: Design Concept and Constraints

Because I chose to work almost exclusively with reclaimed materials, I found that it was impractical to do a complete design of the project first - I couldn't count on there being enough of a given component to complete the design. But I also didn't want to go grabbing materials willy-nilly, because I have a limited amount of storage space. In reality, the designing-sourcing cycle looked something like this:

Concept: I knew I wanted an outdoor kitchen made of several units, where the faces folded out to be tables, and I thought I wanted this to include a prep area, dish rack, sink, grill, smoker, turkey fryer, and chest cooler. That was enough to start.

Constraints: I already had certain materials (grill and leftover butcher block), so the units would have to be designed to incorporate those. In addition, I wanted the units to be able to be moved into my basement during the winter, so their width could not exceed that of the basement door (about 32").

In terms of their length, they'd need to approximate a small 6-person kitchen table (about 48"). The height of the units would need to be close to a standard countertop (about 36"), and the fold-out tables would need to be close to a standard table (about 29").

Using the concept and constraints, I started making rough designs of the project, eventually deciding that incorporating all of the things I thought I wanted would be WAY too much work. Instead, I chose to focus on the grill, turkey fryer, sink, and prep area, knowing that I could expand the units in the future.

With this design roughed-out, I started sourcing materials.

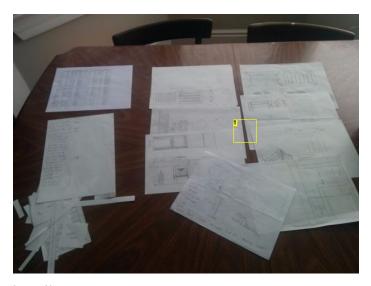


Image Notes 1. A variety of design concepts

Step 2: Sourcing Materials

With the broad concept in mind, I began collecting materials on the weekends. We have a construction re-use depot called Construction Junction here in Pittsburgh, where I happened to find a small sink (the dimensions of which then became part of the constraints). Nearby, I found a great source for high-quality hardwood pallets (see abeaule's Pallet Safety Instructable for info about using pallets).

Additionally, I set up two alerts on Craigslist, one for free wood and the other for a turkey fryer. Doing this early was essential; it took only a few days to get some good structural wood from leftover garden timbers, but several weeks to find a turkey fryer.

After identifying these sources of reclaimed materials, I would check them on a regular basis for new and useful materials, until I felt I had collected enough to begin working on the project in earnest. Before designing the final project, however, I needed to create consistent stock from the materials I had sourced.



Image Notes 1. Breaking down pallets 2. The Pallet Pal

Image Notes 1. Using Izzy Swan's Pallet Pal



Image Notes
1. Pallet wood with nails removed, ready to be turned into consistent stock.

Step 3: Aside: Making your own tools

The first several pallets I broke down were done using a dead-blow hammer and a crowbar - an exhausting and frustrating process when trying to work with hardwood pallets. (It does work, though. If you don't have an alternative to doing this by hand, I recommend following the process shown in the video below.)

Eventually, I found Izzy Swan's YouTube channel where he posts a variety of woodworking projects, jigs, and hacks. He has a great attitude about woodworking and making the most out of what you have. Izzy has created the Pallet Pal, which is a plywood-based pallet breakdown tool that uses your bodyweight to pop boards out of pallets.

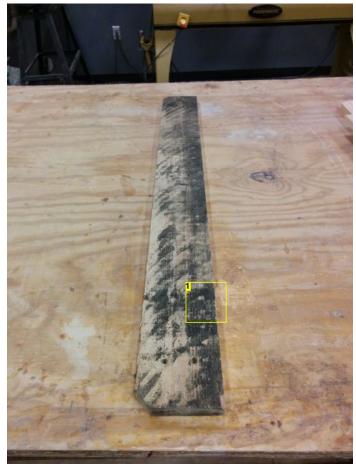
It is an excellent tool that I was able to make in an afternoon with a few pieces of scrap. Using the tool I was able to break down an entire pallet in about 10 minutes, including time spent removing a few stubborn nails. I highly recommend the tool to anyone looking to work with pallets on a regular basis:

Step 4: Creating Consistent Stock

Many projects I see that use reclaimed materials (especially pallets) end up incorporating materials without much modification, creating a hodge-podge aesthetic. I wanted a cleaner look for my project, and because I was using half-lap and tongue-and-groove joints, I needed wood of consistent sizes.

The pallet wood and garden timbers make up the carcass of the units - they're the "bones," and therefore were the pieces where consistent dimensions would be most essential. The important dimensions for consistency were width and thickness; since I didn't have a complete design yet there was no reason to cut boards to a specific length, and I knew I could join boards to make them longer if necessary.

I jointed and planed the pallet wood to the largest "whole" thicknesses that were possible; 1", 3/4", 1/2", and 1/4". Additionally, I ripped the wood to the largest whole widths I could - this ranged from 5 1/2" down to about 2". The majority of the wood that I was able to source ended up being planed down to a 1/2" thickness and ripped to about 3" wide.



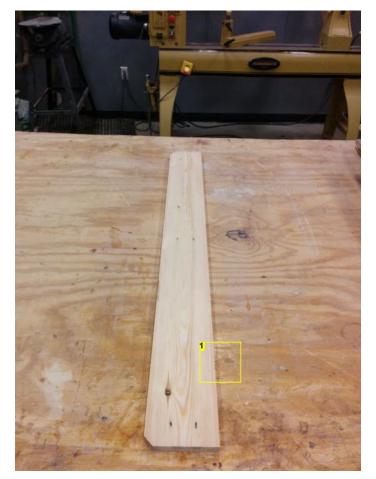




Image Notes 1. After

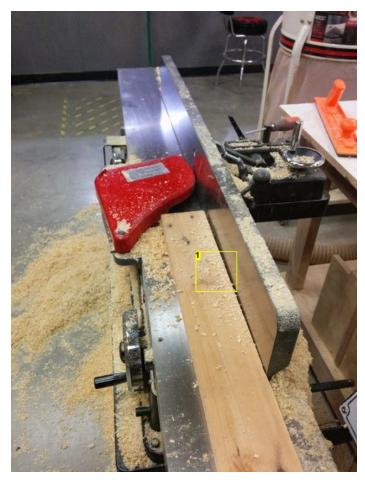




Image Notes 1. Jointing the face

Image Notes 1. The suction on this machine is very poor, resulting in a lot of shavings accumulating around the tool.



Image Notes 1. Before



Image Notes 1. After - not necessary to remove everything, just to create a flat surface for the planer

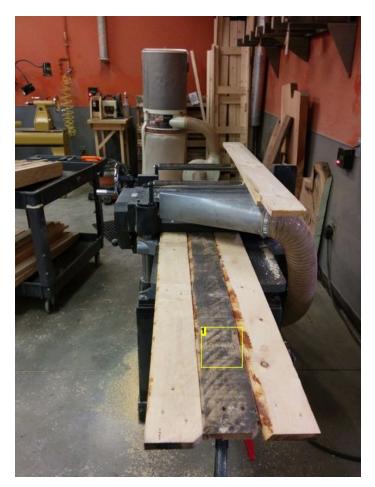




Image Notes 1. Ripping pallet wood to width

Image Notes 1. Planing



Image Notes1. Consistent stock2. Several pieces split in the process of cleaning; they were fixed using glue and clamps.





Image Notes 1. Ripping garden timbers to width



Image Notes
1. Leftover pieces; I saved these with the thought of creating a cutting board.



Image Notes
1. Tons and tons of sawdust and shavings, ready to be swept up.

Step 5: Design

After taking inventory of the stock that I now had available, along with the other constraints, I was ready to make the final design. I tried several methods to learn to design the units, including drawing them by hand, cutting the components out of paper, and actually laying out all of the materials to see what would work best.

Eventually I gave up on making the drawings by hand; I'm not much of an artist and the overall construction of the units were complex enough that I was having difficulty visualizing it in my head.

I decided to use this as an opportunity to learn to use SketchUp, and I found that being able to manipulate the parts in 3D was exceptionally useful. Within about a day, I had learned enough to use SketchUp effectively, and within about another day I had produced a basic model for the project.





Image Notes 1. Framing the design

Image Notes

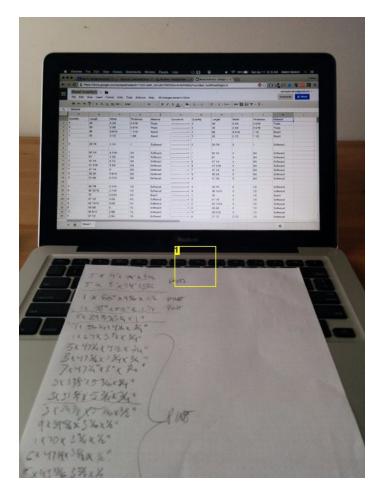
1. The design process is circular - this layout was done before pieces were trimmed to consistent sizes



Image Notes

1. Eventually these larger timbers were ripped in half to create 2"x3" stock.





	A 1		c	0	ε	F. 1	G	н		
	Quantity	Length	Width	Thickness	Material	Convert to	Quantity	Length	Width	Thickness
2	5	48	4 3/8	3 5/16	Posts		-> 5	48	4.3/8	3 5/16
3	5	36	4 3/8	3 5/16	Posts		> 5	36	4 3/8	3 5/16
	1	06	9 9/16	1 7/16	Board		> 1	66	99/16	1 1/2
8	1	55	5 1/2	1 3/8	Board		> 1	55	5 1/2	1 1/2
							>			
7	5	29 7/8	3 1/4	11	Softwood		-> 5	29 7/8	3	1
						-	>			
	1	56 1/4	4 1/16	34	Softwood		> 1	56 1/4	4	3/4
10	1	67	3 3/8	34	Softwood		> 1	67 2	3	3/4
-	5	47 1/4	4 1/2	3/4	Softwood		-> 5	47 1/4	4	3/4
12	3	47 3/16	3 3/4	3/4	Softwood		> 3	47 3/16	3	3/4
13	7	47 1/4	3	3/4	Softwood		> 7	47 1/4	3	3/4
14	3	39 3/8	59/16	3/4	Softwood		> 3	39 3/8	5	3/4
15	3	31 3/8	5 7/16	3/4	Softwood		> 3	31 3/8	5	3/4
18							>			
17	3	34 7/8	5 1/16	1/2	Softwood		> 3	34 7/8	5	1/2
18	9	39 15/16	3 7/16	1/2	Softwood		-> 9	39 15/16	3	1/2
10	1	70	3 9/16	1/2	Board		> 1	70	3	1/2
20	6	47 1/8	3 5/8	1/2	Softwood		> 6	47 1/8	3	1/2
21	5	43 13/16	3 5/8	1/2	Softwood		> 5	43 13/16	3	1/2
	6	39 3/8	4	1/2	Softwood		> 6	39 3/8	4	1/2
22	11	39 5/16	3 3/8	1/2	Softwood	-	> 11	39 5/16	3	1/2
24	4	37 1/2	2 3/4	1/2	Softwood		> 4	37 1/2	21/2	1/2

Pre-jointing, planing, and ripping inventory
 Post jointing, planing, and ripping inventory.

Image Notes

1. taking inventory

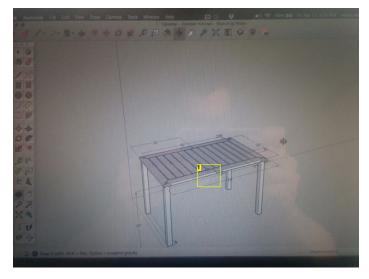


Image Notes 1. First attempts at SketchUp

Step 6: Aside: SketchUp for Woodworkers

The SketchUp Video Tutorials are fantastic, but more focused on the tools used by architects and builders than on the tools for makers. However, Rob Cameron has done the world a favor and created SketchUp for Woodworkers, an incredibly well-constructed and easy to follow series of videos covering the most essential tools for Woodworkers. I've included his first video below, but I highly recommend visiting his website to watch the other tutorials: http://sketchupforwoodworkers.com/

Step 7: Layout

With the designs created and each part measured, I started marking my stock with cuts and joints. Because I had to make several identical or very similar components, it was great to be able to batch the work and do all of those components at the same time. With all of the components clearly marked, it was very easy to move quickly through cutting.

Since I work in a shared workspace (TechShop Pittsburgh), it was important to me that I didn't completely take over the shop with my project - not only would it prevent others from using the workspace, it would significantly increase the chances that I would forget to cut a particular component or lose track of some of my stock. Doing layout ahead of time made that much easier.



Image Notes 1. Consistent stock, ready for layout



Image Notes

- 1. Referenceing from the SketchUp Model to do the layout
- 2. Similar or identical pieces were done in batches



Image Notes 1. Cuts, dados, and grooves all layed out and marked.





- 1. hardwood stock
- 2. softwood stock

Step 8: Aside: Measuring vs. Cutting

For my money, the most essential skill for any woodworker is measuring with accuracy and precision. The old adage "Measure twice, cut once" is a good start, but really isn't enough on it's own.

To be sure you're making the right cuts in the right places, an attitude of "Measure carefully, cut thoughtfully" may be better - you can certainly measure wrong twice (I've done it MANY times), and if you're not thoughtful about what you're doing you can end up cutting on the wrong side of your line (I've also done this MANY times).

This project, like many others, was mostly about setting-up. I spent several weeks on this project preparing to cut, and only about a weekend actually making the cuts. Even then, rushing through the cutting process to try to get everything done in a weekend was too fast, and I ended up with several joints that didn't fit properly and needed to be fixed with wood filler or scrapped entirely.

For me, being careful about my measurements and thoughtful about my cuts is often the difference between high-quality and mediocre work, and learning to be patient with my project and letting the work dictate the timetable, rather than the other way around, are still skills I'm working on.

Step 9: Creating the Carcasses

The large garden timbers I had sourced for this project were eventually ripped down to consistent 2"x3" beams. I cut eight upright posts about 34" in length, each with a half-lap at the top and a dado at 18" from the bottom (this dado was cut both to accept the crossbar and the span along the outside).

I also cut eight crossbars 47" in length, and four spans about 30" in length, each with half-lap joints on the ends.

Using 3x1/2" pine pallet stock, I cut about a two-dozen slats for the middle shelf 28" long and about 21 15" side slats. I used a dado blade to cut a 1/2"x1/4" tongue on each end of each slat.

I cut a 3/8" groove along the inside of the middle crossbars, which would accept the 1/4" tongues cut on the slats, to create the middle shelf. I also cut a 3/8" groove along the top of the spans to accept the side slats - the wider grooves allows for wood movement.

I glued and screwed the uprights and crossbars together, then added the spans on one side using glue and pocket holes, and inserted the slats. On the prep unit, the shelf slats were about 1" apart; on the hot unit, I spaced them more closely to make it easier to support the turkey fryer.

I added the other upright and crossbar frame to create a complete carcass for each unit. Lastly, I cut two supports out of 1/2"x3"x43" pine stock for each shelf, attaching them to the underside of the shelf with pocket screws.

With the shelf complete I added side slats and a top spanner to two sides of the prep unit and the interior side of the hot unit (the outside of the hot unit was left open to accommodate airflow, a larger grill, or a small barrel smoker attachment).



- Image Notes
 1. Rough-cutting several pieces ganged together.



Image Notes 1. Using a stopblock for interior dados 2. Dado blade set to the appropriate height.



Image Notes 1. A completed upright



Image Notes
1. Cutting the groove on the crossbar. Eventually this groove was widened to 3/8"
to account for wood movement.



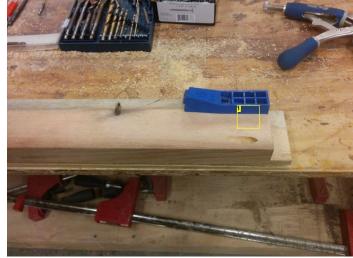
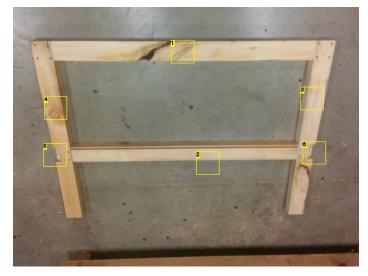


Image Notes 1. Drilling pocket holes in the spanner

Image Notes 1. Cutting the groove in the spanner





- Image Notes 1. Top crossbar, glued and screwed to the uprights 2. Mid-crossbar with groove for shelf slats 3. Right upright 4. Left upright 5. Dado for spanner 6. Dado for spanner



Image Notes 1. Drilling pocket holes in side spans and shelf supports





Image Notes 1. Assembling the carcass

Image Notes 1. Shelf slats with 1/4" tenons 2. Side slats with 1/4" tenons

Step 10: Creating the Table Tops

Using 8 1"x3"x25" hardwood pallet stock, I cut 3" normal half-laps on one end and mitered half-laps on the other. I joined the pieces at the regular half-laps (gluing and clamping) to create top and bottom pieces 47" long.

I also took 4 more pieces of 1"x3"x29" hardwood pallet stock and cut complimentary mitered half-laps on both ends to create side pieces for the table top (basically a frame for the slats, similar to the middle shelves on the carcasses).

Along the long pieces, I gut a 3/8" groove 1/4" from the top inside edge. Again, like the middle shelves, I cut a 1/4"x1/2" tongues along about two dozen 1/2"x3"x23" hardwood pallet stock.

I joined the mitered edges with glue and brads, fit the tongues of the slats into the grooves, and used a ~3/4" spacer to set the spacing before securing with more glue and brads.

I also cut two supports out of 1/2"x3"x41" pallet stock for each table top, attaching them to the underside of the table with pocket screws and then to the table top slats with brads.



Image Notes 1. 3/8" groove for tenons 2. Mitered half-lap joint





- Image Notes1. Mitered half-laps joined with glue and brads2. Spacing the table top slats with a spacer and attaching with glue and brads

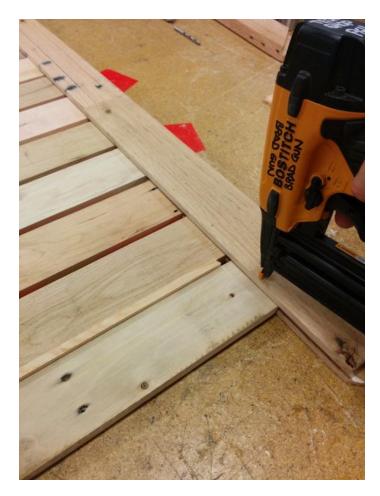






Image Notes 1. Gluing the mitered half-laps







Image Notes
1. Installing table supports

Image Notes 1. Drilling pocket holes for table supports

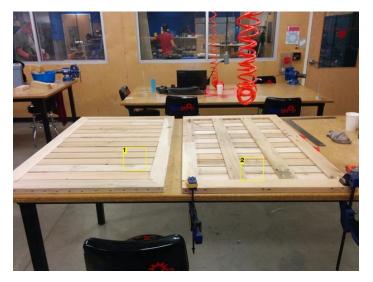




Image Notes 1. Top 2. Bottom

Step 11: Aside: Recovering From Screwups

Originally, I had intended for the table legs to set inside of the table top with no hardware, only with a mortise and tenon joint in the corners of each table. I tried to cut the mortises by hand after assembling the table tops, but a combination of weak wood, sub-optimal chisels, and my own inexperience led to terrible joints.

I like symmetry, so I was really concerned about the table tops not being uniform. This really upset me; I had spent a ton of time working on the table tops, tried to do everything as precisely as possible, and had "ruined" one of my tables.

After a brief period of frustration and self-criticism, I lightened up. This project uses reclaimed wood, after all - perfect symmetry is impossible, and the only one who would really notice or care would be me. I took this as an opportunity to practice patching and chose to use contrasting wood colors to highlight the patch, rather than trying to mask it. I glued and clamped the splintered pieces of the mortise, then made myself some blocks sized to fit the holes. After sanding the blocks to a tight fit, I coated the blocks and holes with glue, then used a scrap piece of wood and a hammer to drive the blocks in.

The result looked surprisingly good - after filling in gaps with wood filler (I like a 1:1 mixture of sawdust and wood glue) and sanding them, the patches turned into a decorative accent to the table top. The few people who've even noticed the patches thought they were intentional and really liked the look of the contrasting wood.

I made several other screwups on this project that I'm glossing over (tenons on the slats were cut imprecisely, I failed to account for a design change and ended up with a piece of wood 1" too narrow, filling gaps ended up discoloring parts of the surrounding wood, etc.). The point is, trying to complete a project without a screwup is nearly impossible, especially on the first try. It's been useful for me to practice recovering from screwups, and to use them as opportunities to learn how to improve my skills and practice new techniques. Above all, screwups are opportunities to learn to love work that isn't perfect, because it never will be.



Image Notes 1. Splintered and not square

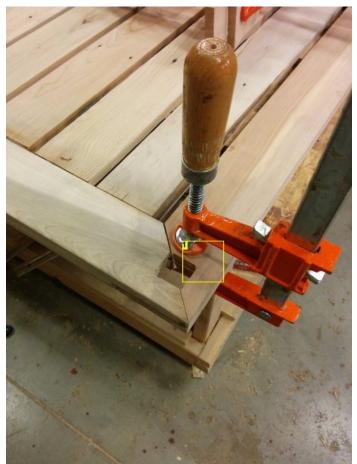
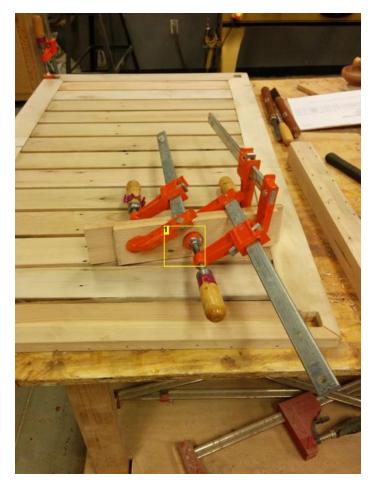


Image Notes 1. Patching the splinters with glue and clamps



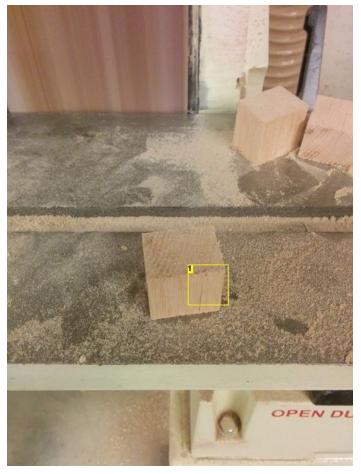


Image Notes
1. Cutting and sanding woodblocks to size

Image Notes 1. Making woodblock stock





Image Notes
1. Fitting woodblocks

Image Notes 1. Driving woodblocks to patch holes

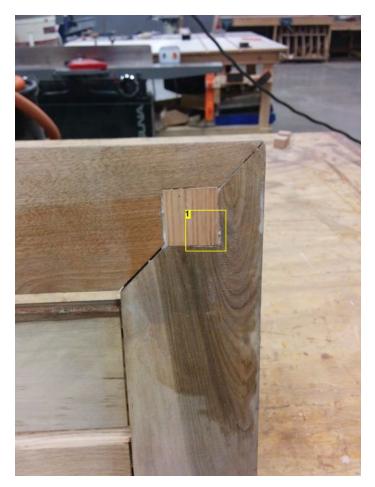




Image Notes 1. The patch



Image Notes 1. 50/50 mixture of sawdust and wood glue makes for a good filler.





Image Notes

1. The patch after sanding

Step 12: Creating the Prep Unit Top

This step is probably the most useless for anyone attempting to create their own version, since the prep unit top is made entirely of irregular pieces. For anyone planning on creating their own outdoor kitchen, the most important thing to remember is to ensure any supports that run below your prep top are set at least 2" in from the edge, so that they clear the crossbars and the top will sit flush against the carcass.

After laying out the dimensions of the sink on the butcher block and cutting the hole for the sink, I layed the unit out upside down, glued the components together and then ran a ratcheting strap around the edge to compress the joints; I then used some 3/4"x3" stock to create supports along the bottom, screwing the supports to link the three pieces of the top together to form a single component.

I drilled holes through the underside of the crossbars on one unit and screwed up into the underside of the prep top to secure the top to the carcass.



1. Joining and supporting the prep top components

Step 13: Creating the Faceboards and Table Legs

I didn't have enough stock in the correct thickness to create the faceboards (which sit above the table tops when folded) and the table legs. To create these components, I had to laminate smaller pieces together with glue.

For the faceboards, I took several pieces of 1/2"x3" hardwood stock and laminated them together to create 1" thick pieces. I then joined these pieces on both their long and short sides and ripped them to width, creating a 1"x5"x47" component created from 8 smaller pieces (for each unit).

The legs were comparatively simpler; I already had several pieces of appropriate length (28"), so I just laminated the 1"x3"x28" hardwood stock together, then ripped to width, creating eight 2"x2"x28" table legs.



Image Notes
1. The basic prep unit, with its table top and faceboard before trimming to length.





1. Laminating wood to make faceboards of appropriate thickness

Step 14: Sanding and finishing

In planning for this project, I intentionally gave myself about two weeks for sanding and finishing. I knew that if I didn't, I'd be tempted to rush through the final elements of the build and end up letting the project go outside without appropriate protection from the elements.

After talking with several other woodworkers, I chose to sand the carcasses to 150 grit and the tabletops and faceboards to 220; the slightly rougher sand would be on areas of the project that would be mostly hidden or expected to get a little roughed-up.

I also chose to coat the units in spar-urethane. I debated this for a long time (going for a more natural finish vs. something that would stand up better to weather) and eventually opted for the polyurethane. After spending so much time on the project already, the prospect of re-finishing the units once or twice a year was unappealing.

I chose spar-urethane mostly as a matter of convenience (it was the most robust finish carried at the Home Depot near my house) but the product was well reviewed so I felt pretty good about going ahead with it.

After completing the sanding, I transported the units home and spent a weekend finishing them; initially I used a 3 inch brush for the finishing, but after a while opted for using a rag and wiping the poly on - I found this gave me more control and let me get into some of the narrower parts better with less dripping.

I gave the units two coats over about 48 hours; everything but the butcher block received a complete coating. Since the butcher block will come into direct contact with food, I'll treat it regularly with food-grade mineral oil to keep it protected.



- 1. Sanded but without polyurethane
- 2. First coat of polyurethane
- 3. Both the dog and I managed to get polyurethane in our hair.

Step 15: Plumbing

I went with a super-simple plumbing setup, mostly for convenience. I don't own my house, and the Backyard Kitchen isn't designed to stay at this place permanently, so creating a sophisticated plumbing system was out of scope.

Instead, I created a simple cold water sink by running a hose from an outdoor spigot to a brass splitter, and then connecting the split hose ends to the faucet via female hose mending couplings and two garden hose adaptors.

I could have simply connected a single know to the hose, but I wanted both to operate to make the sink more convenient to use. Since the sink is exclusively cold water, I plan on having a light bleach solution on-hand for sterilizing hands and countertops that may come in contact with raw meat.

The sink drains to a flexible plastic basin below, which holds about 5 gallons (more than enough for a single evening). The photos show a flexible drainpipe; eventually I switched to a series of PVC couplings and another length of hose to make it easier to remove and replace the basin when it needed to be emptied.

I didn't seal (caulk) the sink to the countertop; I want it to be easily removable in the event I want to make some changes to the units. This sink has fittings for small bolt clamps below; I may decide to use them to make the sink slightly more permanent later in the summer.





Image Notes
1. Hose adaptor attached to faucet



1. Two female-female lengths of hose - I'd make them a bit longer if I could do it again.





- Image Notes1. Dual outlet brass faucet adaptor2. These kinks aren't a huge issue, but next time I'd make the hoses a bit longer



Image Notes
1. Installing the sink



Image Notes

1. I needed to cut a section of the shelving out to accommodate the wastewater hose. If I'd planned more carefully this may have been avoided, but I don't really

http://www.instructables.com/id/Modular-Backyard-Kitchen-made-from-Reclaimed-Mater/



mind it.

 $\ensuremath{\text{2.}}\xspace$ A series of reducing couplings that eventually hook the sink's drainpipe to another length of hose



Image Notes

1. Wastewater basin. I'll need to empty this regularly to prevent it becoming breeding ground for mosquitoes, but that's easy to do.

Step 16: Installing Hardware

The table legs and hinges are attached to the table tops using 1/4" T-nuts. After drilling and countersinking the holes for the legs, I applied some JB Weld epoxy and drove the T-nuts into the legs with a small hammer.

(This is not an ideal setup for the legs, because the stress from tightening the screws wants to pull the T-nut out of the legs, rather than deeper in. I went this route after my initial attempt at mortising a square peg for the legs failed, and probably should have spent a little more time considering how to address it. A better solution would have been to use a combo wood/machine screw driven into the table leg, and then a nut on top of the table to hold it in place.)

I used T-nuts drive in from the backside of the faceboard and the underside of the table top to match the holes in the hinges. Bolts are drive in from the face of the hinge, sandwiching the wood and the hinge between the T-nut and the bolt - a much stronger union, because the direction of stress wants to pull the T-nut in deeper.

With the T-nuts set and epoxied, I clamped the faceboards to the carcass and drove screws in from the backside of the crossbeam to secure it, then filled any gaps between the faceboard and carcass with woodfiller. Once the faceboards were installed I hung the tabletops from the hinges to create the fronts of the units.

Lastly, I cut my grill legs to the appropriate height, and mounted them to the hot unit shelf using a few pieces of 1"x3" scrap hardwood, with holes drilled for the grill legs. The blocks were attached to the unit with screws from the underside of the shelf.



Image Notes 1. Drilling the T-nut hole and countersinking with a spade bit.

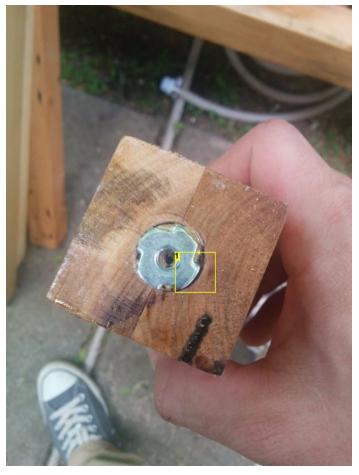


Image Notes 1. Hammering in the T-nut. Eventually I switched to a more robust epoxy (JB Weld) that holds the T-nut better.



Image Notes 1. Drilling holes for T-nuts in the faceboard.





Image Notes 1. Drilling holes for T-nuts in the underside of the table top



Image Notes 1. Faceboards attached, before drilling holes

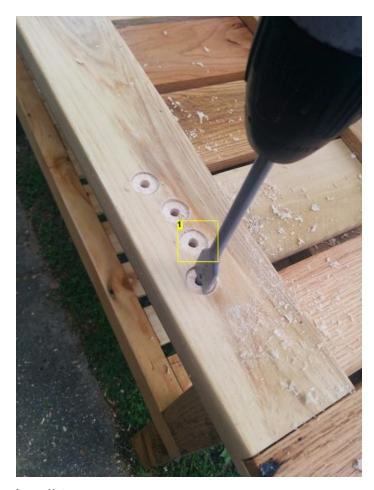




Image Notes 1. Countersinking with a spade bit.





Image Notes
1. Supports for the grill, attached to the shelf with screws from the underside.





Image Notes 1. After: A place for everyone

Step 17: Finishing Touches

Because the backyard isn't level, I needed to make a couple adjustments to the units before they could be used regularly. I made some small leveling feet out of some 1"x2" circular pieces of wood cut with a hole saw, with bolts run up the middle and epoxied to the feet. I added T-nuts on the bottoms of the table legs and the carcass uprights to accept the leveling feet, and then used a level to get the units as close as possible to level.

Because of the way the hinges are set and the slight angle of the yard, the tabletops have a tendency to flare out when they're folded down. I fixed this by installing small neodymium magnets in the corners to keep the face flush.

I had a leftover piece of plywood from an earlier project, which was just big enough for me to create an extra-large lazy susan for the prep unit shelf. I used a ShopBot CNC router to cut out the lazy susan, a slightly smaller base, and a 1" lip that would run around the edge of the lazy susan to serve as a grip and to help keep items from slipping out.



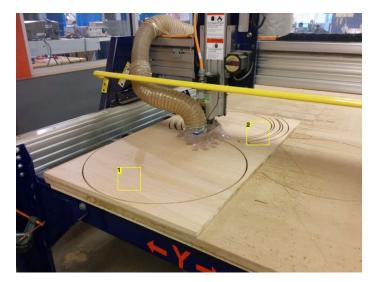
Image Notes 1. Small magnets attached here.



Image Notes

1. Fold-out table made from hardwood pallets

- 2. The table top can be removed and two additional legs added to have seating for
- 6-10
- 3. Leveling feet added to the table legs and uprights



- 1. Cutting a lazy susan using a robot. I never get over how cool this is.
- 2. Lazy susan base and lip pieces.

Step 18: Share and Enjoy

Before: A nice yard, some decent lawn chairs (also made from pallets - see casvandegoor's One Pallet Chair Instructable), and a few quick sawhorse tables and benches for enjoying dinner outdoors. Not bad, but could be better.

After: A Backyard Kitchen designed to bring people together to share food, drinks, conversation, and the delights of summer. I hope you have the opportunity to build something similar for your friends and family.

Final notes:

1. I've submitted this to the Reuse, Outdoor Cooking, and Backyard Contests - if you like the Backyard Kitchen, it would mean a lot to me if you voted for it!

2. I'm considering making measured drawings (re-drawn for common board sizes) available for purchase. If you're interested in a measured drawing of these units, please send me a message on Instructables and let me know - thanks!





Image Notes 1. Before: unfinished pallet chairs

Image Notes 1. After: A place for everyone



Image Notes 1. Storage Shelving

- Reclaimed Butcher Block
 Construction re-use sink
- 4. Turkey fryer (secondhand)
- Repurposd grill
 Pallets and old garden timbers

Related Instructables



Pallet Sofa by dmcginty1 **DIY Pallet** Bench by doncra





Toy Kitchen from Pallet Wood by Dominic Bender



Reclaimed Pallet Ring by Corinbw **Drawer Space** by SirPhobos15

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