Building a Complete Workshop From Scratch

Intro: Building a workshop from scratch

If you are frustrated by not having enough room to work, not being able to find the right tools and supplies, and spending way too much time looking for things, you can convert a basement utility room and build a workshop. We helped Jack with this conversion and this guide documents our journey

Image Notes
1. Finished product!

Image Notes
1. before

Step 1: Table of Contents

Because of its length, this is broken down into 3 main categories: Planning, Construction, and Organization. This makes it easier to navigate through it.

You can find:

-Planning on steps 2-8

-Construction on steps 9-24

-Organization on steps 25-37

Step 2: Site Preperation

For us, site preparation began with a big cleanout. We threw out abandoned projects, broken parts, and other odds and ends. Organizing what we wanted to keep took a long time, but was very helpful later on as we tried to design storage and set priorities for the kinds of activities we wanted the workshop to support. After we cleared out the room and swept it clean, we assessed the space: how much room was there for bench space, for shelving, for hanging storage? How was the lighting? What existing functions of the room did we need to work around? (That whole-house vacuum tank to the right of the breaker boxes was exhibit A in this department.) We looked for things that might have needed repairing, but the room was in pretty good shape.

We were especially careful to sort through old pieces, parts, and hardware: our scrap drawers served us well in the project as we were able to find corner irons, odd-size screws, and other bits that saved us a trip to the hardware store. We now have 5 different bins of hardware, and another cabinet full of electronics parts.

Image Notes
1. the whole-house vacuum tank was definitely in the way
2. after cleaning

Image Notes
1. before cleaning

Image Notes
1. many odd-size fasteners are here, along with screw anchors, washers, and wire nuts

Step 3: Skills Needed

We used power tools to make quick work of tasks like ripping plywood and cutting 2x4s to size. The project could be accomplished with hand tools, and if you don't have a table saw, we have found that many lumber yards will cut 4x8 sheets for a nominal fee. Also, this service makes hauling plywood much easier if you don't have a truck or large vehicle at your disposal.

If you are not comfortable with power tools, get proper instruction before attempting to use them. Also, electricity can kill you and/or cause fires if you make a mistake, so call a professional if you are not sure of your abilities in house wiring.

That being said, here are the skills we drew on in the process of building our shop:

-we needed two adults for many parts of the project, so if you are working solo, consider inviting a friend over for certain phases. The doors we used for benchtops, for example, weighed about 100 lbs. each before we cut them to size.

-ripping large pieces on a table saw

-cutting 2x lumber on a chop saw

-wiring hanging lights into an existing circuit

-shortening power cords with aftermarket plugs

-drilling holes into wood and plastic with power drills

-using a level, tape, framing square, and other measuring tools

-soldering and other electrical and electronic skills for the power supply project

Step 4: Zones

After assessing the things we planned to do in the workshop, we listed several different areas or zones that would become design considerations. There were the following:

-soldering, uController programming, circuit testing, and electronics repair

-basic wood-based layout, repair, assembly (clamping/gluing), and finishing/refinishing

-general disassembly and repair of household appliances, cameras, etc.

Because of the electronics, we left major cutting and sanding tasks in the garage to minimize sawdust. Similarly, automobile and bicycle repair made little sense for a basement workshop, so we left specialized tools for these types of projects in the garage.

Step 5: Design

To aid in designing the shop, we created a model of the room in Google SketchUp . This allowed us to see where we had the most space available.

With a long wall available, we decided to make a 12-foot long bench with shelf storage underneath. We settled on on a 28 inch depth as a compromise between usable workspace and ease of reaching the pegboard above the work surface.

Because we're both fairly tall, and because we wanted a stool to fit comfortably, we set the benchtop height at 38 inches. Kitchen countertops are usually 36 inches, but that figure dates from the 1940s when a) women were the primary users of those counters and b) both women and men, on average, were shorter. We read somewhere that 42 inch countertops might find a following, but the point here is to build a height that fits your ergonomics, tasks, and taste.

The existing room was pretty dark, so we decided on two 4-foot fluorescent fixtures to hang above the 12-foot bench. Looking back, adding a third strip might have been a good idea: in a basement, it's hard to have too much task lighting. We left a 4-foot fixture hanging in the center of the room, and moved a second 4-foot fixture from the corner where the new build was to take place to a position across the room above an existing workbench.

To support the zone concept, we allowed room for leg clearance and deleted the middle shelf for 4 feet of workspace at the left end, with a computer shelf above with an undercabinet light to support fine work. In the middle disassembly zone, we provided space for a whiteboard and a high shelf for a camera and plastic bags; underneath, we included an empty drawer box for holding work in process off the bench surface. At the right end, we planned to mount a vise at the end near the storage shelves.

For the top surface, we decided on fire doors. They're sturdy enough to hammer on, smoother than anything we could build on short notice, and cost-effective: even doubling up 3/4" plywood would have been about as expensive and less solid.

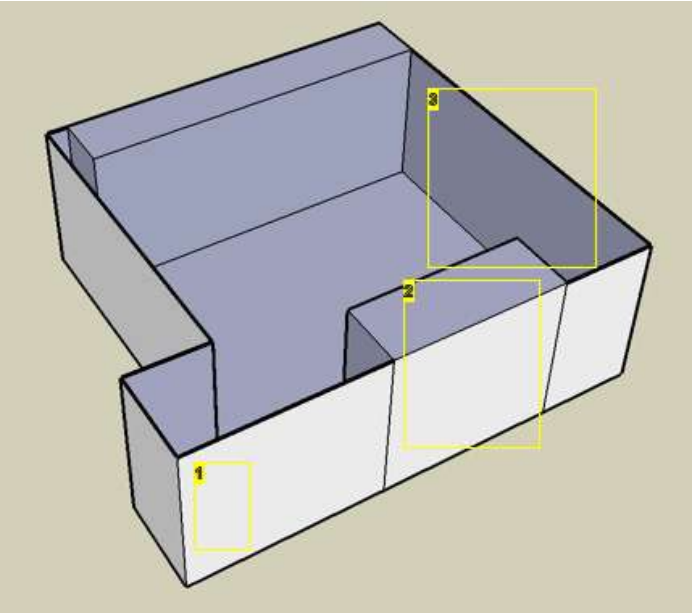


Image Notes
1. Door
2. Furnace
3. Most free space

Step 6: Materials List

Your materials list will likely vary. Here is what we used and why we used it; how much is up to you.

-2x4x8 feet SPF (spruce-pine-fir) for shelf supports, legs, and braces (we used 12 pieces for a 12 foot bench)

-2x6x8 feet SPF for two middle legs (just one was enough)

-4x8 sheet 15/32" plywood. We wanted a smooth surface on one side, so we opted for grade A (best quality) on one side and grade C on the other (thus it's labeled A-C). C-D (or CDX) is rough but perfectly sound structurally. 3/4" plywood is stronger than we needed, heavier and harder to manage, and more expensive. OSB is generally less expensive, rougher, and can behave badly if water is nearby, but check it out as an alternative if you're interested. (We used 20 running feet of 2-foot-wide shelving, or just over a sheet, which yields 16 feet of 24-inch-wide material)

-1x2 pine (this ran along the back of the work surface to keep small pieces from rolling into a crack) 12 feet

-scrap 3/4" plywood, 2x4 cutoffs

-2 48-inch surface-mount fluorescent lights and bulbs. We chose bulbs with a color rendering index (CRI) of 90, which means that color differences are more discernible than with lamps of lower CRI scores. Compared with the bulbs already in the basement, the new ones with the higher number produced a more pleasing light.

-1/4" x 2 1/2" lag screws (we went through about 50 on the front legs/rails and assorted other uses)

-1/4" x 3" lag screws (for the back rails - we used about 25)

-2" fine-thread drywall screws (a handful)

-1 1/4" star-drive exterior screws (about 25)

-4" square-drive deck screws (4 - not worth buying a whole box)

-assorted plastic bins for storage

-drawer boxes salvaged from an old built-in cabinet

-25 feet of 14-2 with ground electrical wire

-wire nuts

-cable staples

-cable ties

-two salvaged fire doors

-wood filler

-furniture oil

-24" x 36" whiteboard

-2 plastic organizer cabinets

-two 4-foot outlet strips (Tripp Lite PS4816)

-two 4' x 4' sheets of pegboard

-pegboard hooks/screws/spacers/tie-downs in accessory kits

-two 2" corner irons

-4 foot x 1/2" iron pipe

-trash can

Power supply parts:

-old, working PC ATX power supply

-plastic project box

-6 female banana plugs

-heat shrink tubing

-120 volt 10 amp SPST switch

-3 feet 18 gauge solid-core wire

Image Notes
1. we also fit a trash can in here, but it blocked the camera
2. 2x6x8
3. 2x4s
4. 2x4s
5. bulbs
6. 2 fluorescent lights

Image Notes
1. we fit everything into a minivan

Step 7: Tools

If you are comfortable using power tools, these are listed first. Otherwise, you could build this project with help or with hand tools.

-10" table saw
-10" compound miter saw
-14v. cordless drill-driver
-6" orbital sander
-3/8" socket set (including drill adapter)
-1" spade bit
-1/8" drill bit
-level
-tape measure
-framing square
-chalk line
-various bar clamps
-6' step ladder for hanging ceiling lights
-lineman's pliers

-wire strippers

For the power supply, we needed some additional tools:

-soldering iron

-heat gun

-multimeter

-7/8" step bit

Image Notes
1. compound miter saw

Image Notes
1. cordless drill

Image Notes
1. 10" table saw

Step 8: Suppliers

We bought most of the material at a garden-variety big-box home center. The exceptions were as follows:

-the 48-inch outlet strips were from Buy.com (currently $37.24 apiece with free shipping)

-fire doors for the bench tops were bought at our local ReStore for ~$40 each. Habitat for Humanity operates ReStores as a way to recycle building supplies, raise money, and increase awareness. Here's a ReStore Directory by state

-a parts cabinet, a Craftsman tool chest, and a tool drawer organizer came from Sears

-the whiteboard came from a big-box office supply store (about $30)

-we found a used oscilloscope on eBay

Step 9: Lighting

Before starting carpentry, we wired two additional fluorescent strips (daisy-chained) into the existing light in the center of the room. Because we spliced into the supply wire inside the steel fixture, there was no need for additional work boxes to contain the wire nuts. All three fixtures now turn on with the wall switch at the entrance to the shop. Because the room was dark with the breaker turned off, a halogen work light plugged into a different circuit let us see just fine.

Step 1: Power up worklight, turn off circuit breaker, and remove bulbs from existing light.

Step 2: Open fixture to see existing splices.

Step 3: Strip new wire, thread through hole in fixture, and add to wire nuts.

Step 4: Affix cable to ceiling joists with cable staples.

Step 5: Wire new fixture at desired location on ladder.

Step 6: Fasten new fixture to ceiling as desired.

Step 7: Repeat steps 2 through 6 with additional lights.

Step 8: Check to see that all connections are mechanically tight and that no copper is visible except the ground.

Step 9: Turn on circuit breaker.

Step 10: Test with bulbs in place.

Step 11: When all bulbs light, turn off breaker, remove bulbs, then replace covers and bulbs.

Step 12: Turn on circuit breaker and re-test.

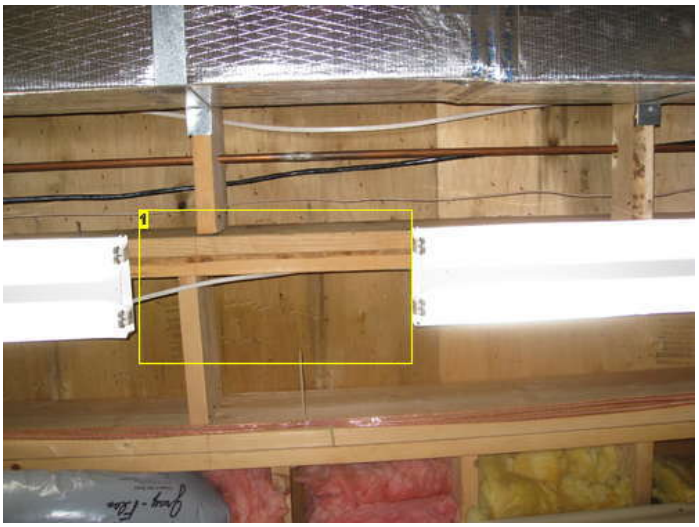


Image Notes
1. make sure that you cable staple the wire, and that the cable staples are insulated

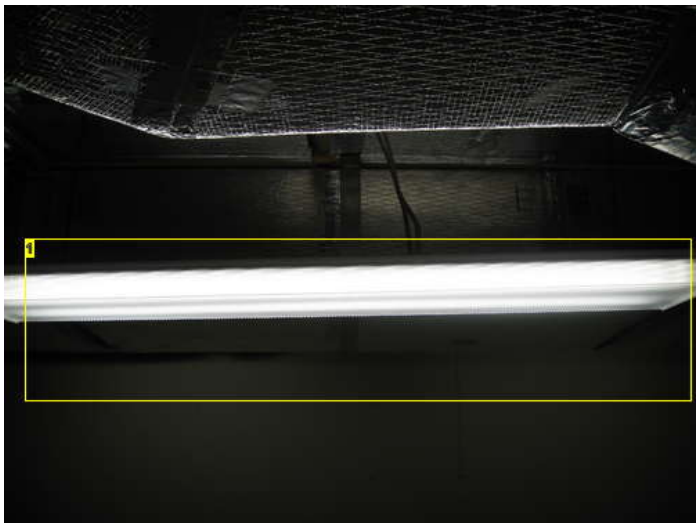


Image Notes
1. existing light in middle of room

Step 10: Cut List

It should be obvious, but always wear eye and hearing protection with loud power equipment.

A) Table saw

1) Because we a) wanted greater knee clearance under the work surface and b) had to clear a surface-mounted plastic pipe on the wall (it comes from the furnace humidifier), we ripped 2x4s on the table saw to get 2x1 3/4" stock.

2) We ripped the 4x8 plywood into 2 24" x 8' shelves

3) We reconfigured a 4'x4' (16 square feet) pegboard into a 3'x4' plus a 1'x3' (adding up to 3' high by 5' wide) plus a 1'x1' scrap.

4) The fire doors were different sizes, and added up to 13'6" in length, which caused clearance problems. On the table saw, we ripped them both to 28" deep and in one case, made a slightly unpleasant discovery: in the recent past, some fire doors now resemble drywall in that they feature a cement core. The saw made quick work of the cut, but the dust was extremely thick. After ripping the wood door to width and while it was still outside the house in the garage, we sanded off the old finish on the better side with an orbital sander.

5) We ripped scrap plywood to size for two shelves that were mounted above the workbench: a laptop shelf was 13"x24" and a shelf for tape measures and other items that didn't hang well on the pegboard measured 6"x12".

B) Chop saw

1) For the 12' shelf rails, we used an 8-footer plus a 45-inch piece. Combined with two end pieces at 1 1/2" apiece, that adds up to an even 12 feet. Some 45-inchers were the ripped 2x4 while others were full with 2x4s.

2) The end pieces (6 of them) were 25 1/2" each, spanning the 24" of the shelf plus the front leg on each side.

3) At roughly the 4' and 8' marks of the rails, we included a cross brace so that the plywood shelves could join on a solid surface. These pieces, 4 in all, measured 21" (24 - (1 1/2x2)).

4) 2 front legs at the corners were 2x4s cut to 36". The middle legs were 2x6 because the rails needed a base on which to join. Technically we only needed one 2x6 but we used two for symmetry.

5) To support a computer shelf on the wall above the work surface, we mitered 2 2x4s at 45-degree angles. In addition, we cut 2 12" 2x4s, one as a screwdriver rack and the other as a cleat for the tape measure shelf.

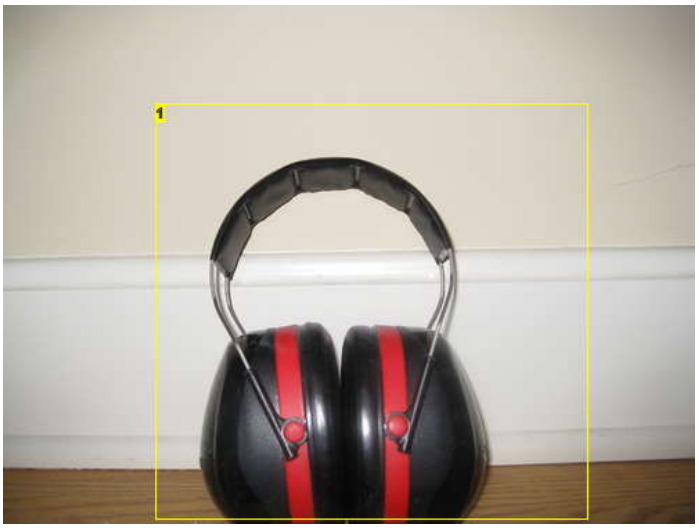


Image Notes
1. Always wear proper ear and eye protection

Step 11: Layout

Layout was pretty simple. After noting obstacles, we snapped chalk lines on the wall for the rear shelf rails/cleats, then marked studs on the drywall above the lines. The ends were marked in pencil with a 4' level positioned vertically. For the front, the legs were placed on the floor, then the rails were laid across them. By driving the lag bolts from the back, the front surface of the legs remained clean.

**IMPORTANT: For this technique to work, we had to remember to work in a mirror image from what we saw on the wall since the legs stand outside the shelf: if the legs were inside the rails, we'd have had to make 1 1/2" x 3 1/2" cutouts for the 2x4s and 1 1/2" x 5 1/2" cutouts for the 2x6s.

An alternative technique would have been to position the lumber for the front rails on the chalk lines, temporarily screw them to the wall, bolt the legs in from the front, then remove the temporary bolts. This technique has the advantage of more precise alignment of the lower shelf heights, but a) the bolts would appear on the front legs and b) the temporary bolts would leave holes.

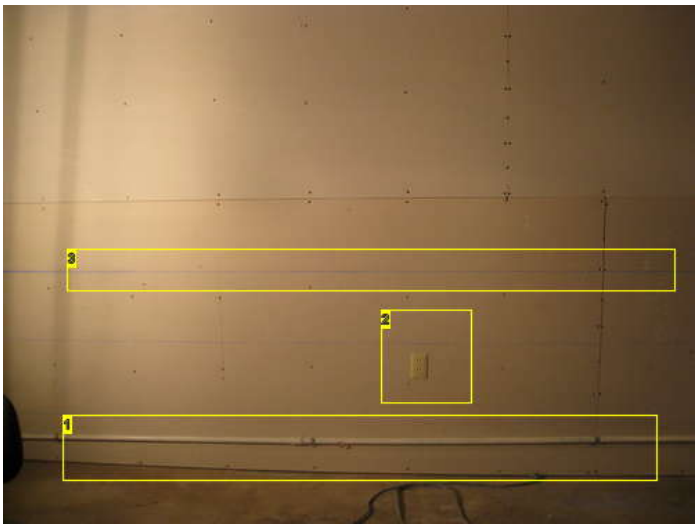


Image Notes
1. This plastic pipe drains water from the furnace humidifier. It affected the height of the lower shelf.
2. This outlet affected the height of the upper shelf.
3. A chalk line made clear marks.

Step 12: Affix Cleats to Wall

With one person holding a piece of lumber (either a ripped 2x4 or a 2x4) in place, the other person drilled a series of 1/8" pilot holes in line with the studs behind the drywall. He then placed a 3" lag screw in the socket attached to the cordless drill, and anchored one end. We then tested the piece against the chalk line and against a level, then drove in the remaining screws. Because these boards were going to bear a lot of weight, the lag screws gave us confidence in the construction. While we opted not to use washers, you might want to. Also, once the bolt stops turning the drill might keep going, so be careful of your wrist and forearm.

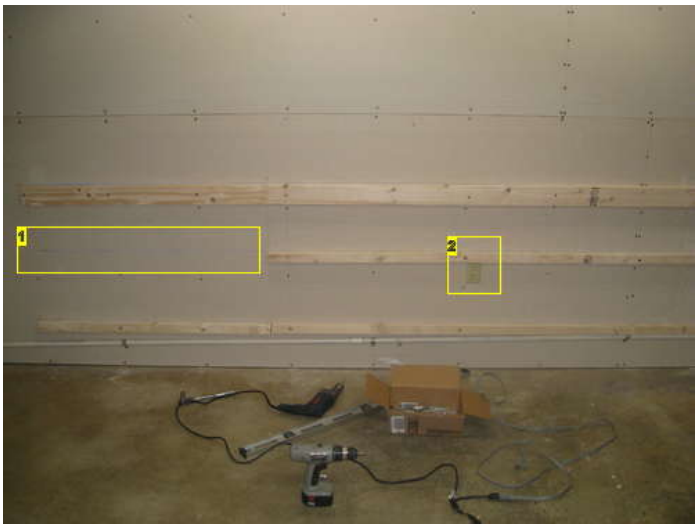


Image Notes
1. this was where the stool was to go, therefore a cleat wasn't needed because there wasn't a shelf
2. We had to be careful not to hit the outlet.

Image Notes
1. 1/4 x 2 - 1/2 lag screws
2. Drywall screws
3. 1 5/8 x 8 exterior star drive

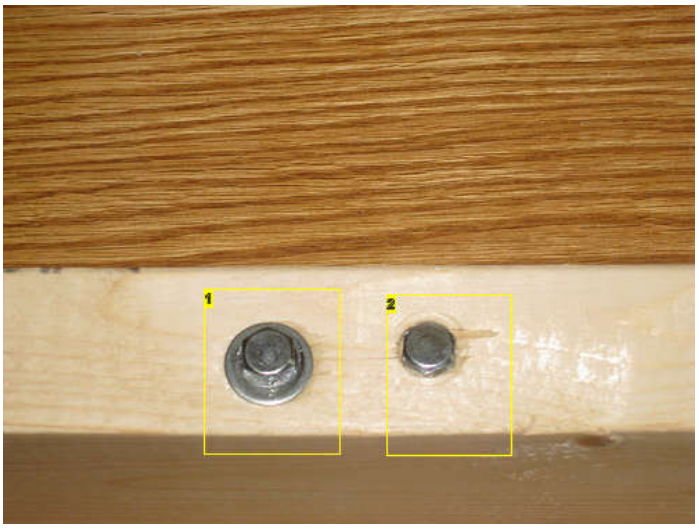


Image Notes
1. with washer: neat, easily removed, but proud of surface. Very useful if you're trying to pull two surfaces tight together.
2. driven into the wood: semi-flush, less fussy than with washers, can be tough to extract

Step 13: Assemble Front Frame on Floor

The mirror-image layout was the key here, along with frequent use of the framing square and the tape measure to be sure we ran parallel with the wall cleats. Pilot holes made the task of driving in the 2 1/2" lag screws much easier.

Image Notes
1. mirror image. Nothing on left 4 feet because of the stool clearance
2. back middle rail/cleat

Step 14: Join Front to Cleats

This was definitely a 2-person job. We got the 25 1/2" side pieces ready with 2" drywall screws pre-started, aligned the two top rails, then put 1 screw through the side piece and into each rail. After repeating this process for the other end, we worked our way down both sides, getting all 6 side pieces in place to join the rails at the ends. Finally, we inserted the 2 21" cross braces between the lowest set of rails using a corner iron at the back and a drywall screw through the front rail. (Given that the joint bears little weight we went with drywall screws.)

Image Notes
1. supports
2. more supports

Step 15: Install Shelves

Because the distance between the insides of the rails was only 21" and the shelf was 24" wide we worked from the bottom up. After laying the plywood in place and pushing the legs toward the wall to get a snug fit, we used short star-drive screws to keep the shelf tight against the rails. Star-drive screws don't have the problem of a Philips bit camming out and possibly marring the work, they go in flush with the surface, and we had some laying around from a previous project. With the bottom shelf in place, we installed the cross pieces for the middle shelf and repeated the process. Note that because the left 4 feet of the bench was designed for sitting access, we had neither middle rails nor shelf in this section.

Step 16: Mount Doors

Another two-person job - these doors were heavy. After aligning the end of the left door/top, we drilled 6 3/4" countersink holes so the top of the lag screws would not sit proud of the top. We then drilled pilot holes at the center of each countersink, then drove a 2 1/2 lag bolt through the door and into a rail. For the right section, we adjusted the process somewhat because of the cement-core construction of that door. We did not countersink if there was not wood underneath the thin laminate surface: we wanted no part of any more cement dust.

As there was a slight gap between the two doors and some surface scarring on the solid wood (left) door, we applied wood filler where necessary. After it dried, we treated the wood door with a coat of Danish oil. The right door's laminate surface is less pleasant to admire but is super smooth (either spray-applied polyurethane or plastic laminate) and it cleans up extremely easily.

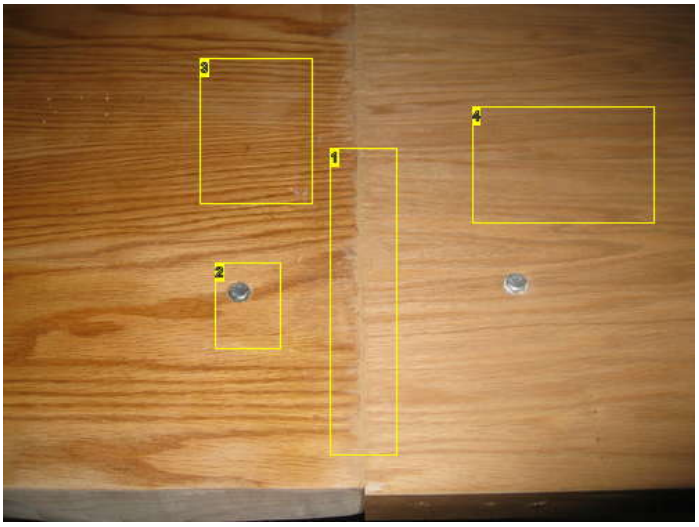


Image Notes
1. wood filler
2. countersunk hole for lag screw
3. real wood top
4. laminate top

Image Notes
1. wood filler

Step 17: Laptop Shelf

To keep a laptop handy for looking things up while building or taking apart, we built a small shelf out of scrap 3/4" plywood. After ripping it to 13" deep, we cut two 45-degree 2x4 brackets and cut holes for the power and other cables to run to and from the laptop. We then screwed the shelf into the top of the brackets, keeping the back side of the shelf flush with the wall side of the brackets. With the assembly ready to go on the wall, we marked studs and drilled pilot holes that would deliver a screw perpendicular to the wall. We had some square-drive 4" deck screws laying around, and the extra length was handy for driving through the bracket and into the studs.

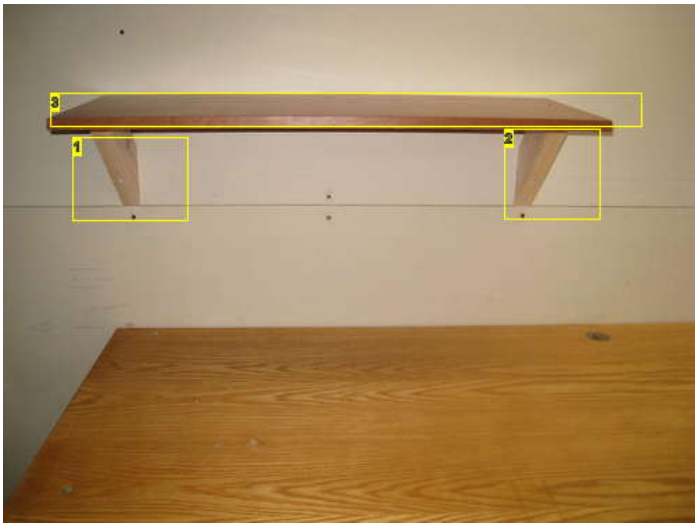


Image Notes
1. 2"x4" with 45 degree angles
2. we cut them together so they would be identical
3. scrap plywood

Step 18: Backsplash / Power Strips

To prevent small parts from getting caught between the back of the doors and the wall, we ripped some scrap 1x6 stock into 12 feet of 1x2, laid it on top of the work surface, then screwed it into studs with drywall screws.

On top of this wood we mounted a 4-foot outlet strip at each end - the vertical clearance from the work surface makes it easy to grasp plugs when inserting or removing them. Each strip comes with a spring-metal clip that is screwed to a stud and then receives the outlet strip with a discernible "click." Because the strips come with 15 feet of cable, we shortened one with an aftermarket plug we had from a previous project before plugging it into an outlet near the vacuum cleaner tank. The other cable we left long, plugging it into an outlet below the bench (on a different circuit from the first strip) and gathering the excess length with a cable tie.

Finally we took apart a spare tape measure and screwed it into place along the bottom of the 1x2.

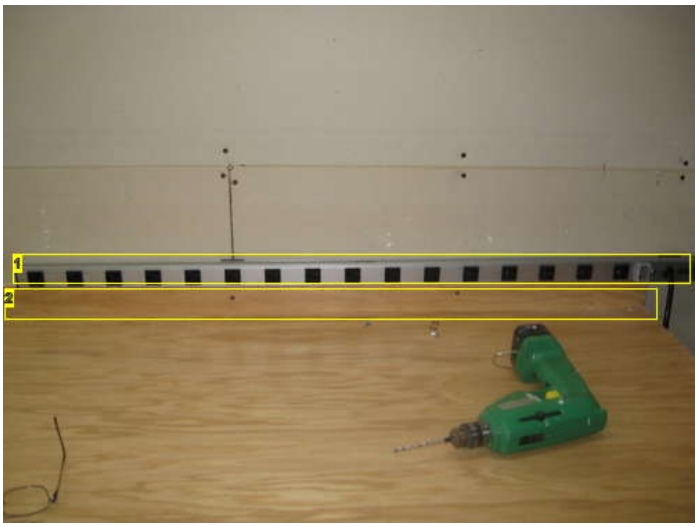


Image Notes
1. this is the power strip on the right side.
2. backsplash

Image Notes
1. Power strip on left side

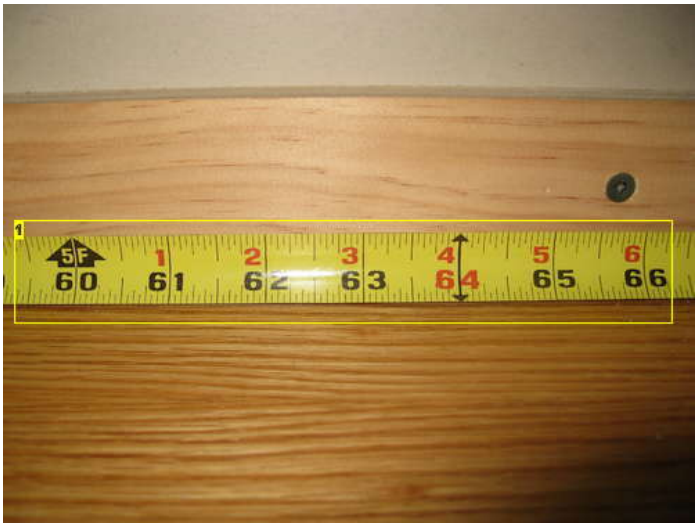


Image Notes
1. Because of the strong tension, we only screwed the tape measure tape on the two ends, which holds it sufficiently firm

Step 19: Pegboard

Having already cut the pegboard to size, we had to position small plastic spacers as sleeves on the screws between the back of the board and the wall; this provides clearance for the pegboard hooks to be inserted. We used black graphic arts tape to secure the spacers to the back of the board (as opposed to blue masking tape, which was definitely visible from the front), then drove the bright screws (provided in the pegboard hook assortment kit with the spacers) into studs we had marked beforehand. On the second pegboard on the opposite side of the room, we used black 2" drywall screws and they looked much better.

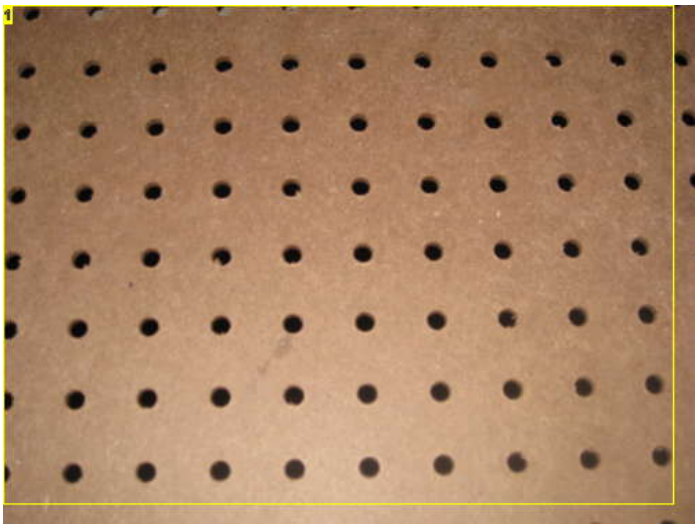


Image Notes
1. extra 1'x1' of pegboard

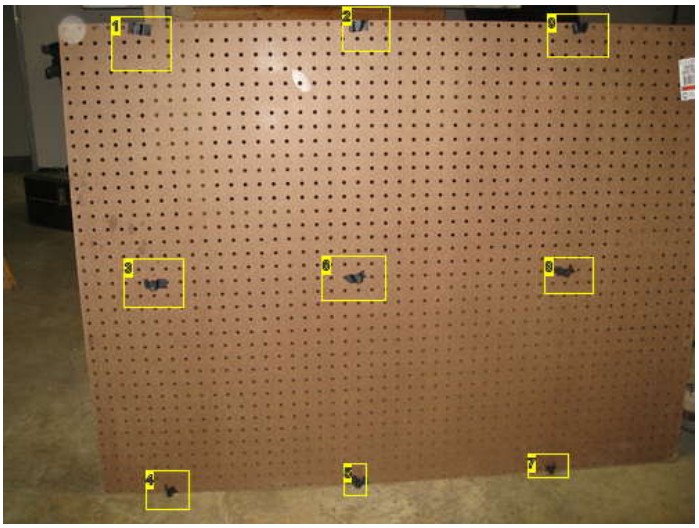


Image Notes
1. held on by tape because we couldn't reach behind it.
2. same as others
3. same as others
4. same as others
5. same as others
6. same as others
7. same as others
8. same as others
9. same as others

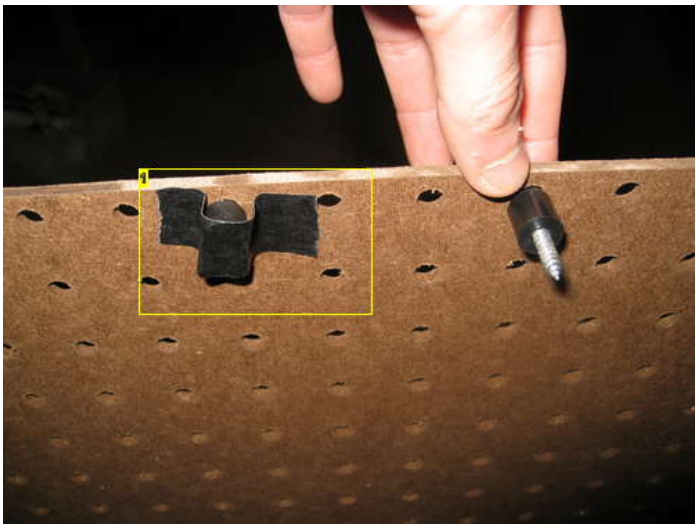


Image Notes
1. graphic arts tape with spacer behind it

Step 20: Cable Rack

To keep big reels of cable handy yet out of the way, we built a simple rack out of 2x4s and a 4-foot piece of iron pipe we borrowed from a pipe clamp.

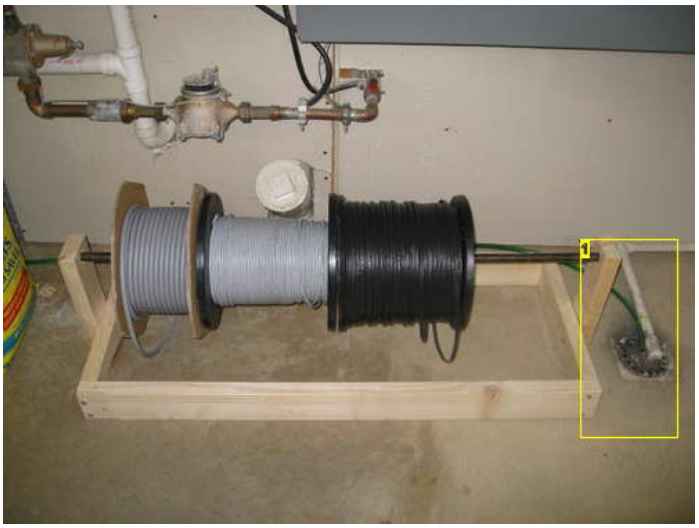


Image Notes
1. everything was kept off the ground in case this backs up

Step 21: Whiteboard

We needed to use screw anchors because the corners of the whiteboard would not have evenly spanned 16-inch multiples. They were included with the whiteboard, making it a simple process as we drilled the 1/4" holes to receive the plastic anchors snugly and then drove the screws through the mounting holes into the anchors. The board even proved little plastic plugs that cover up the mounting screws, along with a tray for markers.

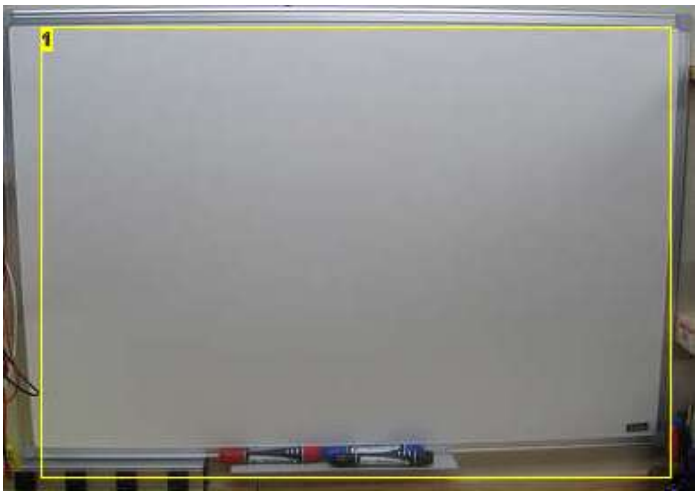


Image Notes
1. New whiteboard between laptop shelf and pegboard

Image Notes
1. Old, smaller whiteboard mounted on dead space in front of door

Step 22: Screwdriver rack

Because we a) have a lot of screwdrivers and similarly shaped tools and b) screwdrivers do not mount well on pegboards without special fittings, we fitted a 2x4 between the whiteboard on the left and the pegboard on the right. One screw into a stud was plenty strong to hold it, and we drilled an assortment of holes to capture screwdrivers, countersink tools, and files.

Image Notes
1. countersunk

Image Notes
1. we drilled the holes for the screwdrivers before we put it up.

Step 23: Tape Measure Shelf

Immediately above the screwdriver rack (but with enough clearance to allow removal of he longest screwdriver) we built a small shelf out of scrap 3/4" plywood (screwed to a 2x4 cleat) as a place for hex wrenches, tape measures, and other small but essential tools and supplies. By keeping it small it cannot become a catch-all space, yet the shelf is highly visible and accessible.

Step 24: Power Suply

A benchtop power supply is essential for many electronics projects and new ones are expensive: $200 and up. Like many others on Instructables, we used a good set of directions and modified an old ATX PC power supply for benchtop use.

A great tool we used for the first time on this project was a step bit ; ours was made by Greenlee. It did a great job of expanding small pilot holes to the 3/8" needed for the banana posts. The power switch connects to the IEC neutral rather than mimicking a PC "on" switch, which momentarily bridges the green wire to ground. The black tubing between the boxes is aquarium hose hot glued at both ends and bent with some help from the heat gun. Finally, the black box is held in place with double-sided tape.

We tested all the leads -- +12v, +5v, +3.3v, -12v -- on a multimeter and all voltages were accurate to .1v.

Image Notes
1. power switch
2. +12 volt
3. +5 volt
4. +3.3 volt
5. ground
6. -12 volt
7. heat-treated aquarium tubing

Image Notes
1. heat shrink + electrical tape to prevent shorts

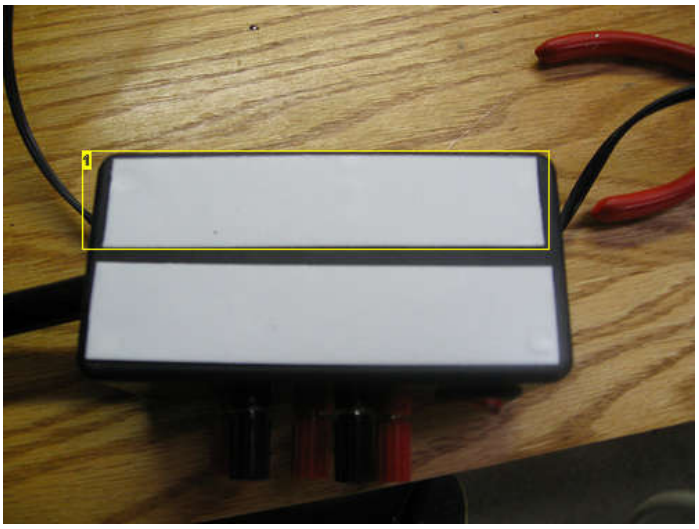


Image Notes
1. double-sided tape

Step 25: Group Tools

Before hanging the tools on the pegboards or distributing them to drawers in the tool chests, we grouped tools together, considered various ways to store them, and came up with the following classifications:

-electronics (pliers, heat gun, wire strippers, solder supplies, etc)

-safety (glasses, ear muffs, masks)

-measurement (squares, rulers, layout tools)

-wrenches (open- and closed-end, sockets)

-drill bits

-clamps

-painting tools and supplies

-cutting tools

-precision tools (screwdrivers, dental picks, center punch)

Step 26: Hang Tools on Pegboard

Once we decided that pliers, the heat gun, and the other electronics tools a) hang conveniently and b) were going to be used most often, we placed them on the main pegboard in what felt like a logical order. Other tools in the cutting category followed: utility knife, saws, scissors, chisels.

Across the room on the 4'x4' pegboard, we mounted the long level, open-end wrenches, and sockets stored on spring strips. Clamps (wonderfully called "cramps" in the U.K. and Australia) went into drawers or onto the unused short end of the old workbench.

Image Notes
1. 1'x3' cut off from top of main piece
2. 3' x 4'

Image Notes
1. 4'x4'

Step 27: Organize Shelves

We tried to predict which tools and supplies would be used most often in the basement. As a result, the circular saw stayed in the garage with the other sawdust-generators, but the Dremel tool, electric drill, and jigsaw are in the basement. The salvaged drawer boxes (see top left, below) are intentionally left empty so partially completed projects can be stored, moved (to the garage for spray-painting for example), or kept separate from other occupants of the workspace. Clear, or nearly-clear, parts bins make it simple to see that we have a bunch of old wall warts in the top center box. Distinctive colors, on the other hand, are also memory aids: teal is for audio interconnects and related hardware.

Image Notes
1. on the go tool box
2. Salvaged drawer box

Image Notes
1. tool storage

Image Notes
1. we used 2 parts cabinets
2. easily stored down here

Step 28: Parts Cabinet

Small electronics components have a habit of getting lost. We ended up getting two of these for about $20 each. We liked the clear drawers that allow instant identification of screws, resistors, heat shrink tubing, or whatever, and labels can easily be added to organize things further.

Image Notes
1. this model includes 39 drawers; other combinations of sizes and shapes are also available

Step 29: Reused Bookshelf

We had an old bookshelf that was not exactly furniture grade so we moved it into a corner of the shop behind the furnace near the end of the new bench. It's perfect for plastic parts bins and supplies, and it's surprising how many books you can end up needing in a workshop.

For supply storage, we used several techniques:

-plastic containers from medicine/food, often with a sample of the contents taped onto the front

-glass jars, which are wonderfully old-school but can break too easily

-original factory packaging, which often breaks down, especially as the box weakens when the contents are depleted.

Image Notes
1. great magazine

Image Notes
1. 3 supply storage techniques

Step 30: Fire Extinguisher

Given that we have a heat gun, untested circuits, and a soldering station in close proximity, a fire extinguisher seemed like a prudent addition.

Image Notes
1. It came with a quick release mount that fit here perfectly

Step 31: Cleanup

In keeping with the design goal to make the space useful and easy to maintain, we wanted to make cleanup a simple process. Three features support this goal:

1) a shop vacuum is located close by, tucked under the old bench with accessories stored a foot away on an open shelf

2) a large shop-grade trash can sits immediately to the left of the main bench

3) a broom and dust pan are mounted on the front legs of the main bench never in the way (because of the 4" overhang of the top) but always within arm's reach

Step 32: Pencil Holder

The same people who make the handy Bucket Boss (see step 37) made a tiny version for a coffee mug, and it's perfect for pencils, obviously, but also precision screwdrivers, X-acto knives, penlights, drillbit extenders, and things like that.

Image Notes
1. Bucket boss

Step 33: Dis-assembly aids

As the shop was designed for dissambly, several elements come into play here:

1) empty drawer boxes

2) a supply of plastic bags and a marker for labeling same

3) the whiteboard

4) an old digital camera on the tape measure shelf to photograph before and after images to aid memory later

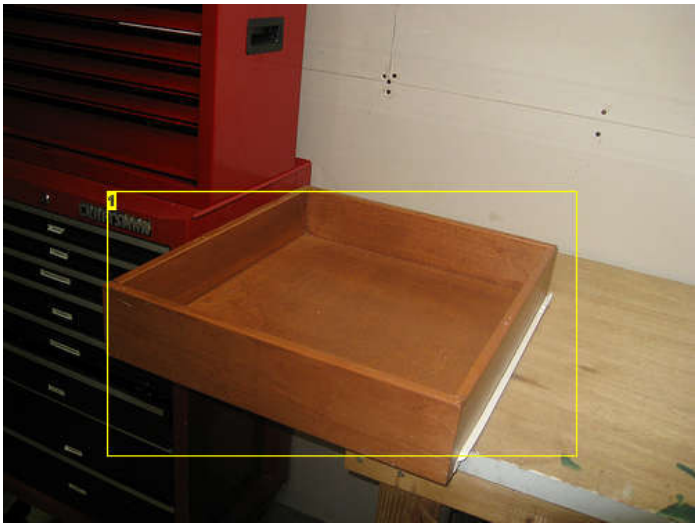


Image Notes
1. Empty drawer box

Step 34: Shoping List

A small clipboard hangs on the pegboard, ready for notes about supplies that run out, items to research, or other ideas.

1.

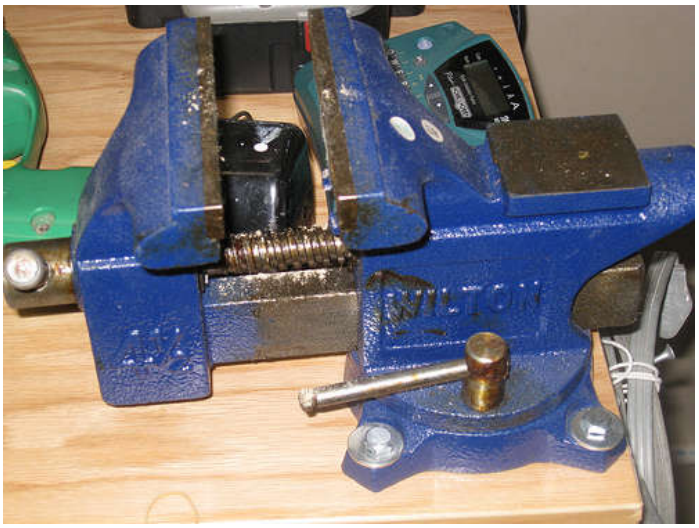
Step 35: Dremel Drill Press

Because the Dremel tool drill press is used infrequently, we mounted it with 1" lag screws to a scrap of 3/4" plywood that can be clamped to the benchtop when and where we need it. It is stored underneath the work bench.

Image Notes
1. 1" lag screws (x4)
2. scrap plywood extends ~ 1" beyond the drill press footprint

Step 36: Vices

A woodworking vise is mounted on the old workbench, near the clamping station. The main bench includes a metalworking vise, located hear the hacksaw.



Step 37: On the Move

What happens when the project can't come to the shop? We have two options: a 5-gallon bucket covered with a nylon sheath with dozens of pockets, or a tool box. Each has advantages:

-The bucket holds long items (pieces of pipe, caulking guns, hand saws) that might not fit into a tool box. The handle is comfortable enough and the pockets make the tools on the outside very accessible. The bottom can get cluttered and full if you let it, and dirt and sawdust have an easy path in.

-The box has a removable top tray to segment the storage area. Tools are visible and protected from rain, dust, and dirt. The top includes small plastic bins perfect for small nuts, bolts, and electronics connectors, but finding room for a 5-lb. box of framing nails can be hard.

Image Notes
1. [http://www.bucketboss.com/ Bucket Boss]

Step 38: Old Workbench Reused

The old workbench, also built with a fire door, is now cleaned off and ready for projects. It's on the wall opposite the new 12-foot bench. We have room for high shelves if we decide to install them, but the low shelf currently holds wire and cable, assorted old screws and hardware, and the shop vacuum parts. In the Craftsman tool chest we store drill bits, safety equipment, electrician's and plumber's tools, and wrenches.

Step 39: Conclusion

We're very happy with the new shop and have been using it a lot already. Start to finish, it took about two weeks.

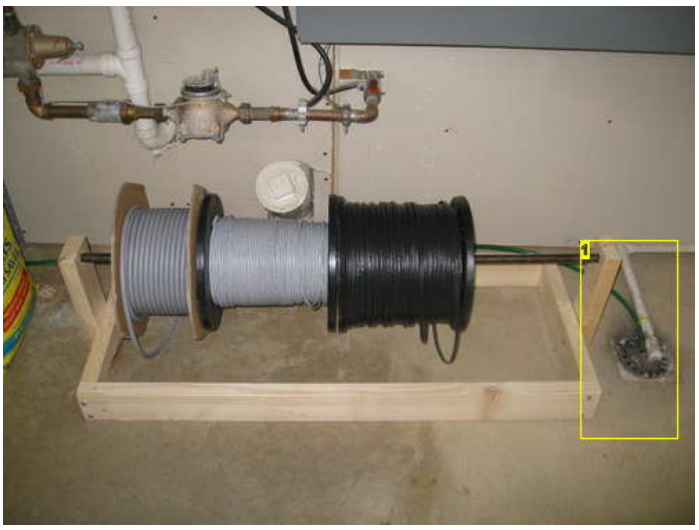


Image Notes

1. everything was kept off the ground in case this backs up