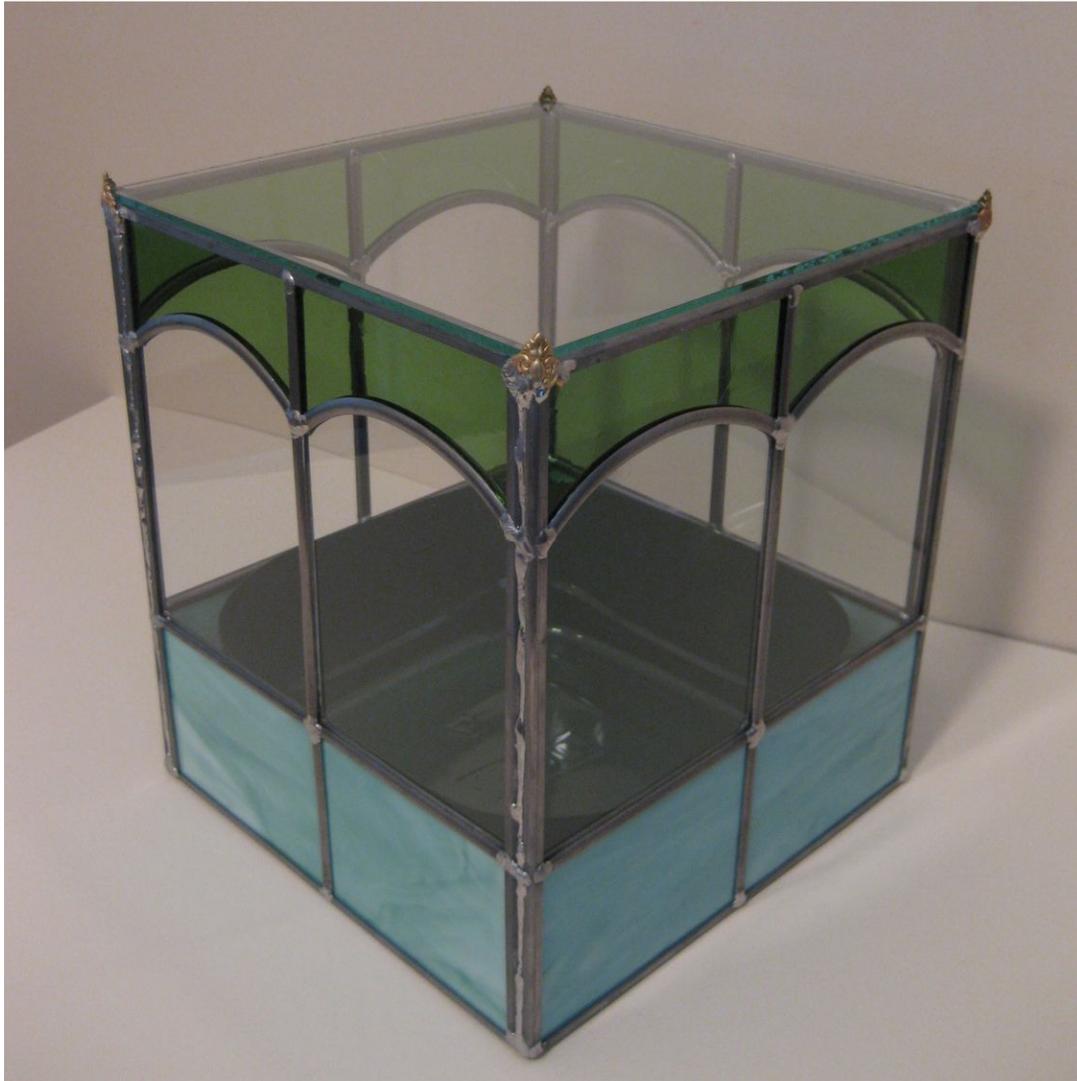


Small Garden Terrarium with Flat Top DIY Project Instructions



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Introduction:

These instructions accompany my materials **Basic Kit – Flat Top Garden** and, if ordered, **Came Kit – Flat Top Garden**.

This document has **five major sections**:

1. Constructing the copper base - pages 3 thru 15 .
2. Constructing the 4 side walls - pages 16 thru 33 .
3. Assembly of the base and walls - pages 34 thru 43 .
4. Construction of the top - pages 44 thru 45 .
5. Appendices
 - Kit Content - page 46 .
 - Details Kit List - page 46 .
 - Details Tool and Materials List - pages 48 thru 49.

The most detailed section, with photographs, is the copper base construction. Even if you are familiar with soldering lead came, there are a number of unique techniques and tricks related to joining large sections of copper and lead came together.

Two unique features of all of my terrariums are:

- a) A solid copper base,
- b) An interior removable plastic tray.

So while there may be different approaches to making a small terrarium, my DIY guide stays within the build techniques I've developed.

If you are using your own lead came just cut lengths of the appropriate came, RU80 or RH4 for the Small Garden - Flat Top, and follow these instructions.

Lead came is usually cut with a cutter called a Lead Dyke. This is similar to a wire cutter but have a flat cutting edge on one side. This makes a straight, or clean, cut on one side of the came and an angled cut on the other. Usually the angled piece is cut off by turning the came piece around and doing a second. So for most lead came cuts about 1/4" of came is wasted. The Dyke cut tends to shift slightly as the cutting head comes down onto the came. You need to practice a bit making a cutting line on a piece of came and then seeing where the cut actually occurs when you try to position the Dyke on the cutting line. A Lead Dyke cannot cut a very small piece, under 1/8", off the end of a strip. The cutting head will slip and both sides of the cut will be slightly angled. For trimming very small amounts off the end of a lead piece you must use a single edge razor to trim back the lead. I usually work from the center of the heart down to the lead edge that is positioned on the cutting surface. Then the came is turned over and a second cut is made in the same manner. Usually you can't cut all the way with a razor. The Figure below shows

trimming a little from and end. The image shows a few small pieces, from earlier cuts, above the razor on the surface.



Figure – Trimming Lead Came

Finally, some general note on safety using lead came.

- Worked with lead came has you handling elemental lead more but solder less then when working with copper foil. If I've been handling lead came I make it a practice to brush my hands well before handling any food items. By far **the best hand** brush I know of is the following: Beechwood and Natural Fiber Nail Brush by Burstenhaus Redecker. It is available on Amazon for about \$8. It has a short fiber side for cleaning under your finger nails and a regular side for finger / hand cleaning.
- I don't use or recommend any high speed came cutting system. These devices may produce fine lead particulate that might be inhaled. I use lead dykes and single edge razors for most came trimming. For wider lead came, FH46 for example, I cut using a manual hacksaw with a 32 tpi blade holding the lead against a wood block on a wood board. [If interested, I can send a photo of my simple setup.]

So let's get started.

Part 1 – Copper Base Construction

Introduction

The base is a single piece of sheet copper surrounded by RU-80 lead came. The RU-80 came forms the lower support for the terrarium outer walls. A rough analogy is you are going to build the parts for a prefabricated structure and then assemble it.

The copper is 16 oz. copper, getting its name from the fact that one square foot weighs 16 oz. It is usually used for home roofing. The piece of copper is an 8 ¼” square containing 0.5 square foot or 8 oz. of copper.

History: All my terrariums may seem like arbitrary, perhaps even odd, sizes but that is not the case. When starting a design the first item I look for is a commercially available plastic tray. It needs to be of a relatively low cost and of the desired size. Sometimes I need to cut it down some, usually the top lip. The size of this available item sets the **exact size** of the interior. In the case of my **Small Garden** the tray is made from a “Glad®” container with the lip used to attach the container’s top cut off. It is then spray painted green. This item is included in the “**Basic Kit**”.

1.1 Workspace Setup.

For this project I use a 16” high by 24” wide build board made from ½” thick plywood. It is covered with white drawing paper. Using a long ruler and a T-Square I set up a horizontal line near the bottom of the board and two vertical lines about 10” apart. Keep the ruler in place as you move the T-Square to the desired positions. I tape the ruler on the ends during this step. I also like to leave a little work room on the left side and the bottom. Figure 1 shows my setup.

The reference lines serve as guides to placement of horse shoe nails to position the wood jigs I supply. Take your time here as these lines are crucial to constructing a square and true structure.



Figure 1 – Setting up reference lines

1.2 Wood Jig placement.

I place horse shoe nails, with the wide side parallel to the line, a little on the outside of the marked line. As a horse shoe nail is tapped into place, its shape has it move closer to the reference line (about 1/32" to 1/16"). The exact position is not as important as having all nails along a given line at the same relative position so the wood jigs will be square.

As seen in Figure 2, I do the bottom and the left side first and secure them with more nails then will be used for the right and top sides. This figure also shows me checking that the two secured jigs are still square. The copper sheet is shown on the side at this point.



Figure 2 – Positioning Bottom and Left wood jigs and testing

1.3 Preparing the perimeter RU80 lead came.

In the Came Kit there are two pieces of RU80 8 ¼" long and two 9 ½" long. Pieces of the same length are on opposite sides of the copper. The two shorter pieces are just the length of the copper sides. The two longer pieces will extend past the copper base, some 1/4" at each end (the width of the RU80 came). This achieves the base being totally surrounded with RU80 came (see Figure 10 if this isn't clear).

- The 8 ¼" pieces are used as is.
- The 9 ½" pieces will need the ends "closed" so that the lower sides of the terrarium will be neat.

The RU80 came is placed with the groove, or U, down onto the build board during the attachment of the came to the copper base.

The fabrication steps for "closing" the ends of the RU80 are as follows:

- 1) Trim back the side walls at one end about 1/8".
 - a) Using a lead dyke first cut the side wall with a vertical cut down to the rounded top of the came, see Figure 3 (sorry not a clear image).
 - b) Then cut along the base of the rounded top to remove a small piece, see Figure 4.
 - c) Repeat on the other side wall ending with a small projection, about 3/16" in length, see Figure 5.
- 2) Bend up the "top" of the RU80 with a pair of needle nose pliers, see Figure 6.
- 3) Finally, using your lead dyke trim the bent up piece so it is flush with the outer sides of the RU80.

For each of the 9 1/2" RU80 pieces just "close" one end at this time.



Figure 3 – First cut (a little hard to see)



Figure 4 – Piece of side wall trimmed off.

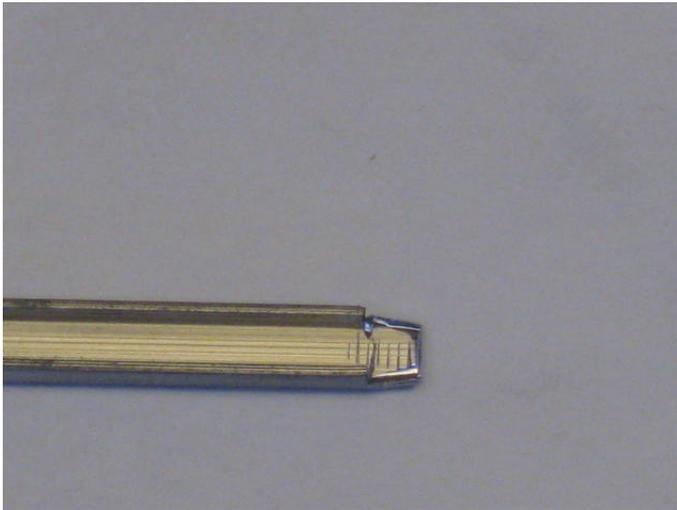


Figure 5 – Both side walls trimmed back

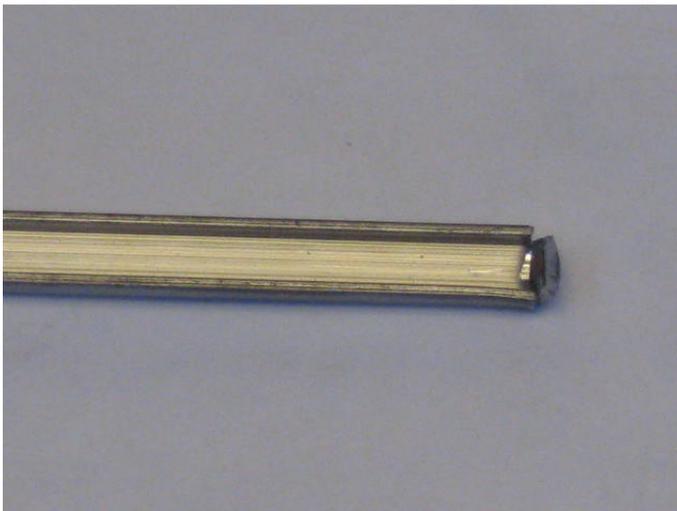


Figure 6 – Top bend up and trimmed

Once each long length has one end closed, position one short and one long came piece as follows:

- 1) Position one of the longer lengths against the left side jig with the “closed” end down and touching the bottom wood jig.
- 2) Position a short length against the bottom wood jig and move it until it touches the RU80 strip against the left side jig.
- 3) Finally slide the copper base to position until it just touches the two came pieces.

The end result should look like Figure 7.

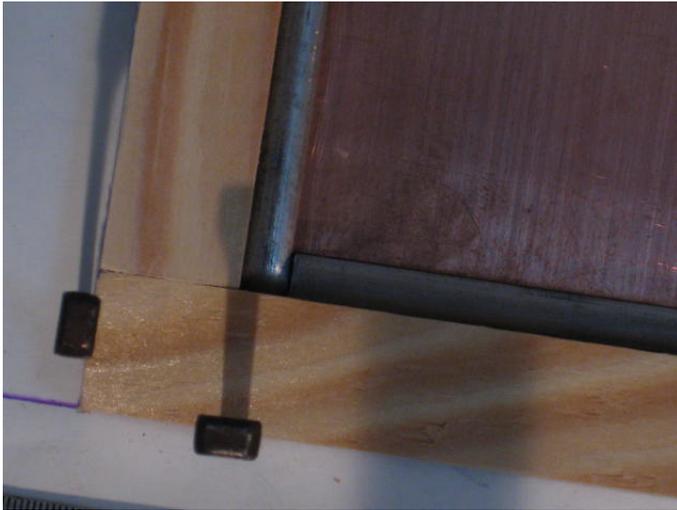


Figure 7 – Lower left corner initial placement.

Now position the upper short piece RU80 against the copper base and slide it until it touches the left long RU80 piece. You want to mark the outside touch point as well as about 3/16” past the touch point the cut point). See Figure 8 for this setup.

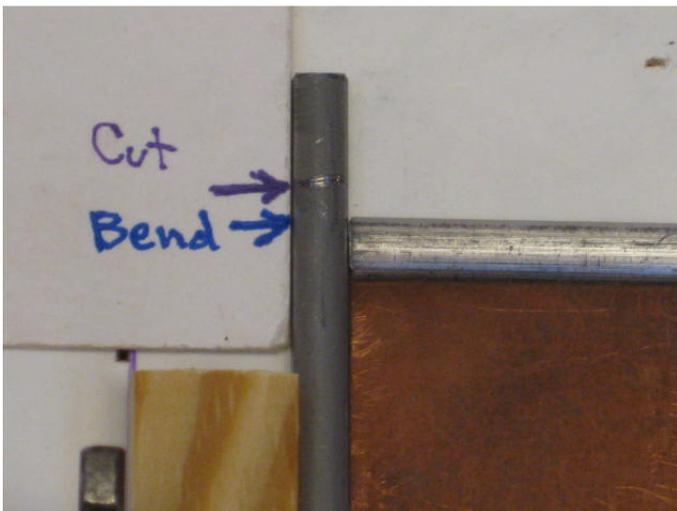


Figure 8 – Upper Left Corner Cut and Trimmed marked points.

This long came piece is then removed and cut at the 3/16” past point. It is trimmed back and bent up similar to the process shown in Figure 3 thru 6 images. This closes the other end of the long piece. You need to test the fit of the long piece to make sure it doesn't go beyond the top RU80 came piece. If it does you can bend the piece back down, trim a little more of the side walls of the RU80 and then bend back up. The end result for the corner join should look like Figure 9.



Figure 9 – Upper Left corner completed.

Repeat this process for the right side long piece.

Once the two long pieces are of the proper length, with just slight pressure move the right side and top side jig against the RU80 and secure each with two horse shoe nails. Don't press too hard as you don't want the copper sheet to slide under the RU80. The final result should look like Figure 10.



Figure 10 – RU80 surrounding the Copper Base

1.4 Soldering the Copper Base to the RU80 perimeter.