

Building a Shadow Box - Instructions

Miniatures are art. And like all good art, it should be framed to enhance the art and to focus the viewers attention.

- Brooke Tucker

Tools and Supplies Required

1. Large Cutting Mat (larger than your frame)
2. Frame
3. Long straight pins
4. Large Utility Knife
5. X-Acto Knife
6. Tacky Glue
7. 6" **AND** 18" steel rulers (preferably cork backed)
8. Pin Vise (only if you are wiring the box)
9. Wallpaper or paint for inside the box
10. Wallpaper or other finishing materials for outside of the box
11. Flooring materials (including baseboard if desired)
12. **Optional - if you want your finished shadow box to sit level, bring two cabinet/drawer knobs that are the same height as the width of the edge of your frame.**

Taking Apart the Frame

Begin by opening up the back of the frame and pressing the tabs that hold the back in place so that they are all vertical, or rotate them to free the frame contents. Remove everything, including the glass, which should safely be put away until the end. Remove any wadding or packaging from the picture frame. This will usually be cardboard or press board that sits between the image and the backing. Remove the backing but don't discard it – you'll use it shortly. If your frame includes a mat, decide whether you want to use the mat or not. If not, put it aside for another project.



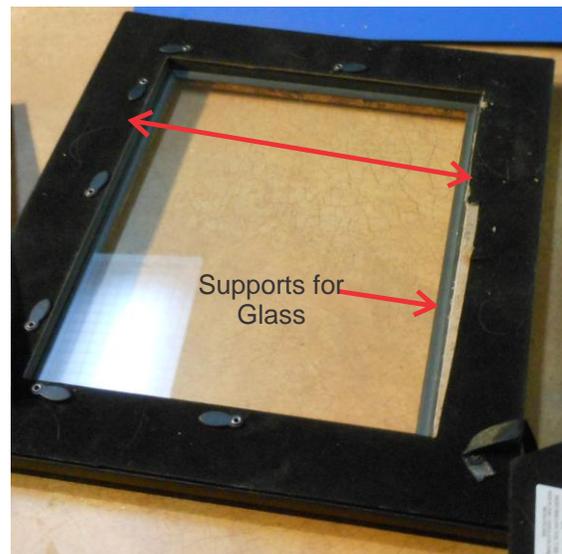
Parts of the Frame

Building the Basic Box

Decide what you'd like to place inside the shadow box first. The contents will determine the size and shape of the shadow box you end up putting together. You can put whatever you want in there as long as it fits! Although you can create any depth up to 12" (which technically makes this a room box, not a shadow box), generally a shadow box is 2" to 4" deep. Anything bigger and it won't hang on a wall very well.

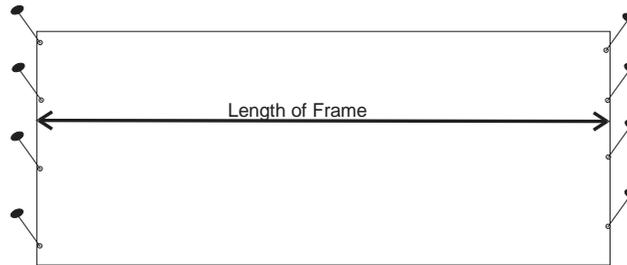
Notice the ledge to support the glass. Your shadow box will fit on top of these supports, behind the glass, so that the thickness of your box is hidden. All measurements must be taken between the edges of the frame, NOT the edges of the glass supports.

Measure the length of the side of the frame that will be the bottom of the shadow box, either as shown by the longer arrow in the picture or by its perpendicular, depending on whether your miniature display will be landscape or portrait. Write down the results. Measure it again. Do the two measurements match? If not, try for two out of three. If the measurements still don't match, get your neighbor to measure for you! This is crucial since a "pressure fit" box **must** be a snug fit.



Cut one piece of foam core the length of the "floor" of your box and the depth that you want your shadow box to be. With the glass removed, test fit into the frame. If it is a snug fit, cut a second one to match. If it is too big, cut it down until it fits snugly. If it is too small, start over.

Now, measure the other dimension of the frame, and subtract two times the width of the material you are making the box out of (in this case, $3/16 \times 2 = 3/8$) from the measurement. You have to adjust for the width of the material because this piece fits between the two pieces you have already cut. Re-measure just to make sure, and cut a piece of foam core the same depth as the previous two pieces. Trial fit into the frame with all three pieces you have cut. If it is a snug fit, cut a second piece to match. . If it is too big, cut it down until it fits snugly. If it is too small, start over. You now have all four sides of your shadow box.



Take the two longest sides of the box, and insert straight pins through the short edges as shown in the diagram. They should be vertical, about $3/32$ of an inch from the edge, and extending about $1/8$ inch on the underside. This is so that they will slide into the middle of the foam core on the short sides that will be butted up to them. Using the frame itself as a right angle jig, place all four sides into place. Put a thin line of Tacky Glue between each of the pins protruding on the reverse side, and glue the four sides of the box together. Go have coffee while the glue dries!

OPTION: If you wish to use a mat to frame your work, your measurements should be taken on the mat itself, remembering that the box will eventually be glued to the back of the mat, and the two installed in the frame in one piece. So, use the mat for your measurements, and add two times the width of the material you are making the box out of (in this case, $3/16 \times 2 = 3/8$) to the measurements for the width and height. Your final box should end up with an opening exactly the same size as the opening in the mat. Follow the directions above to fasten the four sides together.



Once the glue holding the four sides of the box together has dried, take the original back of the frame and try it on your new shadow box. If it fits, glue it in place. Depending on the material the backing is made from, you may be able to reinforce it with straight pins. If this is possible, do so. If you are using a mat, the original back will not fit. Cut a new back out of foam core. Glue in place. The original back will be used at a later stage.

OPTION: You may want to install a glass/Plexiglas panel in the roof of your shadow box, so that it is lit by ambient light. If so, you will need to omit the "roof" of your box, and build supports for the glass panel along three sides of the shadow box top to rest the glass on, or build a double roof which sandwiches the glass between the layers.



Now is the best time to install flooring and wallpaper/paint the inside of the box.

Leveling the Box

If your shadow box is destined to be hung on the wall, it will automatically level itself. However, if you plan to place the box on a shelf or table, it will slant toward the back, as framed photos always do. This gives a very good angle to see into the frame. However, if you plan to install anything hanging from the ceiling (a light fixture or a hanging plant, etc.), the box should be leveled. If you wish to level the box, take two cabinet drawer pulls/knobs that are exactly the same length as the width of the frame, and attach them with glue underneath and at the back of the box. Then, when you insert your box into the frame, it will sit level. If you have made your box so deep that it really should be called a room box, use four knobs: two at the front and two at the back.

Installing Lights and the Battery Holder

Using your pin vise, drill holes in the shadow box where you want to insert your lights. You may have a table lamp, two sconces, a chandelier, or any other combination of lights you want. Each light should have its own hole, since you are going to run all electrical wiring around and across the back of the box.

Following the instructions for your electrical supplies, install the lighting. If you are using a 3 volt battery, it can be left loose on top of the box, making sure the on/off switch is easily accessible (see picture to right). However, a nine-volt battery needs to be hidden under the box, behind the area at the bottom of the frame. Using card stock, cut a strip 1.5 inches wide and about 5 inches long. Take your nine volt battery, and fold this strip of card stock over the battery, making it a "coat" on three sides. Tip the box upside down, and glue the bent u-shaped strip of card stock to the bottom of the shadow box. Remove the battery and let the battery support dry in place.



Hook up the battery, and place in the battery cover. Tape all electrical wiring firmly to the outside of the box.

Attaching the Box to the Frame

At this point, your shadow box should sit in the frame quite happily using just pressure, if your measuring was accurate. And this is how it should stay until you have completed decorating the interior. In fact, your box can stay like this for ever, since you never know when you might want to change/add/subtract something. To make this even firmer, if you have the type of frame that has cleats on the outside of the frame rather than on the back (see picture of frame back on first page), you should also cut some small slits in the foam core and slide the cleats into the slots. This is still easy to take apart if needed.

If you plan to hang the box on the wall, however, this is not strong enough. All contents should be firmly glued in place, then use a strong tape, such as framer's tape, brown packing tape, or duct tape. The tape must be able to hold the frame in place long-term. Put enough on to keep it sturdy without ruining the aesthetic of the shadowbox.

If you decided to use a mat, measure the distance between the edges of the mat and the shadow box, on all four sides. Take the original backing for the frame, and measure in the same distances, then cut out the hole. This should leave you with a hole in it the size of your box. Slide over the box. It should just cover the back of the mat. Now, you can fasten it back in the frame as if you had just installed a picture.

Finishing the Outside of the Shadow Box

How you finish the outside of the box depends on whether you intend to get into the box again. If you do not intend to get into the box again, (and assuming everything is glued in place), then use strong tape to seal the shadow box to the back of the frame. Then cover the box and the back of the frame with the finish of your choice (wallpaper, veneer, paint, stucco, etc.)

If you want to remain able to get into the box, use clear Scotch tape in a few places, and then cover the box only with the finish of your choice.

In both cases, make sure that the on/off switch for your lights is accessible. The best way to do this is to cut a small hole in your wallpaper, and position the on/off switch behind the hole.