

How to Make an SCA Center-Grip Shield

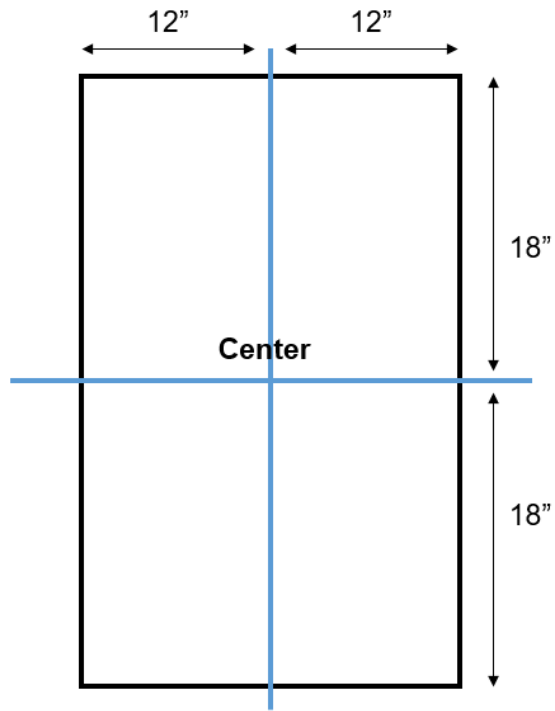
Here is a step-by-step process to make a center-grip shield. I prefer a center-grip because it is what my persona would have used and because I can be active with it.

Step 1 – Determine the Size and Shape: You'll be protecting your body from above your knees to the top of your head, and from shoulder to shoulder, but a shield that large is somewhat unwieldy. A good general rule is to have a shield that covers your thighs and torso up to your chest, and is as wide as your torso at its widest, but size is mostly informed by personal preference. Your persona informs the shape, although you can obviously choose whatever you want regardless of historical accuracy. My persona is a 1st Century CE Briton, so I'll be using historically accurate oval and hexagonal shields as examples in this guide.

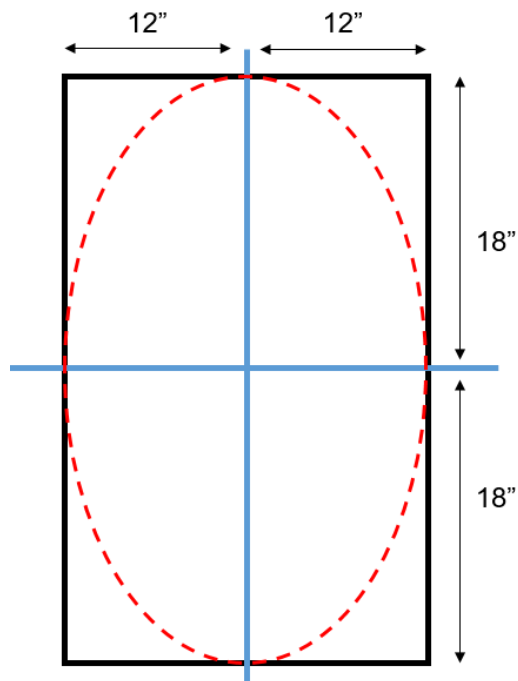
Step 2 – Select Materials: I want my shields to be light, strong, and reasonably historically accurate. To accomplish this I use Baltic birch plywood for the body, a spring steel boss for the boss, and rawhide for the edging. Baltic birch is available at higher end wood shops and is often used to make cupboards. It is pricey, but not terribly so. It is very light, very strong, and comes pre-sanded. Spring steel is expensive, but is the lightest strong metal I am aware of on the market. Rawhide is fairly affordable and is available either as hides or in pre-cut strips through various leather stores online and elsewhere. I recommend against using rawhide dog toys as the rawhide is very low quality. There are plenty of other options for the body, boss, and edging. Choose what you prefer and just recognize cheaper usually means heavier.

Step 3 – Cut out the Blank: Find on the board the exact center of your shield and mark it. Assuming you are starting with a square or rectangular board you can do this easily by measuring the middle point laterally and vertically, drawing lines and noting where they intersect. That intersection is the middle. This middle point is the basis for all measurements as you cut out the edges and the center grip. I draw these lines with a pencil on what will become the front of the shield. When I paint the shield later it hides the lines I drew.

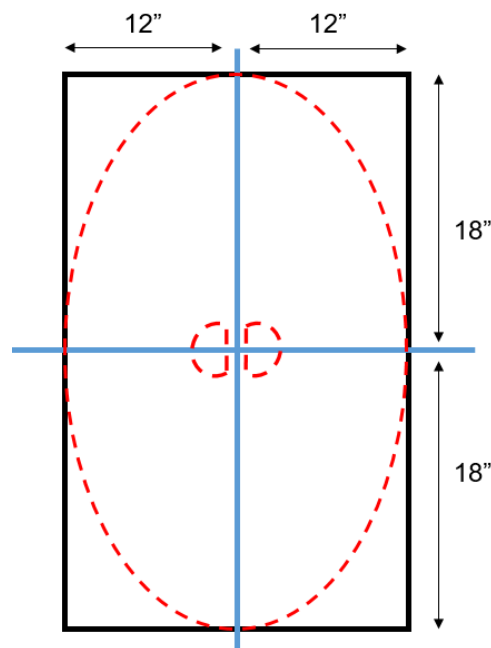
Here is an example for a 24" by 36" board:



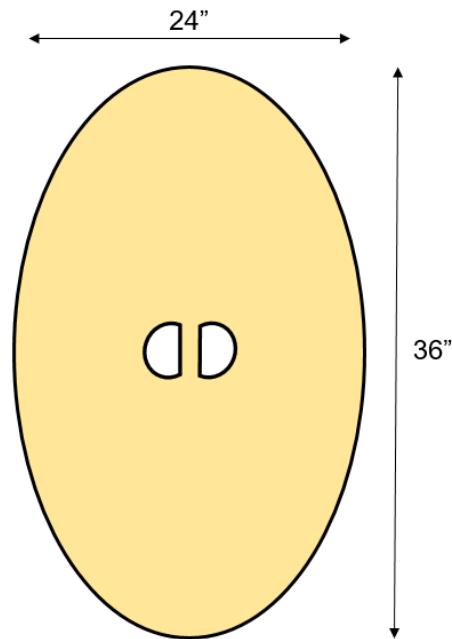
After finding the center trace out the edges of the shield, making sure all four quadrants are equal in size and shape. Here is an example outline for a 24" by 36" oval shield:



Finally, cut out the handle and open space in the middle of the shield, where the boss will be mounted. I include a portion of the handle as part of the blank, so instead of just cutting out a circle in the middle I cut out a D and reverse-D as shown below. To start I trace the inner diameter of the shield boss (the diameter of the inside of the boss where your hand will go). You can usually use the pre-drilled attachment holes on the shield boss to help you line it up. If you can see the vertical and lateral lines you drew to find the center through the corresponding pre-drilled holes you have centered the boss on the shield. Trace that full circle around the center point of the shield blank. Next, expand the lateral line inside the shield boss inner diameter circle to represent your eventual handle. I make my handles 1" wide because I have relatively large hands and because I can easily source 1" diameter dowels to fill out the handle as shown later. You end up cutting out a shield blank as shown here, where you cut along the red dotted lines. Cutting the outside is easy. To cut the inside cuts I first drill a hole with a large drill bit and then fit a smaller skill-saw blade down through it to start the cut. To prevent blowing out the back side of the plywood with the large drill bit I drill a very small pilot hole first, flip the board over, penetrate the outer wall of the board where the small pilot hole indicates, flip it back over and drill straight through as normal. It is also a good idea to mark the attachment holes for the shield boss now, even if you do not drill them out until later.



Once cut out, your finished blank looks like this:



Step 4 – Paint the Shield Face: I usually paint the base color of the face (front) of the shield now, before I finish the handle, add the boss, or edge it. I can lay the blank flat and paint it easier this way. I usually use an exterior latex semi-gloss primer/paint mix because it is durable. Gloss is too shiny and more flat than semi-gloss scuffs too readily. I do two coats, or sometimes three for the base coat of the front of the shield. I typically do not paint the design yet because I want to account for the space taken by the boss and the rawhide edging when I do. Depending on the type and complexity of your design this may not matter.

Step 5 – Make the Handle: You already started the handle when you cut out the blank, but you need to fill it out so it feels good in your hand. I do this by taking a dowel of the same diameter as my handle is wide. I cut a 1" wide handle integral to the shield blank, so I use a 1" diameter dowel.

I rip the dowel in half, meaning I cut it along its length, like this:



I take a short piece of dowel and affix it to the handle on what will become the front of the shield. This length of dowel needs to be a bit shorter than the inner diameter of the boss, and will probably need some beveling at each end so it does not interfere with the inside of the boss when you mount it. I affix a longer piece of the dowel to the back of the handle. I make this back piece longer to prevent the intersection of the handle and the blank from becoming a weak point that could break. I connect the dowel pieces using a combination of wood glue and small wood screws, ensuring the screws do not penetrate all the way through the handle in any direction. If you pre-drilled the attachments holes for the shield boss already, you will need to re-drill out the two covered by the longer dowel on the back of the shield now. Here are some photos of shields I have made, focusing on the handle construction:



Step 6 – Stain the Back and the Handle: After attaching the handle I stain the handle and the back of the shield with a penetrating wood stain. This brings out the grain of the wood, and protects and preserves the shield better. I find two coats is plenty. I wear rubber gloves and use a fresh clean cloth to apply the stain.

Step 7 – Wrap the Handle: Now is a good time to wrap the handle. You can do it later, with the boss on, but it is harder. I stitch thin leather around the handle as shown below. Applying a little glue to the handle helps keep the leather in place while I stitch it. I wear thin leather baseball batter’s gloves when I fight and find the leather on leather contact helps my grip.



Step 8 – Attach the Boss: Next I attach the shield boss to the outside of the shield, making sure it is centered over the opening and handle I cut earlier. I typically lay the shield face up, flat across two saw horses and place the boss in place. Then I crawl underneath to make sure it is centered properly. Also make sure to confirm the attachment holes are aligned properly. I use hexagonal nuts and bolts to attach the boss. I push the bolts through from the shield front and screw the nuts on from the back. I try to match the color of the nuts and bolts to the shield boss if possible. I can usually get the length of the bolts correct, but if I mess up and have too much of the threads protruding from the bolts on the back of the shield I use a hacksaw or an angle grinder to trim them down. Here is a shield I made shown just as I began to mount the boss to the front, after the base coat dried:



Step 9 – Edge the Shield: The first thing I do to edge the shield is glue window edging around the entire edge of the shield using Gorilla Glue or something similar. The window edging (or dressing, or whatever) is basically a soft hollow core foam tube with an adhesive edge meant to seal the edges of window frames against air seepage. It is cheap and available at most hardware stores. I tape it in place using painter tape until the glue dries. This edging will later protect the rawhide from being cut against the edge of the wood. Here is an example, shown after the glue dried and I removed the painter tape:



Next, I finish edging the shield using rawhide strips, which I soak in water until it is clearly flexible and easy to use. When possible, for oval shields I trace out one shield-sized donut of from a full rawhide hide. For shields with sharp edges (squares, rectangles, or hexagonals) I cut a strip per side. I find a width of 3" to 3 ½" works well for the rawhide strips. It gives me enough overlap to adequately protect the shield and gives me room to stitch the rawhide to the wooden shield. I use artificial sinew that matches the rawhide and a sturdy needle to stitch the rawhide to the shield.

There are a couple of ways to stitch the wet rawhide to the shield. One way is to pre-drill holes at 1" to 2" intervals around the entire circumference of the shield. You can then fold the rawhide over the edge, use an awl to poke holes in the rawhide where it aligns with these holes, and stitch it. Poke a couple holes, do a few stitches, and repeat until done. The stitches should hold the rawhide in place as you progress.

Another way to do this is to hold sections of the rawhide in place using clamps and drill holes directly through the wet rawhide and the wooden shield at 1" to 2" intervals. This option omits the need for an awl, but adds use of a bunch of clamps. Here are some examples:



I have two important notes about this step of the process. First, if I am applying sections of rawhide at a time rather than an unbroken donut, I start at the bottom and work my way to the top of the shield so that pieces overlap the pieces below them. Picture how roof shingles overlap each other. I do this so downward strikes from rattan weapons cannot catch an exposed edge of the rawhide. Second, notice how I stitch the rawhide using a simple wave stitch that never wraps around the edge of the shield. We primarily block using the edge of our shields, so if I were to wrap the stitch around the edge of the shield the stitching would eventually fray and sever from repeated blows. This is far less likely to happen if you stitch it the way I do. People do block with the face of their shield against thrusts, but rarely with the outside edge of the face and rarely in the same spot repeatedly.

Here is a fully finished shield, minus the design. The rawhide started as an unbroken donut, but when I got to the final stitches at the bottom I found I had some extra, so I trimmed a bit out and overlapped it. This is another important note, rawhide stretches when wet and contracts as it dries. I notice sometimes the strips I stitch on no longer quite cover the wooden edge or no longer overlap as they dry. It is not a huge issue, but it is worth accounting for.



Here are some examples of shields I have made. I painted the one on the left. My wife painted the other three. She is the better artist.



I hope this helps. Have fun!

- Vindiorix "Black Finn" Ordovix (MKA Justin Davis)