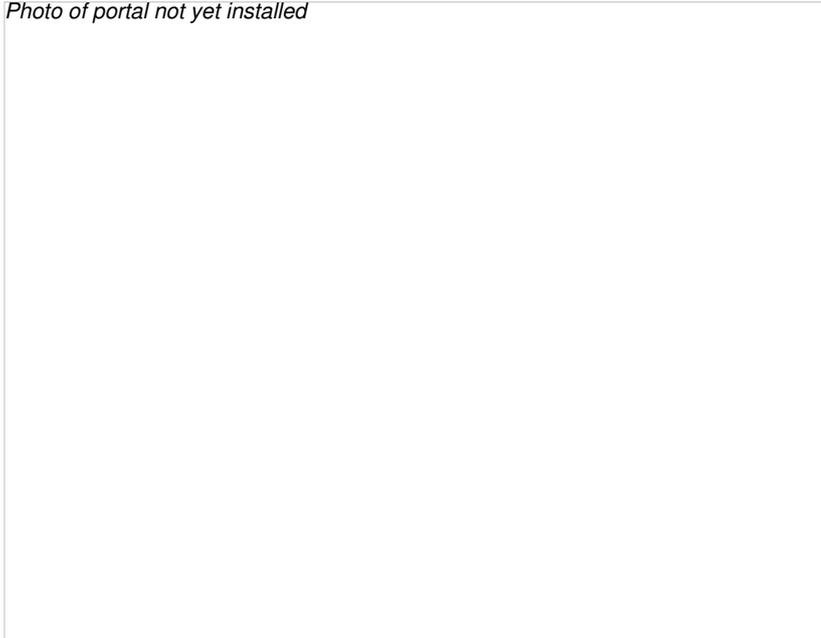


# Cat Portals: Order Information and Instruction for Installation

Need a simple way to make cats in your shelter healthier and happier? Install portals between two existing cat cages! It's an inexpensive way to update your single cage cat housing to spiffy double compartment condos, which benefits cats by keeping food, bed and litter separate and allowing cleaning and daily care with minimum disruption. Order your portals today and see below to learn how to cut cage walls with a nibbler and install the portals.

## Ordering Cat Portals: *Read important information below*

*Photo of portal not yet installed*



Although we created the "portal" we no longer produce portals ourselves. Instead, we've teamed up with Shor-Line, who are manufacturing and selling improved versions of the portals (they now come in various widths and sizes [and a Puppy portal!] and include a cool spacer to bridge the between-cage gap!). You can [find ordering information here](#) and [Shor-Line's retrofitting page here](#). Shor-Line also has an [instruction manual](#), which we highly recommend using/reviewing.

To order portals from Shor-Line simply add the portal to your wish list and then call Shor-Line at (800) 444-1579 for a price quote. Allow 2-4 weeks for delivery of the portals and template.

[Shor-Line logo](#)



Please email [dcwagner@ucdavis.edu](mailto:dcwagner@ucdavis.edu) if you have any problems placing orders.

If you need portal hardware replacement parts, like the stainless steel quick release pin, see this [Portal Hardware Replacement Parts List](#).

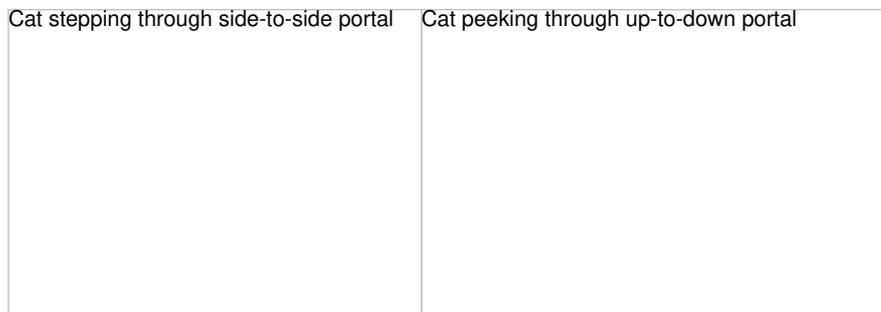


**Cat portals can retrofit into older cage housing to help meet standards of care for short-term housing of shelter cats.**

### **Important information:**

Portals will fit most standard cages. Shor-Line has their Kat Portal in 3 different widths (skinny, standard and wide) to fit cages that have varying gaps between cages. The standard size will fit in cages that have a space between cages that ranges from around 2" to 2.75" - this should be most stainless cages and most fiberglass cages. If the distance between your cages is less than 1.5", please contact [dcwagner@ucdavis.edu](mailto:dcwagner@ucdavis.edu) before ordering.

- Portals are designed to be installed vertically in the wall to make a double compartment cage side to side.
  - *Note: If you are making puppy or small dog housing put the "puppy portal" into two 36" wide cages.*
- Note: Although the portal was designed for side to side installation we (and others) have installed up to down as well.



- Recommended minimum cage size for installing portals is 2'x2'. Two 2x2 cages will provide over 8ft<sup>2</sup> of floor space – which is the minimum size cage housing recommended for shelter cats. A better option for cats is to provide 11ft<sup>2</sup> of floor space and this can be provided by portalizing two 30" wide cages.
  - *Note: If you are making puppy or small dog housing put the "puppy portal" into two 36" wide cages.*
- We recommend sealing the portal to the cage wall during after installation using 100% silicone sealant to keep things highly cleanable.

### **Portal Details:**

- Portal pass-through opening is 7.5", portal flanges cover to about 10".
- Portal doors can be locked - this allows single cage use when absolutely needed.
- All metal hardware is stainless steel.
- Durable with all common disinfectants and designed to be easily cleaned.
- Portals weigh ~1lb each.
- Still want portals but would prefer to make them yourself for cheaper? See our information sheet on [Making Double Compartment Cat Cages using a PVC Portal](#)

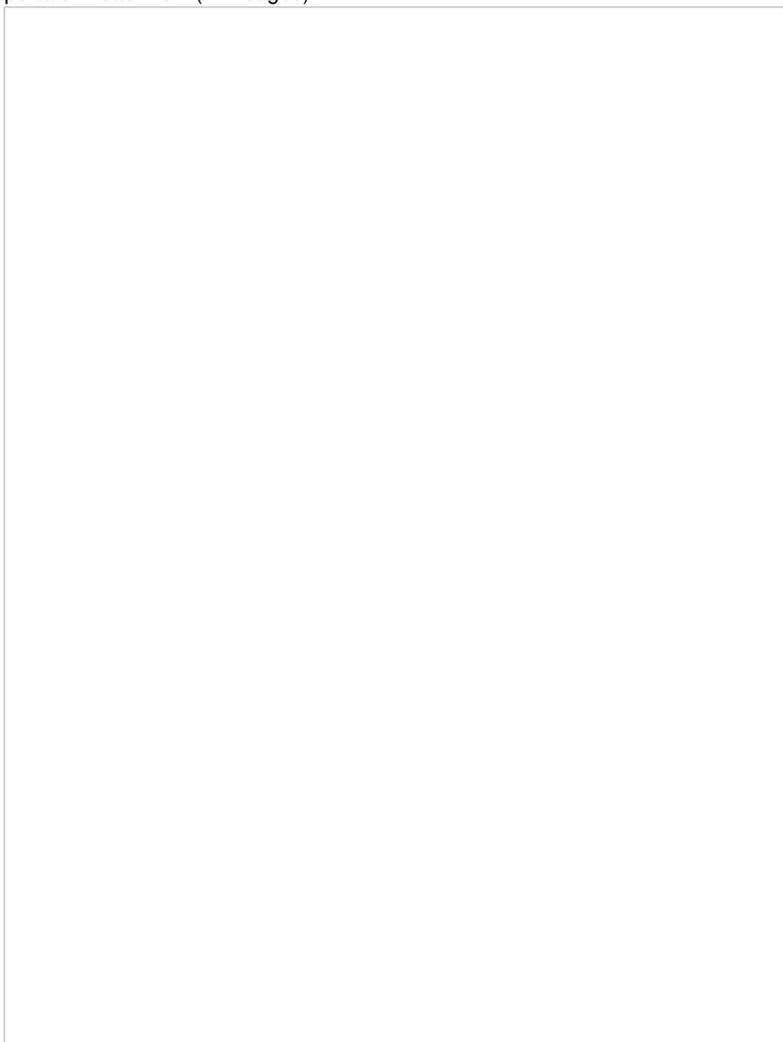
### **Basic Installation information:**

Holes will need to be cut in cage walls in order to place the portals. Shor-Line offers a template that works well marking the wall in preparation for cutting stainless steel cages with a nibbler. The template could also be used to mark the cage wall for cutting other materials. We have had people cut their metal cages with metal shears (hard but doable) and plasma saws (our older cutting method - we used a [Hobart 250 ci machine](#) plasma saw). We now prefer the nibbler, as it's about as fast and can be safely used inside. Instructions for installation, including videos, are below.

If you still feel unsure after reading this page, try the [Portal Install: Step-by-Step to Better Housing](#) course at [sheltermedportal.com](#), which provides more granular step-by-step info.

## Cage Bank Thoughts

Cage banks often are assembled in an odd number of cages per row - 3 across is very common. There are a couple of ways to approach portalizing these cage banks. One is simply to portal across the bank, installing two portals in each row (2x2 cages):



The other is to disassemble your banks and put them back together to make cage banks of pairs of cages. New bases can be purchased from cage manufacturers or they can be made. Most of the hardware for connecting cage banks can also be purchased from the manufacturer.

## Instructions for Prep and Install:

[template and portal in cage with nibbler on top](#)

We recommend reading through the instructions from beginning to end before installing the portal. Installing portals should be relatively easy – taking the time to get the first one in correctly will help to ensure the others are indeed easy. Stainless steel cages can be cut with a plasma saw and a template or a nibbler and a

template. Check out the videos below as an overview to these instructions. The first video below shows Dr. Wagner using a nibbler for wall cutting. The two-part series videos are installs using a plasma saw for wall cutting.

Installation timeframe: If cages are set up and ready for portalizing, and you've got a template and a plasma saw or nibbler, the cutting of cage walls should take a couple minutes per cage wall. Cleaning up and placing the portal will take about 5 minutes. Sealing the portal with 100% silicone sealant may be the longest part of the process - taking about 5-10 minutes. Total installation per portal, depending on the method used for cutting, should be in the 10-20-minute range. The first portal will take a little longer – but subsequent portals should fall in this timeframe. If installing the portal is hard, something may be wrong - contact me at [dcwagner@ucdavis.edu](mailto:dcwagner@ucdavis.edu) and I will help troubleshoot.

## Tools and Materials

*Note – tools are inherently dangerous- be careful, wear freaking PPE and don't rush the process. If you do not know how to use a tool, ask someone who does. The process of cutting holes in cages and placing portal pass throughs is not super hard, however it is something most folks haven't done before so take your time, read the instructions, watch the video and you will be pleased with your results.*

- Saw to cut the hole in the cage
    - Stainless steel cage: Nibbler or Plasma saw.
      - The Makita battery operated nibbler 18v works very well, it comes in a corded version as well for about half the price and it will work fine.
    - Laminate, fiberglass or plastic cages: Jig Saw
  - Template for cutting holes – not absolutely needed if you are doing just one but sure makes it easier to cut holes consistently in the right spot. These can be ordered through Shor-Line – you only need one.
  - Sharpie
  - Tape measure
  - PPE - hearing protection, safety glasses and mask
  - Philips screwdriver/power drill
    - If installing more than a couple portals having a couple drills available makes it easier
  - Paint scraper (2) to assist with spacer placement
  - 100% silicone sealant (white and/or clear) I use white to seal the inner portion of the portal where the portal overlaps side to side and clear for the portal flange to cage wall surfaces.
  - Paper towels for clean up
  - Rubbing alcohol for clean up
  - Broom for clean up
  - +/- Loctite for door hinge bolt to keep it tight, if needed
  
  - If cutting stainless steel walls with a nibbler -additional supplies:
    - Nibbler only - 1/16" drill bit(s)
    - Nibbler only - step bit or Carbide hole cutter
- step bit


- - Electric drill – to use step bit or hole cutter (cut on sloooooow speed)
    - Nibbler only - spray oil for cutting metal (step bit, hole cutter, nibbler)
      - Magic tap or similar product
    - Vacuum to get every last metal shard made by the nibbler - they are sharp

## Install Videos

### New nibbler install video:

*A big thank you to Phil and all the folks at Solano County Animal Care for allowing us to make this video while training them on portal installation and to Isabelle McDonald-Gilmartin here on the KSMP team for her keen videography skills and musicality.*

### Older plasma saw install videos:

Part I

Part II

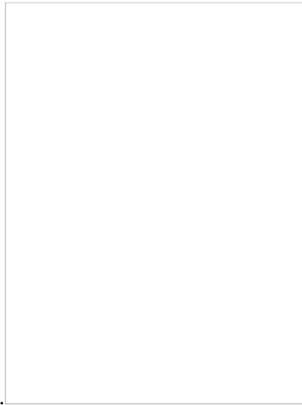
## Step by step Instructions (watch video[s] first):

*Note: Wear eye- and ear-protection. Long sleeves are a good idea too.*

1. Use a template (or make one [see bottom of page]; ordering info above, along with instructions for use) to mark the location on the cage wall where the portal will be installed
  - a. Using the Shor-Line template – set it into the back corner of the cage and use a sharpie to mark the hole to be cut onto the cage wall. Do this on each side of the set of two cages. (This is an older version of a template)
2. Inside the sharpie-marked circle drill a small starter hole through the wall ~ 1/2" just inside the circle. (This will help to hold the step bit or hole saw in place when you go to use them). Spray some metal cutting oil on the wall at this location and use a small gauge drill bit to drill a small hole.
3. Using a power drill and your step bit or hole saw– cut about a 1" hole through the steel. Use cutting oil (on the bit/hole saw and wall) and drill slowly.
  - a. Once through check to make sure the head of the nibbler fits into the hole.
  - b. *Note: Stainless steel is hard- if you don't use lubricating oil you will dull your step drill in a matter of a few holes –with proper oil and cutting slow you should be able to get about 50 or more holes drilled per step bit or hole saw.*
4. Cut out holes in cage walls
  - a. *First timers: Practice with the nibbler before cutting the first cage. The nibbler likes to run a bit and without some direction it can kind of get away from a person – give it a little direction and it is pretty easy to cut with.*
  - b. Spray cutting oil on the marking for the hole
  - c. Cut hole out with nibbler
  - d. Repeat this process on the other cage wall
  - e. The circular cut does not have to be perfect - it can be a little bigger or a little smaller than the marked circle. It cannot be a lot bigger or a lot smaller - though a "lot smaller" will be much easier to fix; just recut to fit the portal. If you cut too big a hole – contact me – [dcwagner@ucdavis.edu](mailto:dcwagner@ucdavis.edu)
    - i. Tip: for your first try you might want to cut about an inch inside the marked circle- so you can get the hang of it; then recut on the marked line to get the proper size.
5. Clean up: remove metal bits and clean up oil- use paper towels for metal bits and paper towel and alcohol to clean oil from floor and walls.
6. Clean again the walls where the portals will be placed -*Make sure all oil is removed*

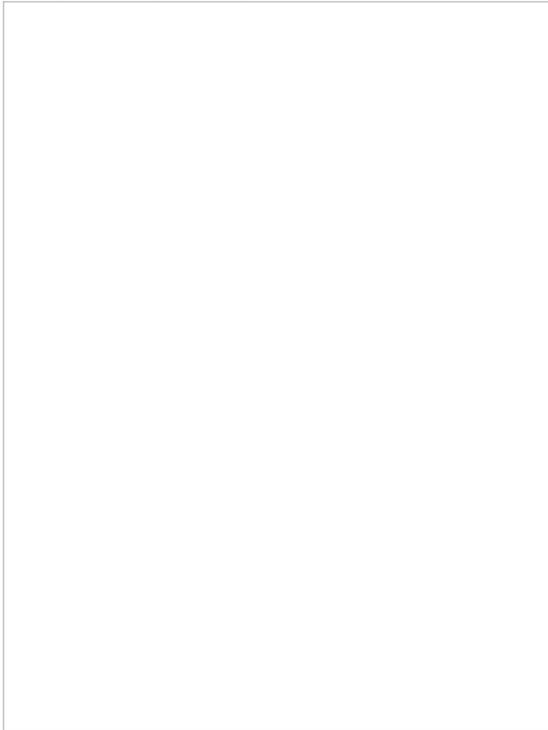
## Installing the Portal

1. Match up the two halves of the portal – each one has an "up" orientation which is the top of the portal– use the arrow points along with the small divot in the flange to find the top of each portal half.
2. Door location can be in either the left cage or the right cage. The cage side where the door is desired will need to have the portal half containing the 6 holes. I like to have the door on the side that the litter box will go in as there is less "stuff" on this side which makes it easier for staff during their daily routine. If there is a preference on the team for the side of the litterbox just install the portals so the door is on that side.
3. Test fit - After the cage is cut and cleaned up check to see that the portal fits. Orient the portal properly with the arrow/divot marks upward, the portal half with 6 holes on the side where the door is desired. Then slide the other portal half in from the other cage side. (Make sure both sides are oriented properly – arrows and divots upward). The portal should fit into the wall hole easily. If the portal is tight or getting caught on the cage wall, investigate the hole alignment and cut more as needed (rarely needed and do not overcut).
4. Remove the portal.
5. Double check that the cage walls are clean - wipe with alcohol and paper towel again if needed.
6. Place the spacer provided by Shor-Line in the gap between the cage walls. Always install the portal with the spacer or you will risk damage to the doors when they are in use.
  - a. If the cage walls are too close together to fit the spacer – physically move the back end of the cages farther apart. If still too tight to fit the Shor-Line spacer make a couple spacers using 1" PVC pipe cut to the length of the width of the gap between the cages and place two PVC pipe spacers at 9 and 3 o'clock locations across from each other inside the gap – tape in place if needed.
7. Slide the portal halves into each other from their respective sides. (Make sure the arrow and divot are at the top of the portal). Make sure the portal half with the holes is on the side where you want the door. Make sure the spacer is in place.
8. Snug up the portal flange to the cage walls. Hold together with one hand while you put in the two metal



screws (2) – one each in the MIDDLE hole.

- a. Tighten only until the flanges on the portal and the wall meet – leave a little loose so you can adjust rotation.
9. Check the rotation on the portal - square it up to the floor or wall using the template or a square. Use the template to align a set of holes from side to side. Once aligned go ahead and tighten the 2 screws just enough to hold portal in place.



10. Occasionally – especially in older or warped cages - after getting the portal in the cage you might see a gap between the cage wall and the portal. First double check that the portal is not hung up somewhere – this doesn't happen very often but check by wiggling the portal in the wall a bit to see if it will get uncaught and lie closer to the wall. Otherwise if it's just warped walls – no worries – snug up the portal, but don't over-tighten; silicone will seal these gaps.
11. Check both sides of the cage enclosures. Make sure there is no cut hole showing, that the portal is squared up to the floor and the “up” orientation is correct. (I know this because I too have put enough in upside down – much better to catch at this step than after sealing it in place... argh, I've done this too).

## **Time to seal up the portal**

1. Portal flanges to cage walls: Using 100% silicone sealant (smaller silicone tubes work well here – 1 smaller tube will seal about 5 portals). I like to use clear silicone here. Place a 1/8" bead of silicone along the edge of the portal flange as it meets the cage wall. Do not make a big bead, just fill so the area between the edge of the portal flange and the wall has silicone in it. If you have a wavy wall and the flange and the wall are farther apart – fill that gap (it should not be more than 1/4" or so - if bigger gap check to make sure portal is installed properly). After going around the entire edge of the portal flange “lightly” smooth the bead with your index finger to ensure any gaps or spaces are filled and the edge is relatively

smooth to the cage wall. I try to leave as much silicone as I can while still smoothing out the surface. Use a paper towel with a bit of alcohol on it to clean the silicone off your fingertip after each pass of your finger on the silicone bead. This will help to make a nice smooth surface on the silicone. Do this on both sides of the portal.

- a. Note: This takes time to master – if it's not your strong suit find someone that can do this – it's what people will see and a well-sealed portal looks sharp and is easy to clean. This is reviewed on the second video of the two-part series – toward the end.
2. Sealing the overlap inside the portal: Using silicone sealant (I like to use white here), place a small ~1/8" bead of sealant continuously along the junction/edge of the portal overlap inside the portal. Use the same technique as above to smooth the silicone and wipe away any excess.
3. Lastly – on the side with the holes - fill the middle hole with silicone sealant- the one that was used to connect the portals together. Leave the small hole open – it accepts the locking pin. Leave the lower hole open – it is for the door hinge and door catch.

*Note: use alcohol to clean up any silicone smudges on the cage wall or your fingers.*

Depending on the cure time of the silicone, let the cage sit until the silicone is cured (usually up to 24 hours).

## **Attaching the Door**

Orientation of the door: when the door is open, the paw print should be upright. When the door is closed, the paw should be upside down. Place the door so it is in this orientation when installed.

Hopefully you have assembled the door hardware (see above). Take one assembly (bolt, washer and nylon sleeve) and insert it through the hole in the door away from the larger thumbhole. Attach the door to the portal by inserting the bolt into the lowest hole on the portal on whichever side of the portal the door will be mounted – check that the paw print is “up” when the door is open.

Start threading the bolt into the portal by hand. There is a nut inside the portal to catch the bolt. Ideally screw the bolt in with a Philips screwdriver but if installing more than a few portals you will want to power drill these in, as they are long. When you reach the end, gently tighten them down using the screwdriver until there is just enough tightness so that the door will maintain its location wherever it is – so it's not floppy. If over time the bolt loosens and the door becomes too floppy you may wish to take this hinge bolt out and add some Loctite to the threads and then retighten.

Use the other bolt assembly and insert it into the other lower hole on this portal half. Do not over-tighten the assembly; it just needs to sit snug against the portal surface. When you close the door it will lie close to the portal and be caught by the washer. No need to use the pin for daily cleaning - the door can be easily closed and reopened.

**Prior to Use - Clean and disinfect the cage.**

## **How to set up a double compartment cage**

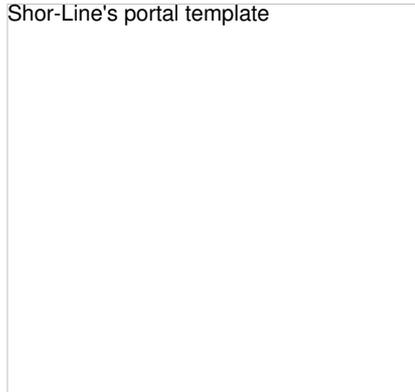
Low-Stress Cat Housing



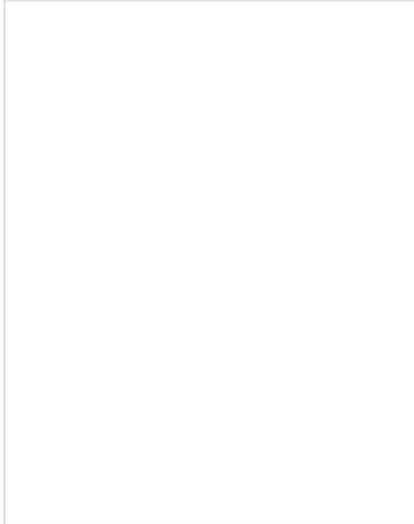
## Templates:

Templates can be used to mark the cage wall for the portal hole for cutting with a nibbler or they can be used as a guide to follow for cutting the hole with a plasma saw.

Shor-Line's portal template



Shor-Line offers an aluminum template that works well for the hole placement for portals – order these if you need a template when you place your order. Call Shor-Line toll-free at 1.800.444.1579 for pricing.



Alternatively, you can make or have someone else make a template that will also work. Shor-Line's template design is a little different than ours (size and where it's placed in the cage) and both can work quite well – Shor-Line's will not work in cages where the back wall has a shelf attached (unless it can be removed). We have both templates listed as you may come across each and the dimensions for our template haven't changed. If you're making your own template, you can safely use the instructions on the site. The important thing is to use the same template to markup both adjoining cages as the templates are not interchangeable.

Have your local metal shop make a template out of a sheet of metal (steel or aluminum) 10 3/4" wide with a base of 7 1/4" and height of 14 1/4" and bend 90 degrees between the base and the 14 1/4" height side. Have them cut an 8 3/4" hole with the bottom of the hole 3" off the bottom of the template and centered such that each side of the cut-out is 1" wide to the edge of the template. *Note: make a rounded bend at the 90-degree angle so the template will cozy up to the cage wall.*

*Recommended portal location in ~28" deep standard 2' x 2' cage: ideally 14-15" from the front for portal placement near the rear of the cage (recommended), or 3-5" from the front for portal placement in the front of the cage (sometimes needed when existing shelving is in place and can't easily be removed). Portals at the rear of the cage are easier for cats to move across when doing daily cleaning (less need to handle cats). Using this template and marking the cage floor with a sharpie at 14" from the cage front will place the portal at 15" into the cage. This works well. In 24" deep cages, template placement at 11" into the cage works well (if using this template, measure and mark at 10" into the cage for good portal template placement).*



Portals allow us to reuse older single cage housing (that cats don't do well in) and make them into very good [double compartment cat condos](#) that meet the housing needs of shelter cats and the folks that care for them.

## Related information:

- [Want to make your own housing accessories? View and download The DIY housing guide](#)
- [Want to learn more about portals? Visit: The Portal Project](#)
- [Facility Design and Animal Housing](#)
- [Capacity for Care-The Business of Saving Lives](#)
- [Shor-Line's Retrofitting page](#)

**Huge kudos to Rob Williamson (Alfalight, Inc, Madison, Wisconsin) for countless hours of engineering and design work on the portal. With your help and expertise, we were able to make this thing happen - thanks Rob!!!**