Shaped into Submission

A study in Climbing Hold Design

by

Brian James Meuse C 2017

DISCLAIMER

This study into Climbing Hold Design explores elements pertaining to ergonomics and aesthetics and does not prepare the reader to be prolific in the physics necessary to manufacture “Safe under Load” climbing holds. The thickness, durability and integrity of materials is not covered in this study because of the variables involved and should not be assumed acceptable for even for recreational use. Insurance is typically bought to cover damages associated with retail sales and the consequences of breakage or deformity can result in death, criminal charges and civil lawsuits.

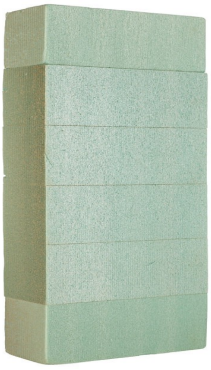
Do not use the climbing holds you make from this study in the public arena.

Do not use the chemicals necessary to produce climbing holds if you don't understand the risks.

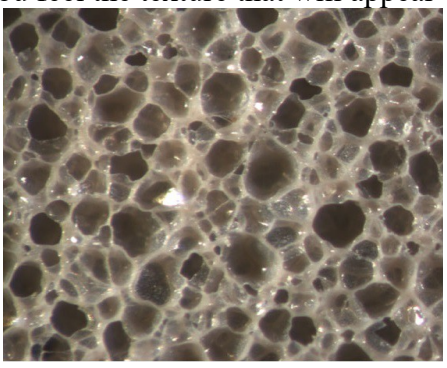
Chapter One
“Foam”

Foam, it's Urethane, closed cell. We're going to use Oasis Green or Desert Brown 4lb. It's cheap, can be bought today at a store and similar enough to quality foam to get started. To carve it, buy the cheap Chinese variety pack of clay sculpting tools. No need for a large assortment of tools here, you will only need a flat scrapper, a curved pick, a four inch knife and some 220 grit sandpaper.

These ridiculous Oasis blocks come cut to 3x4x9, so you'll be limited (at retail stores) by the size of the pieces you can produce, but don't require extraction from a large expensive bun.



If you search the internet, you will see all kinds of weird shapes, but very few blocks of any real size. They do exist and by finding them, you will begin to see what exists out there. You want DRY foam, not wet. When you feel it, you feel the texture that will appear on the climbing hold.

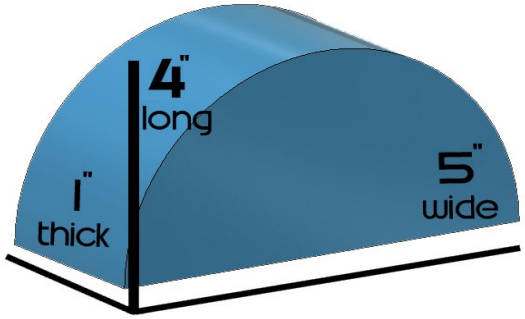


The 4lb. Density is very soft, easily crushed large cell structure. Oasis Green is considered a (relatively void free) “Aggressive”texture. While it is grippy, it consequently strips the skin from your hands pretty quickly and then gets clogged up with chalk. We don't care right now, let's move on to our first shape.

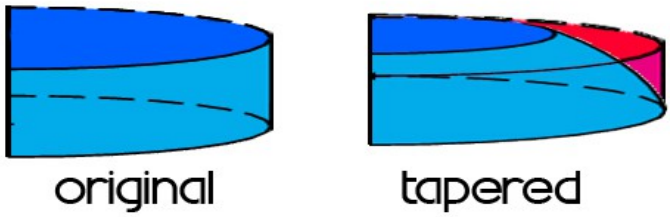
Chapter Two
"Crimps"

Crimps= Edges that aren't incut enough to wrap fingers like a jug.

The shape of the crimp we will make will be the classic "Half Moon" (I call it.) Crimp. We'll make five of them in different angles and go over the basic elements.
Cut this basic shape an inch thick, 5 inches wide and 4 inches long.



Leave the 5" length (The Top Edge) flat and taper about one inch of area around the rest of the curve.



From the original on the left we extracted the area in red to achieve a tapered base shape.

We want taper so that there's no real edge for your thumb to catch and the palm can't achieve friction by pressing up to the fingers. In other words we want to force the climber to have to hang off the top edge of this crimp with four fingers.

Next we'll round the top edge. Climbing holds are all about climbing all day. Your texture and edges can't be so gnarly a person can't pull 3 or four hours without needing days of lengthy recovery.

Tendons are especially prone to extremely long healing, but rounding the top edge fully is not always the way to go, for now it is. Round if off.

Basically, this foam mass is now a climbing hold and you know the absolute minimum attributes a person must repeat in order to make jugs, pinches, slopers. A base shape with curves or/and edges. Our crimp is a terrible hold, it will hurt people, embarrass you, but technically this is all I'm supposed to tell you.

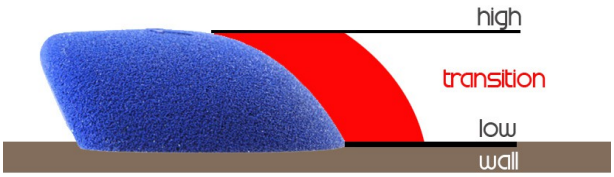
The prevailing theory is that you must shave your head and do hands stands in the snow high up in the mountains to be a master shaper. You must speak to the lizards at Joe's Valley and pray to rocks like a freak, it's not true. It is however pretty tough as far as art forms go, the very fact that you're supposed to make sculpture with the same mitts you use for hand jams is not seen anywhere else so consider yourself partly freaky. You will need to practice and practice for a long long time to get the "Feel", which is different from knowing the "Geometry", which allows you to later create "Nuance" which is what great holds are all about.

To get great, you need to start by knowing two things-

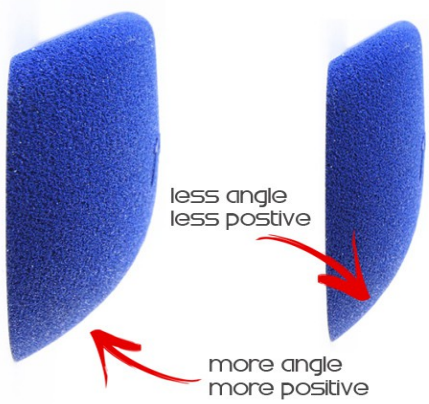
1. Relationships
2. Transitions

We get those two things firing and we're off to the races. So let's talk transitions, let's talk about that "Taper" we did.

What is it? A taper is a "Transition" from a high spot sloping down to a low.



On a crimp this slope matters because too steep has a "Relationship" called "Positive". Friction can be achieved when opposing forces are applied.



See how the body width decreased with the shallow taper angle, there's a "Relationship" between body size and tapering. You could keep the same width, but you would have to make the length three times as long to keep that angle and then you have heavy, big holds that will chip an edge

if dropped from an inch on to padding.

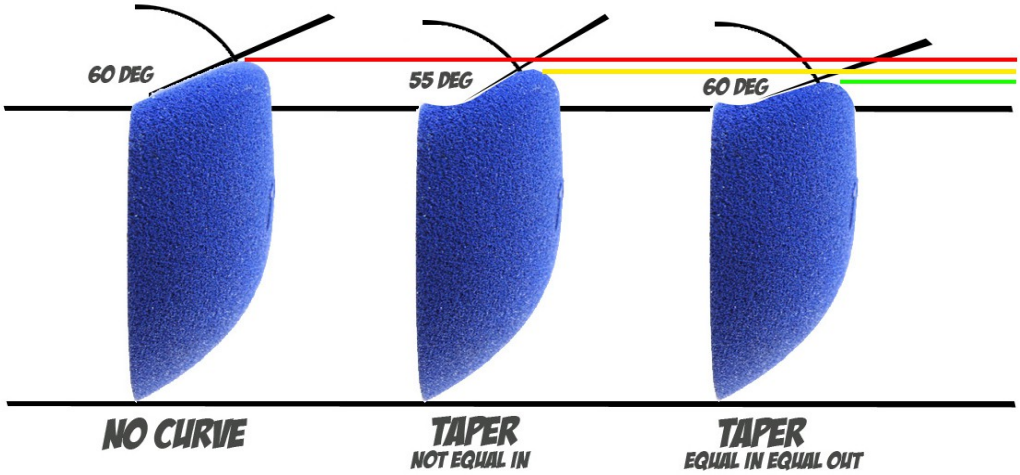
Tapering is an important part of most hold types. In slopers and pinches, tapering can produce multiple effects. The primary concern is always to deny the climber the ability to somehow grip the outer footprint where the hold meets the wall it's anchored to. Other concerns include adding a positive at the transition and creating an edge other than a designated or obvious top edge. It's a grove meant to keep your fingertips from scraping the wall and resting ergonomically. It's denying climbers a foothold. All these things must be considered, but with our little crimp, for now, we just want good enough to cover our basis climbers.

We will taper the bottom so it sits nice in snug in your palm, and so a little palm friction can be achieved on a slab, but it's intermediate grade quality for intermediate grade climbers v0 to v4. They will enjoy the meaty roundness and provide confidence with a ginormous mound.

Here is an example of a hold designed for advanced climbers.

Notice the extensive shallow tapering extending beyond either side of the hold, the slim not meaty body that has only the mass necessary to force the climber to do what the shaper wants. The area where the fingers meets the wall is upturned slightly and works with the top edge to create an ergonomic pocket for fingers. See how sunken it is, that's because, unlike the other crimp, this one uses a curved taper, it doesn't just drop off to the wall like a bird shot out of the sky.

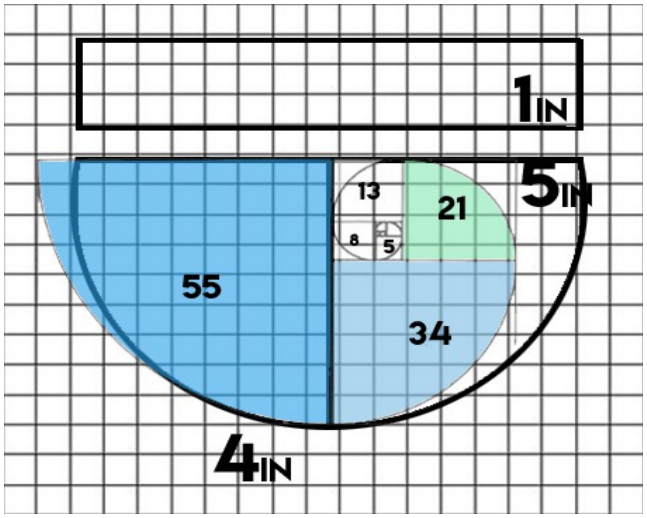
So get your half moon crimp, put your hand on it like you would climbing and see how it feels. Now “Curve” taper the top edge where it meets the wall by cutting or sanding out a small groove. Put your hand back and see the improvement. Now your fingertips have a grove to rest in and resists contact with the textured wall.



However, by subtracting material on one side, making a change in the curve leading to the wall and not subtracting proportional material in the the old curve leading over the top edge, we're off

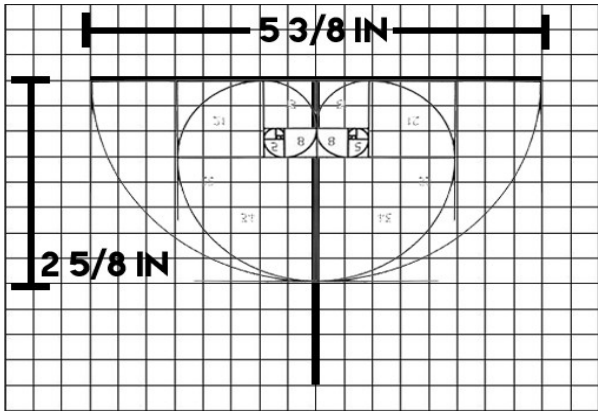
balance. Our angle has changed by five degrees. We did the “In” at a value that doesn't have proportion to the “Out”, and to do the out, we also must reduce the size of the entire hold. Remember, we're breaking the old relationships, so now we have to make new ones.

Rather than subtract material as we had before, with a vague idea of what our new proportions should be, we're going to put down the knife and pick up a pencil. Lets use geometry to see what your “In” and “Out” curve should have been. Draw our one pad crimp to scale in cross section on graph paper, remember the dimensions, 5x4x1. Draw a circle that spans fifteen boxes which will represent one inch.



We're going to use the Golden ratio to see the top dimensions proportioned and how far off we were. Overlay the ratio over the outline of the dimensions and scale it to fit the 4 inch length, park it right in that corner. 55 now gives you half the proportional width.

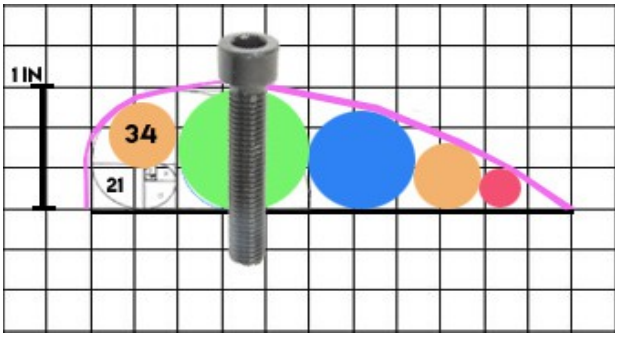
The ratio doesn't have to be exact-exact, it's just a way to get an idea of the overall proportions before we translate it to the foam piece the best we can. Immediately we see that our starting dimensions (The base shape we cut) was pretty good but needs the top edge (the 55 area in blue) to extend farther.



So we redraw the base shape, give it that width, extending it to 5 3/8th inch and suddenly (to be

proportional) the bottom has to come up more than an inch. When we add the inverse golden ratio on the right side we see it's true. Now that we have the top down proportioned lets get our profile.

The thickness of our crimp is dependent on the pad size, we're shooting for 1 pad which we'll call 3/4 inch of top edge. (Which is rather large) Based on that requirement we make the rest of the profile proportional to a one inch golden ratio.



The height of the green circle is 55 on the golden ratio, one inch, our top edge which your fingers will wrap around is the 34 curve on the golden ratio. Next place the green circle where we want the bolt hole to be according to the forces typically applied to a climbing hold bolted to a wall.

When compared to the inside edge (you can't see behind the lip and represented by the black line), the bolt hole placement is closer to the top of the hold than the middle. When force is applied it will attempt to peel off the wall, getting a fastener closer to the top of the hold allows the bottom ¾ to take the load. No load is typically forced up from the bottom so almost always the bolt hole is as high as you can go without the hole compromising an incut.

The area around the bolt hole will be the thickest area and highest point on “Our” hold. Using the 34 area to make a 34 sphere in the Golden ratio creates a short patch of flat after the bolt hole, then the line drops down slightly to the top edge. Based off the largest sphere at 55 we stack next to it on the right the 34, 21 and 13 until we hit the end of the hold. See how the ratio creates a nice slope, we're good.

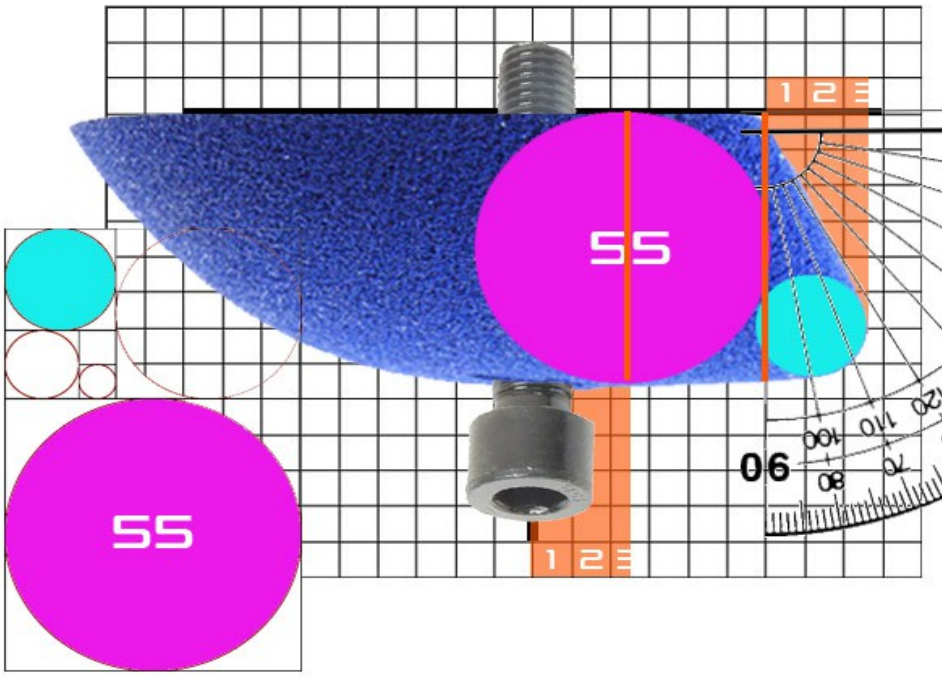
The bolt hole being higher than the top edge, means that there's a little negative slope in the front and a lot in the back of the hold. The body is rounded with a little flat spot on one side so the hole doesn't stick out into your palm.

Let's put down the pencil and cut up our foam block with the top dimensions drawn out in. First the top, then the sides. Cut corners until it's pretty faceted and then get on it with your 220 grit. Slap on

a mask and gently, gently work it just enough so you get some uniform roundness. Now sand down the first crimp we made and compare the two. Progress is often hard to read, but we are making it. Let's continue with angles.

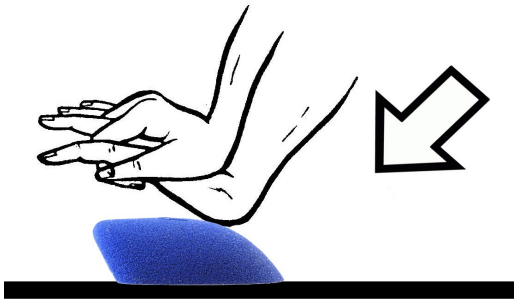
Our first piece was a 90 degree crimp, ideally you want at least four other holds that are similar but the top edge is at a different angle. Check out these crimps from Rock Candy, they have many of the angles we're looking for next, but also show how tall the taper gets when you offer so much surface area for finger pads and how you don't have to round down from the bolt hole to the top edge, you can stay flat or even go up to facilitate more surface area. When you go up, the taper from top edge to the very end of the hold, can nearly be a straight line. This makes for a very compact but significantly wide edge to climb on.

The crimp in red is (Probably) 90 degrees, we want to move on to something designed for a slightly steeper terrain, maybe 95 degrees. Nothing drastic, just a slight shift, so slight you can barely perceive the 5% change in slope of the body shape between red and green, but by 10% it becomes more obviously flattening out.

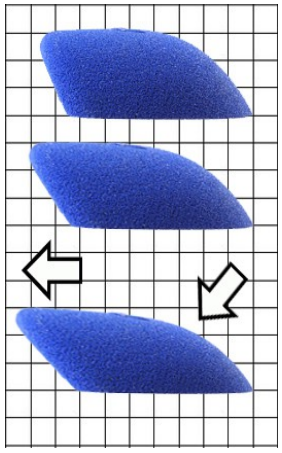


To change degrees simply shift the top edge and it's embedded golden ratio. Here the 55 was shifted 2.5 blocks to the right, away from the bolt hole from where it started. That means we need to shift the top edge 2.5 blocks as well. It isn't a coincidence that his top edge is the same radius as the blue circle Golden ratio 21, or that 2.5 blocks is the same width as the blue circle. turns out to be 25

degrees difference. Whoa. Magic. Shift and smush (Skew) almost like an invisible hand is pressing down and forward and deforming it into a steeper angle, less width.



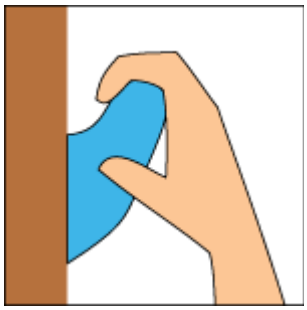
Repeat this process for 100 degrees and so on. The ratio will hold true and they will be correctly proportioned. Whether you can cut it up well or not is up to you.



Chapter Three
"Jugs"

Jug- A handhold with an incut you can wrap your finger around.

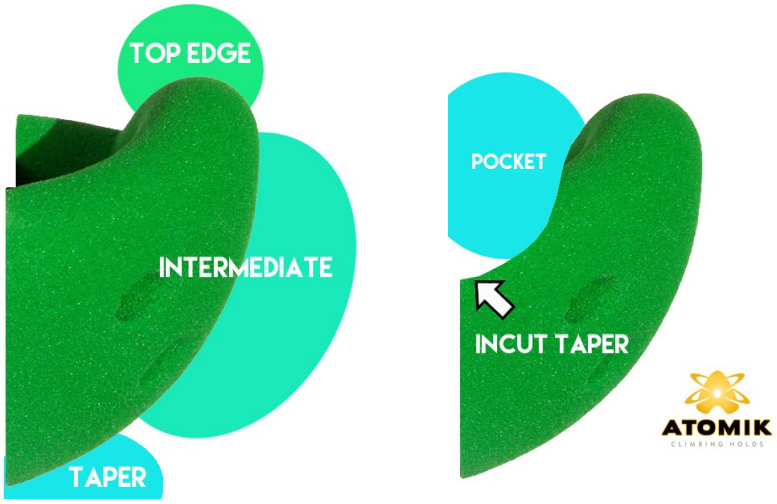
Jugs are hard, in that preference varies so much it's really hard to say what's better or best. Mostly it's how you make your top edge and how you trim the side of the top edge that determines it's value. Since we just came out of doing a basic crimp we're going to do a basic jug for v0 to v4 climbers, so you can see how the finger wrap works and the problems encountered with even simple designs.



Jugs like crimps are pulled down on by the climber, the difference is that they have much more material to get their fingers around. This action of wrapping fingers means multiple segments per finger are used and all segments on a finger aren't equal. Making a comfortable hold that also denies the thumb from wrapping around the side like this guy is trying to, is walking a fine line. But once you get the hang of it, look at all the funky stuff you can make. In this image the shaper has a range of top edges, look at the variation in the taper at the base and top edge, there's every kind of way to do it here.

When we made our crimp we talked about body shape, taper and top edge, with jugs we need to

get a little more specific. Let's define some terms.



The picture on the left shows the basic elements. The intermediate (Spine) is bolted to the wall, the top edge facilitates the load. This Atomik jug is basic in every way and a great place to start. Believe it or don't these jugs are considered by many advanced climbers and gym owners as great for the money, there's nothing wrong with them, they're just big round and comfortable. This basic arrangement, however, can come in a couple flavors that turn up certain attributes and down others. The flat or rounded top edge and the taper to the wall for example.

Here we have two divot jugs, the one on the right is more narrow and taller than the left, it uses a protruding edge that allows for more surface area for finger pads. To get as much surface area as the right hold has, on the left hold, it would have to be much wider, so it's squished. It is compacted from the corners toward the middle. This action creates taper to the wall, makes the hold stick out farther and have a curved pocket, instead of a wide crack as an incut.

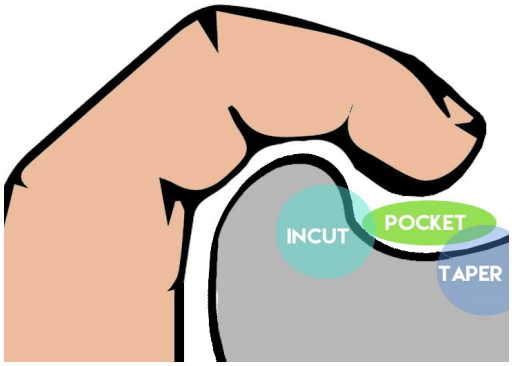
As we go on I want you to try a recognize who makes the hold I'm showing so that you can begin to recognize the different styles and how many shapers do things differently. Different is not always wrong, they just sell to different types of clients. Atomik has a very refined standard style, they have probably shaped more holds than any other company so we're in good hands.

Since Atomik makes holds for such a wide range of climbers, many of whom are beginners they

use fat shapes, short tapers and a rounded top edge.

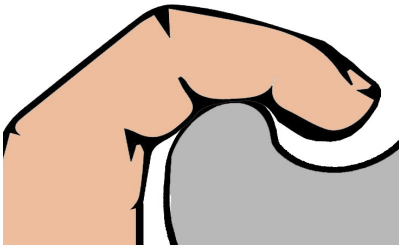
Sold as climb down jugs for strength training, these jugs don't need anything to keep them honest. Psycho Arts has chosen to turn in their top edge ever so slightly with what I call “Partial Round”. It still has the fat, thick top edge, but this slight lean is better I believe in that it accounts for the inequality in finger segments. The taper on the incut is still doughnut depressed. It looks like a doughnut in a vacuum sealed bag. It is sometimes easier to visualize jugs like crimps with 65% of a doughnut embedded inside.

This doughnut is a curved tube that runs along the top edge, not complicated, what is, is how your fingers wrap around the edge and parks behind it. The image below is a crimp/jug, you can't really wrap fingers like a jug, but the pocket, top edge, taper/angle relationship should be easy to see and I don't want to get into pocket depth yet.

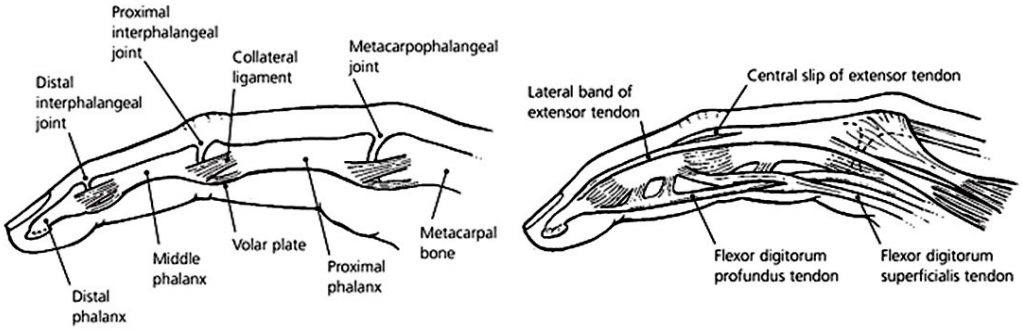


You see how (at this angle) one segment of your fingers sit on the top edge. The first knuckle is

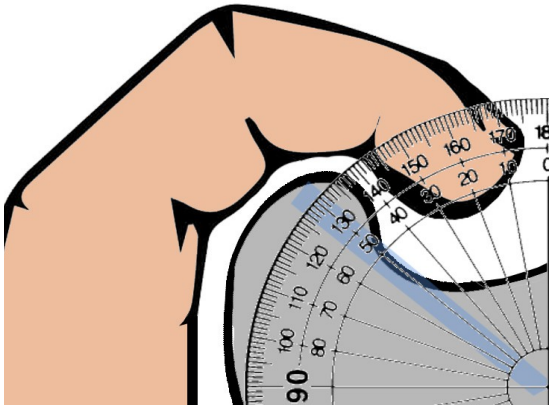
just past the highest point of the the top edge, on the vertical down slope and the finger pad sits (parks) in the pocket. Too much taper to the wall, and not enough of a park (flat area) in the pocket will cause your finger pad to not lay flat in the pocket. Here you see that the two angles in the curve that makes up the pocket aren't equal. There's a little taper at the wall and more at the incut which is good, but what was this hold intended for by you the shaper? If you think this top edge is going to work on a slab or slight overhang you're in for a surprise. Look what happens if this hand comes straight down on such an edge.



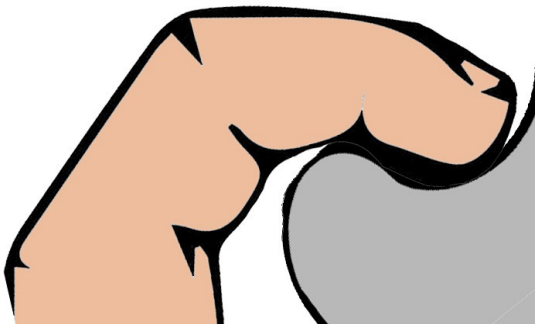
The issue is slight, you almost think that this guy can turn down his finger tip into the pocket and that first knuckle, being at the apex of a top edge that's turned in, means he'll be fine, and maybe so if he can lean far away from the wall, but if you're waist up to the slab on tiny footholds, no. The fact is you simply can't pull down in between finger segments.



This doesn't mean the hold must be wrong. You're just not seeing the relationship between the angles of the curves in the pocket and it's application in climbing. This top edge is applicable on a wall inclined to more like 50 degrees.



According to the protractor, our incut angle is 50 degrees.

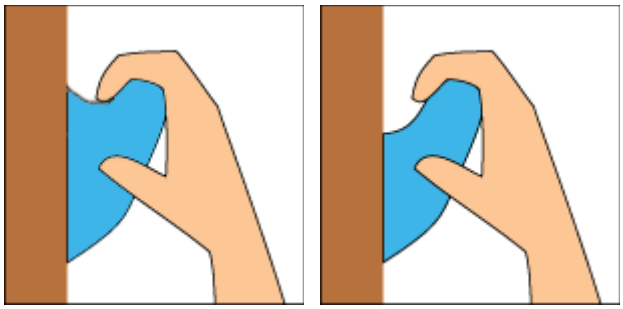


And so, when we turn the hold as it would look fastened to a wall at 50 degrees, we see that the finger does in fact park correctly in the pocket. You can pull down on this. See the top edge apex is now assuredly at a knuckle bend and not half way across bone.

You can use pockets that are too tall, have no park and are too close to the wall on purpose. This is how curved pockets become flakes.

You can force the climber to have to come in behind the top edge and dig in behind it a little, which is common in outdoor climbing, but you can get into trouble and cause injury. If you don't go nuts, they're great, a lot of mini jugs are flaky.

This isn't an excuse when you screw up. There's a simple way to avoid it. The angle of the crimp you are making should have what I like to call an “Parking” Area. An area that is mostly flat, if not totally flat between two curves. This area is just the bottom of the pocket, on some jug parking is unnecessary or unwanted.



You would do one over the other mainly because of height or to deny/encourage a thumb wrap,

but also to avoid the possibility of wall contact with the tips of your fingers inside the pocket.

If you don't want to mess with ergonomic wall taper, having none or very little creates that crack you can jam fingers into. You can use the wall as a surface, or you can force them to ride a fat lip, some of the lip and some pocket, or mostly pocket as seen below.

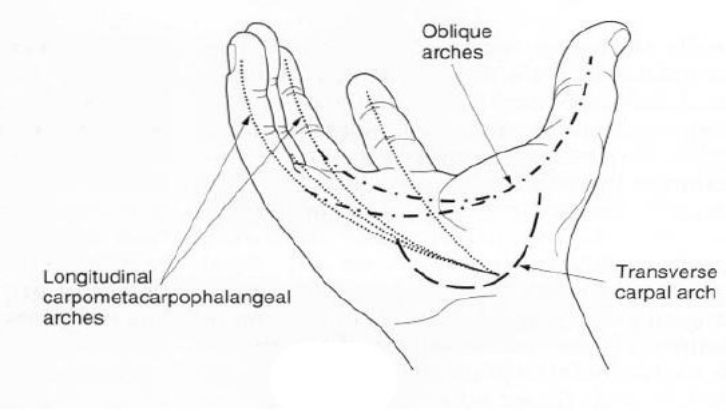
We will put enough space behind the top edge so you can get into the pocket statically or dynamically. The Park at the bottom of the pocket acts as a spacer, how wide it is has a relationship with your chosen angle and makes access to the pocket easy or not hardly.

Beginners often incut too much thinking bigger, wider, bucket-er, they over taper their top edge turning it from full round to double taper. This rarely works except with buckets which are their own animal all together. Big, wide, too deep for your fingers to bottom out, mostly straight top edge that spans the distance to the first knuckle and allow the hand to get under the edge not just behind it. Basically this is the mother of all v0 jugs, in that it is the most positive a jug can be. People do like to train on these, down climb and is a worthy tool in the shapers arsenal to have.

Nothing wrong with super wide edges, you just have to pay the price for portions and that's overall size. What I don't like is this man hand and his nubs. Look at that thumb trying to get in on the action, because the edge is full round and so wide, he can use it as an edge. He can't wrap around inside it, but there are things that can be done to discourage this man hand's thumb. The edge could be reduced in width, the straight top edge has to go, and we have to twist taper it to the wall.

Lets consider the straight vs. the rounded (length wise) top edge.

Mostly it's about how many horizontal fingers do you want the climber to achieve. The straight top edge allows for all four fingers across, next, full round allows four fingers, but changes the angle of all but the middle finger. Partial Round allows usually two fingers flat on top and the other two hit the down slope to either side providing a change in the angle they grip. Your fingers want a flat edge because it hates slope friction, but a hand is anatomically not flat across, all fingers are different lengths and start at a slightly curved palm. A little curve on the top edge helps with comfort.

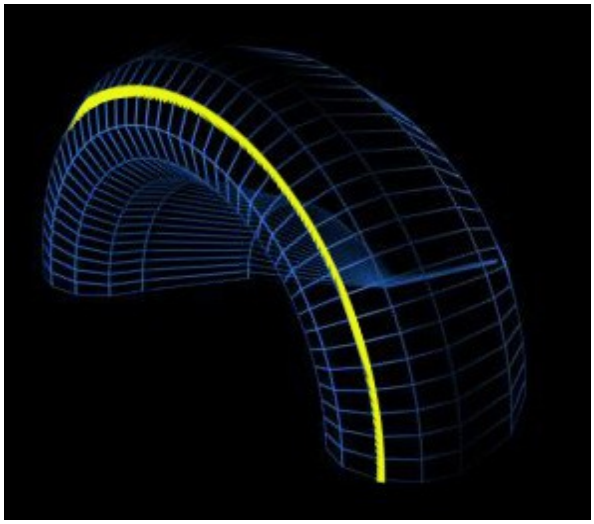


A little curve, if ever that meant anything, it does now because we must delve into the deeper water with top edges and the twist tapering to the wall to control thumbs. Like I said, they want to wrap, that's what they do. You can't ignore it. Here are some holds with thumb catches added, they show where the culprit likes to hang out.

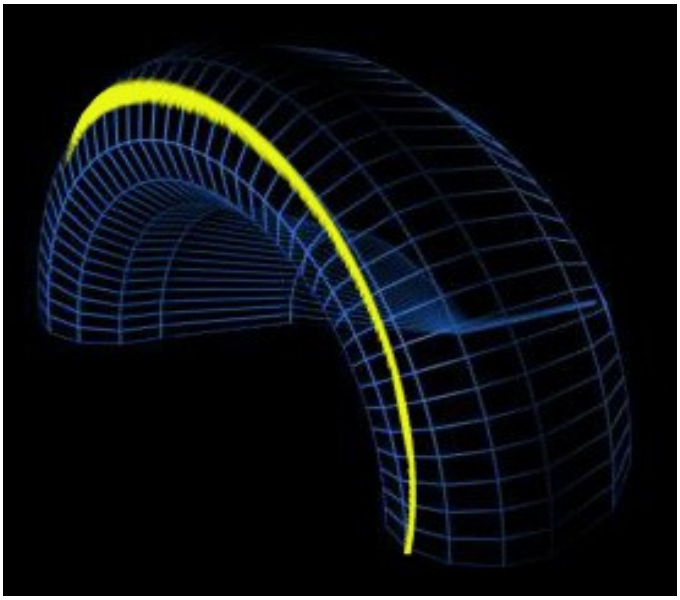
This guy in the middle here>

This guy is a valid example of an added thumb catch. The strip of hot glue is trying to rise up and over the top edge in the corners. In the middle it knows it's place, back and out of the way, but in the corners it sneakily worms it's way to the apex on purpose. In non thumb catch holds, you would defeat this thumb friction by (not using hot glue thumb catches in the first place and...) twisting the top edge back (Or simply shaving away mass) which stretches the angle out and makes it less positive. In

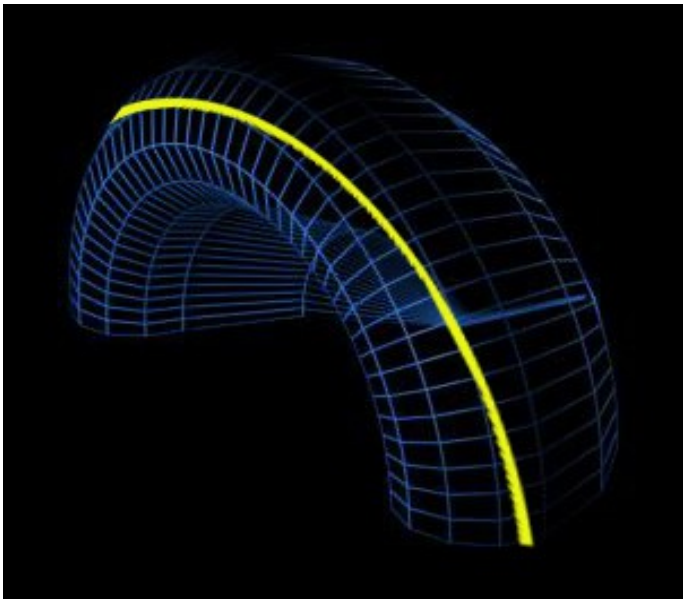
this set you set many different ways of working the thumb. On some of the holds above, the shaper reduced the thickness of the top edge at the corners, sometimes he does taper up and even into the pocket, sometimes the pocket isn't round. Sometimes there is no pocket for the thumb to aspire to at all.



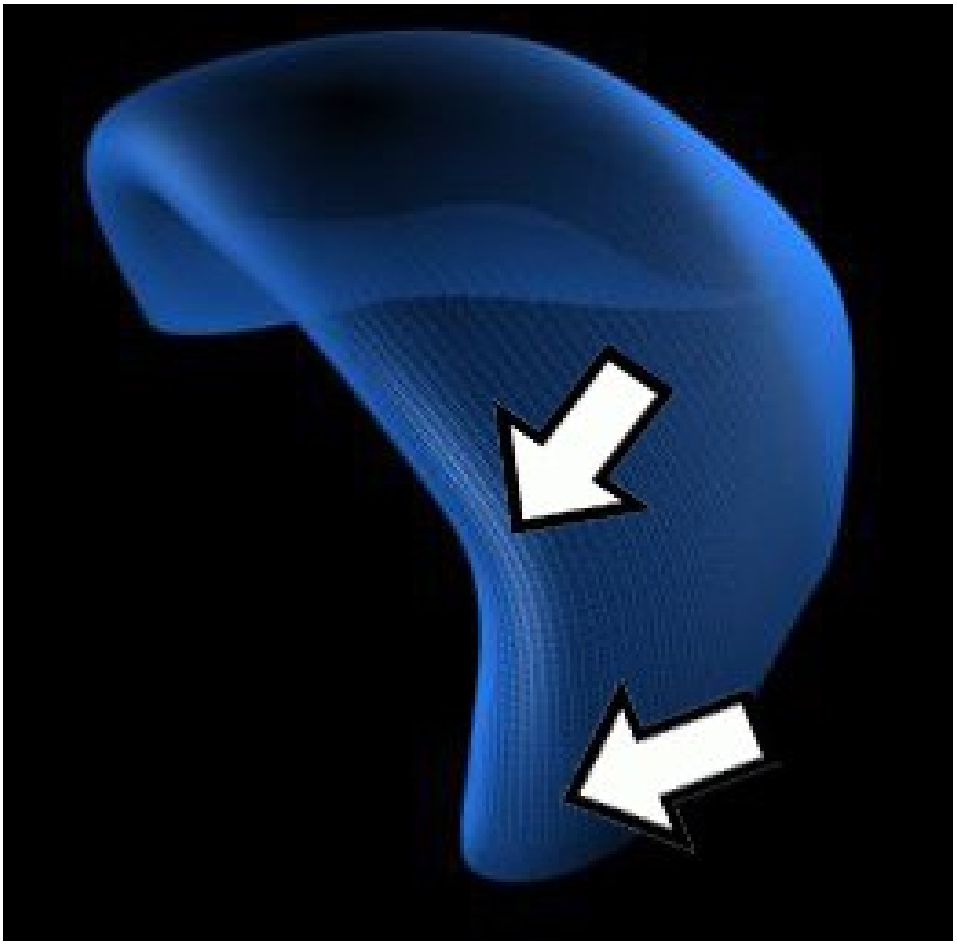
It's easier to see what's happening here when we digitize a top edge of a very basic jug top edge and look at it in wire-frame. The yellow line is the outer most margin of the apex of a full round top edge, this is the point where the top edge ends and the curve starts going down the (Spine) back side taper. When a hand is climbing it, the max load comes down in this area and the thumb wants to as well. If that's ok with you, leave it there. If not...



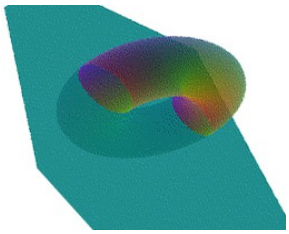
You can twist taper the line in toward the pocket in the corners which creates more distance for the thumb to travel to catch the apex.



Or you can twist the other way and land the apex farther back on the edge leaving more slope, less edge. See how the lines running along the apex of the top edge taper back? They do not continue to travel along the curve. They're falling behind thanks to twisted taper.

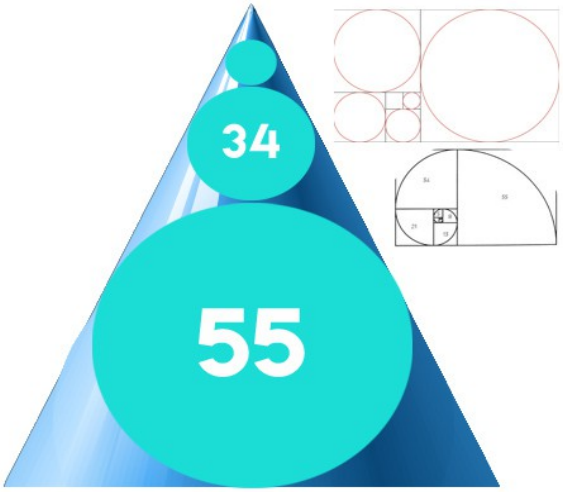


Twist taper shouldn't effect the body shape, it's just a minor amount of mass subtracted from the to edge to defeat friction of one digit. These are options meant to illustrate how much control is possible. Do not become mind-boggled by the choices, always have an intention and just make the holds for that intention. Don't say to yourself ok I want a jug, that's got a million options. You gotta say I want a medium 45 jug with some pocket taper, a round full round top edge, no thumb catch. I want the thumb to not have equal access to the full radius of that edge, I want it to have only a slope to achieve friction. You must have an intention going in, or you will become lost.

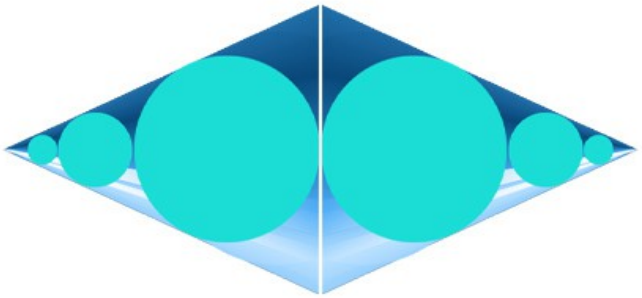


The above hold has a top edge that has it's mass reduced at either side. If you were to take a doughnut and press down on it across it's center line with a rolling pin, half of it would be about the shape of a basic full round edge that's tapered to the wall, but not in the incut.

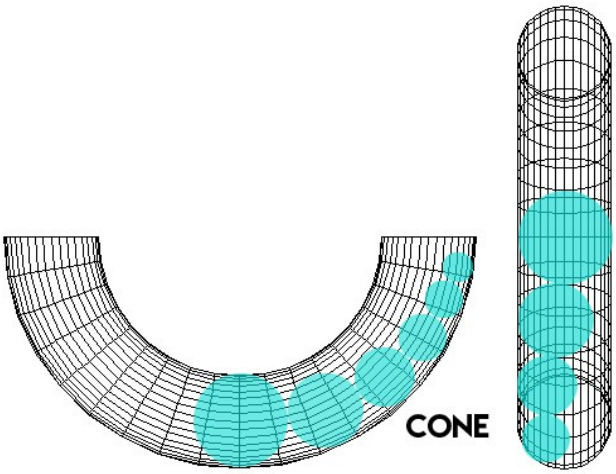
Ok, let's get really clear with some very basic concepts of this flattened doughnut. The flattened part is the same as a super crude cylinder twisted at both ends to a point. If you were to roll up a piece of paper into a cylinder and twist one end so that the diameter of the opening is reduced it will become a cone. The amount of twist to get a proportional cone is determined by the Golden Ratio.



The big circle inside the cone steps down in size according to the proportions in the ratio of 55 to 34 and down. So, our doughnut edge is actually two cones stuck together at their base. When together they make a diamond, pointed at either end and fattest in the middle.

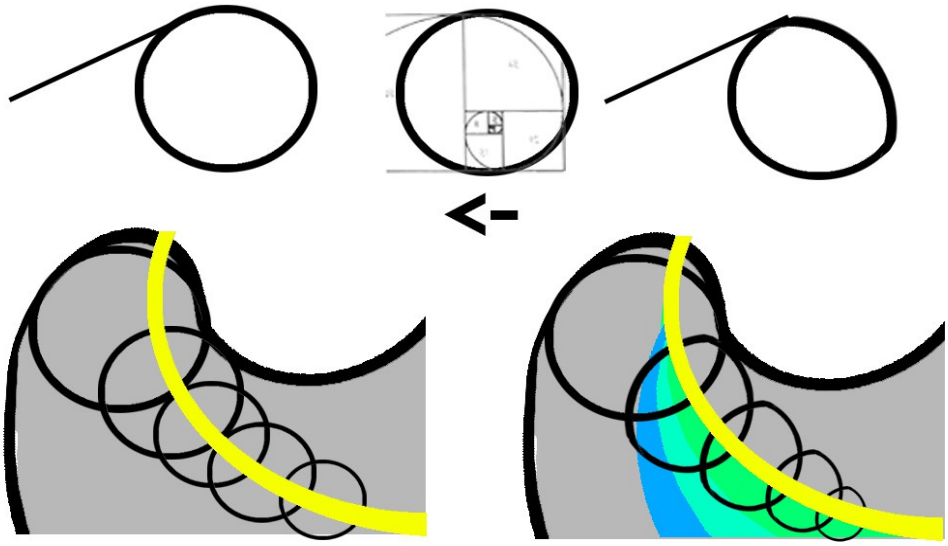


This is low resolution of the (Properly called- “Torus”) doughnut tube helps us wrap our minds around this...



This general guide shows you the concept, the top edge tube is fattest in the center and at the corners, the thinnest. The mass in blue would remain, the rest would be cut away.

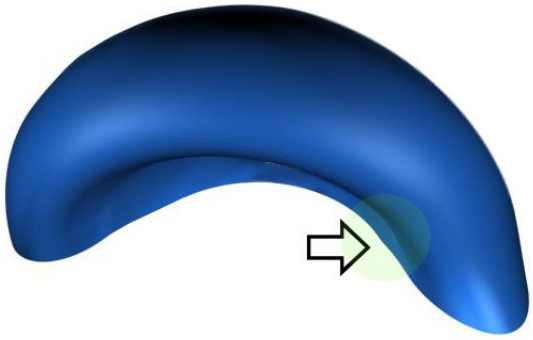
So we created our top edge by making a doughnut at the thickness we want it. We based our largest circle on that width and used the Golden ratio to make the proportional smaller circles to taper down our doughnut at the corners. Now we will taper our full round top edge once again from the center of the hold to the corners.



The physical action is twisting, but in the design world we're just shaving off part of the full round top edge at the corners of the hold. This is what a cross section of one square in that 3D image looks like. The circle on the left is untouched full round, I overlaid the ratio, saw the mass proportional to the whole that I could extract and did so creating the image on the right. So, unlike the way the full circles step down identically along the top edge as seen bottom left, the image on the bottom right starts with full circles, but then little by little, mass is subtracted until the area where the thumb would be is at the max reduction of slope. (Seen right. The circles overlap so I could fit more into the picture, they don't need to.) This area that was shaved changes the apex line in yellow, pulls it back to the green area. That apex is where slope peaks in relation to your hand applying load.

We need to talk about wall taper at the corners and how that affects your top edge. It doesn't alter it, but the area becomes affected somewhat by it. First, the taller the hold the less taper it requires so long as it's proportioned.

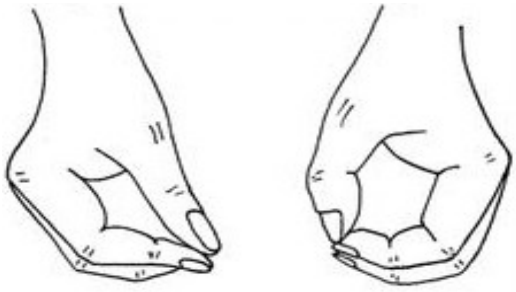
If you're using a doughnut pocket that isn't broken by the wall, it's not such an issue as when your top edge is mostly flat and close to the pull back taper, like with crimps. The relationships all seem to then come to a head and all want their due or it all goes wrong. You have the side taper transitioning to the top taper that's being sucked in by the incut with it's own taper and making a third transition.



The area in the green circle has a lot going on. This “V” where the top edge and pocket meet will be poorly if your step down on your top edge is off. Look how bulbous it is. If you're having problems, step backward and see if your proportions are fighting your efforts because they're wrong to begin with. Initially, I was always putting too much taper there, at the wall. I was scared of the wall and using it. On the left we have not enough taper and on the right there is excess on the top edge. The third part, the taper to the wall, is somewhere in between. It's not so tapered we've overburdening the hold with bulk because we're scared, we use the wall when we can and keeping it slim. You don't need to make these transitions happen slowly and travel far, ergonomics doesn't mean baby the shit out of everything. The fatter the better is a point you can cross into failure.

Chapter 4
"Pinch"

Pinches use all the same concepts. If you make ergonomc pinches you simply have two opposing top edges. These edges are made the same way as crimps and jugs, it's just how to use them that differs. To make pinches you need to further understand the hand. Your thumb will always want to connect to your fingers at your two strongest, usually the first and second and it will want to turn (if the load is considerable) so that it can wrap parallel with the finger wrap to "Clamp".



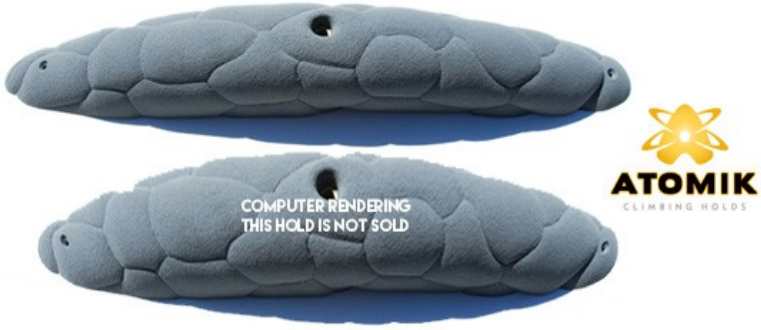
Clamp is a powerful word, it's like bucket, it's for sailors, we want a "Pinch", a little squeezing, a little slope to work with and how much slope has that relationship to positivity. More slope, more positivity and the easier to climb.

Let's look at a few of the different types.

Left to right we have the ergo hourglass shape by Enix, ergo tapered doughnut by Atomik, Geometrics by Thrive and the open hand expanse from Psycho Arts. One side uses curves, the other

angles, curves are harder, but geometrics are not lazy holds for crude people you just have watch out for hard edges. Lastly there are non symmetrical pinches, which can come in a million varieties under the sun. Let's start with curves and pinch versus clamp applications. The Enix pinch and the blue pinch both have no taper at the wall and allow fingers to wrap around the body and clamp using curves. If the Thrive pinches were incut, you could say they “Clamped” as well, using edges, but they're flat, they're (mostly) pinched.

The load on a pinch pulls down. So pinches have a horizontal and vertical necessity in that you can't hang, turned properly there is no edge. To lock off you have only friction on a slope or angle and then you have to defeat gravity. This is why every new climber is trying to reach the top of a pinch so they can leverage whatever improper tapering there is at the ends.



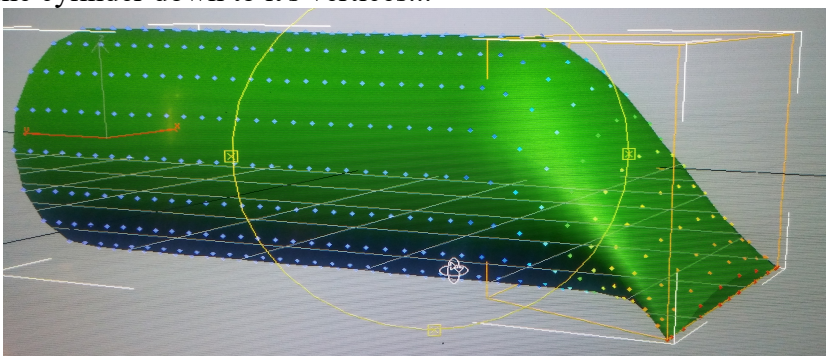
This Tufa Pinch is nice, it's pretty tall, tall enough to get two pads on either side, that's why it's so long, it must be Golden ratio Proportional. If the taper was any shorter it would get too stubby and slick guy climber could work the ends. The other main problem with pinches is the foothold thing. This tufa, if you turn it sideways, is a literal parking garage. There's Atomik's signature no taper and it's even incut slightly. So is this hold the by-product of a nit wit? No, to me, the nitwit is the Routesetter that set it sideways. I started climbing on this hold, I loved it. It wasn't so hard it couldn't be learned on and it's not so weak, it cant decide a local comp. Notice the set screws at either end.

Even more set screws from Psycho Arts. If you didn't notice from the size of the bolt and bolt hole, this is very large. You can see from the image on the right how Ferran tapered his ends. Like with the Honey Buckets, what you don't want is often what you want. There is no right or wrong, just correctly made either which way or junk. From here you see a huge incut that tapers under the body, the lines travel vertical and then tapers slightly at the wall. This pocket is so massive, nobodies fingers would breach the wall taper, this is a mother of tapered clamps. It's another doughnut in shrink-wrap that's flat on top and smushed at the ends. See the pull back taper so the climber can't get in the pockets

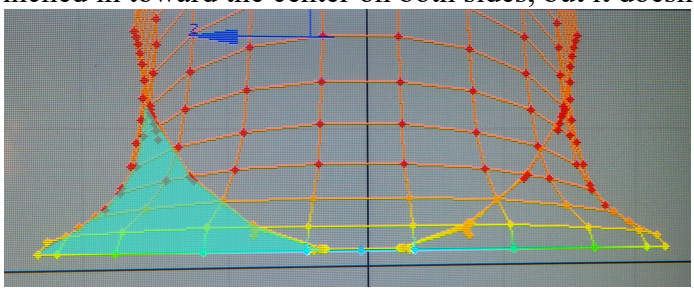
where the pinch widens out? Nice.

Lets take a closer look in 3D, but first, let's compare an ergo pinch next to its core shape.

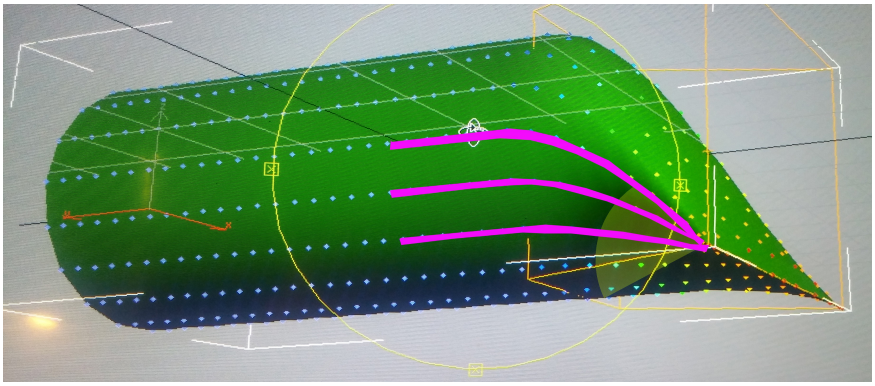
You see that the cylinder is the base shape and it is deformed to make that pinch. You want to clamp the center and have both ends flattened. Now, I actually did this in 3D using a modifier called – Melt. First I broke the cylinder down to it's vertices...



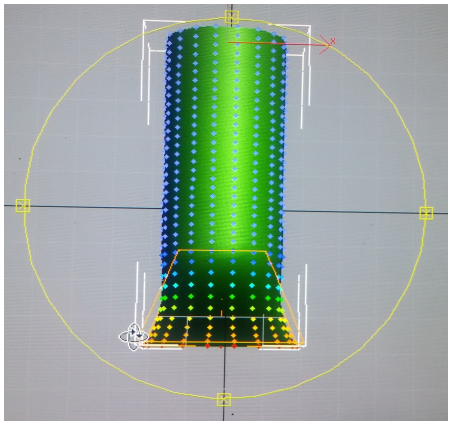
I grabbed the end cap and collapsed the coordinates. Already you see what is happening by looking at the vertices. When the end cap flattened out, it seemed to create an overlap/pocket. You would think that it gets pinched in toward the center on both sides, but it doesn't.



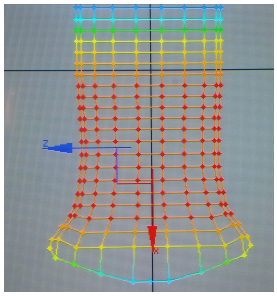
You are made to think that the computer is just shortening and expanding the distance between vertices to do this, but it never does, it only changes their angle in relation to another vertice. (Accounting for perspective of course) This area in light blue (as seen from the front) looks like the purple lines below.



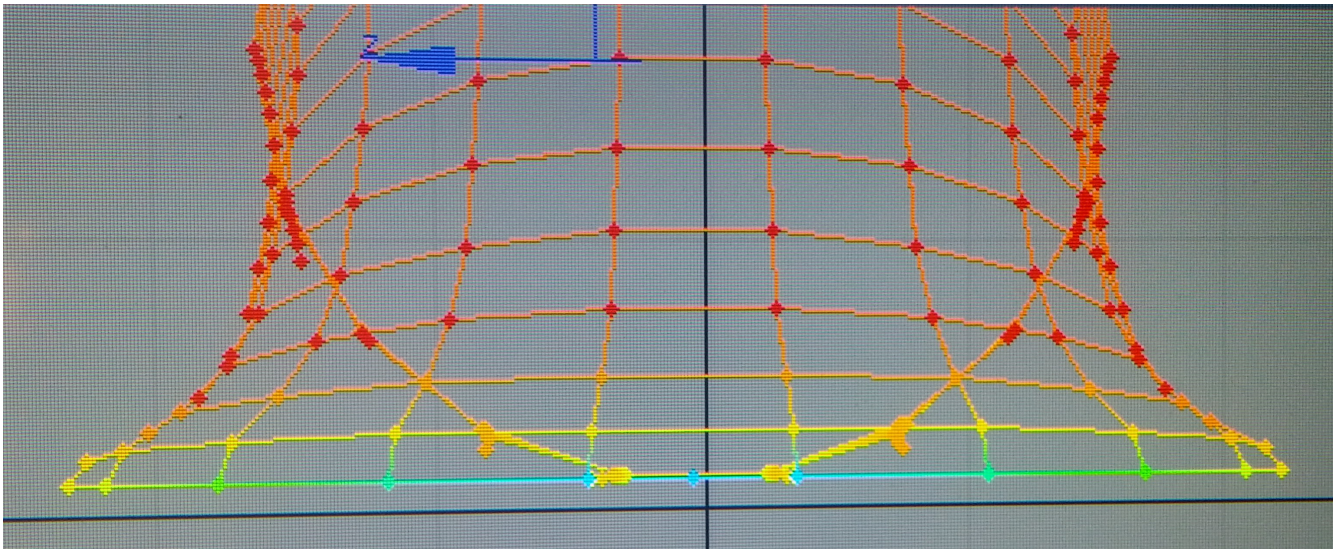
If I then widened the cap to flare the ends, the curve opens up. Notice that the vertices are all coming to a point. I can grab that one vertice, move it in or out and it controls everything. This is no different in reality. Pinch your arm and pull. See? Now I can control how much of a “Stopper” that flare has. A small flare, means a more pronounced curve. When the climber's hand comes down the hold from the center it will hit the flare and instead of hitting a reduction in angle, the transition is too short and there's too much angle. It would literally catch the hand and defeat the center of the hold as the objective.



Above is an example of how one thing effects its surroundings. I have grabbed one vertice on the bottom center and when I pull it, it will pull the yellow a little less, the green even less, light blue almost nothing until I reach no effect. This gradation occurs the distance of our taper. Where it goes “In” and where it goes “Out” at the wall. Below you see many vertices soft selected. Uniformity.

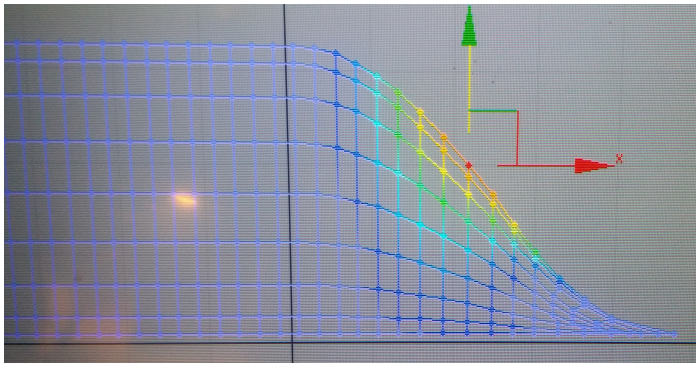


The computer is looking straight down, I don't see anything but straight lines? This is the rabbit hole, don't get hung up on it, look at it from another angle.

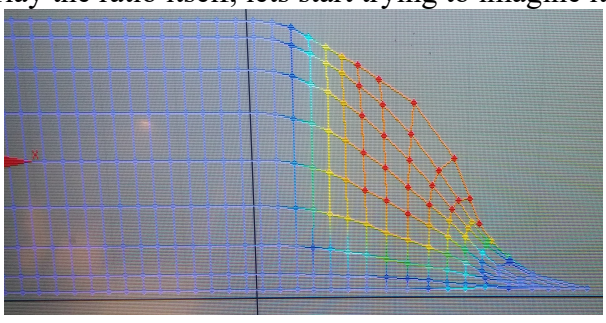


All the lines are straight and yet, look at the bottom corners. Those two triangular looking things are the transition curve between “Cylinder'- to “Totally Flattened Cylinder”. That's our taper and it's confusing to visualize top down, everything is hidden, so don't use it as your main viewing angle when shaping. As a beginner, it helps. That area is crucial to successful pinches. Burn this image into your brain.

This “Thing” is obviously depressed enough but, we just don't want an anorexic taper on the spine that drops off so abruptly.

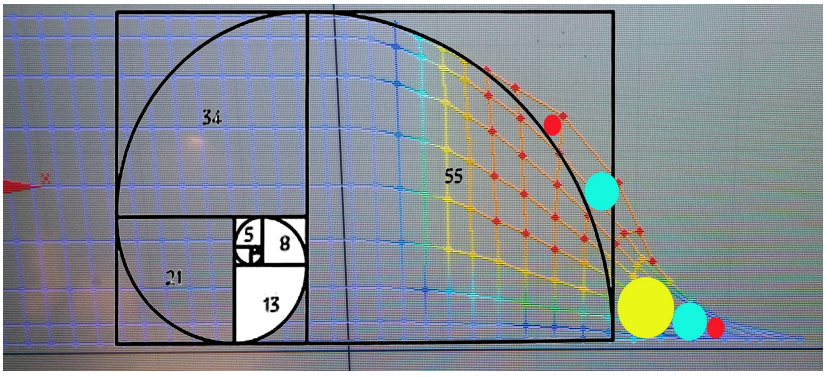


Let's pump it back up by adding some golden ratio mass like we would for a sloper. I pull out a bulge about the the 34 circle in the ratio, or however much taper you require. Could be 21, just needs to be proportional. I won't overlay the ratio itself, lets start trying to imagine it there.

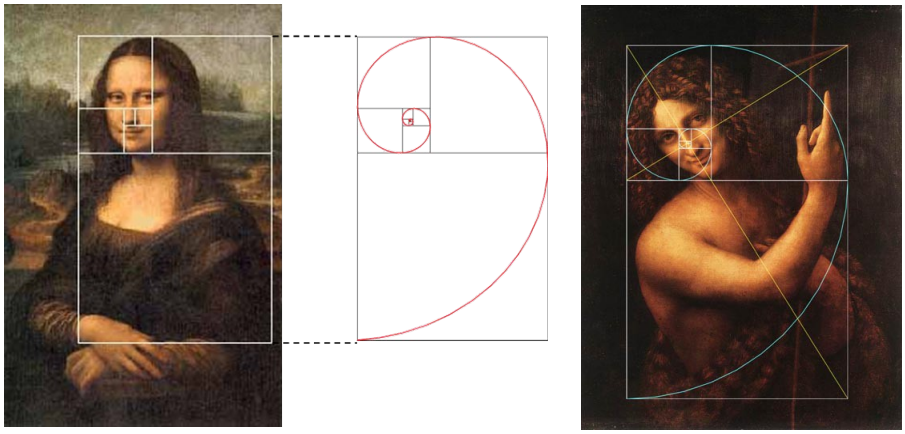


This is better, it reduced the angle and made stepping on it harder. The climber is less compelled

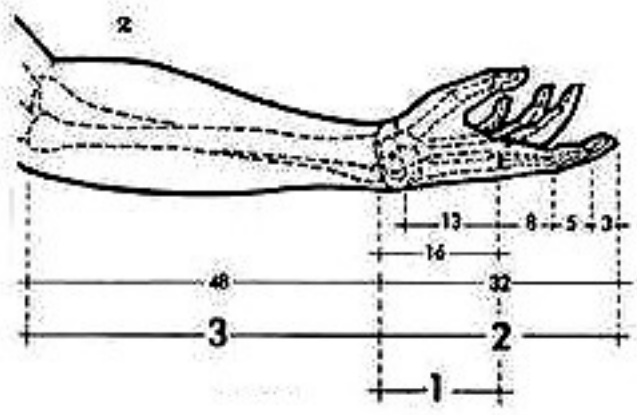
to grip the tapers. Ok, let's put on the ratio now and see how we did. Not bad, you wouldn't want such a drawn out taper at the very end, that would certainly break if dropped, so it has to be ended after a maximum of three circles. Equal step down obviously doesn't work, either, it goes on for a gradual infinity.



In Europe, they have used ratios for some time.



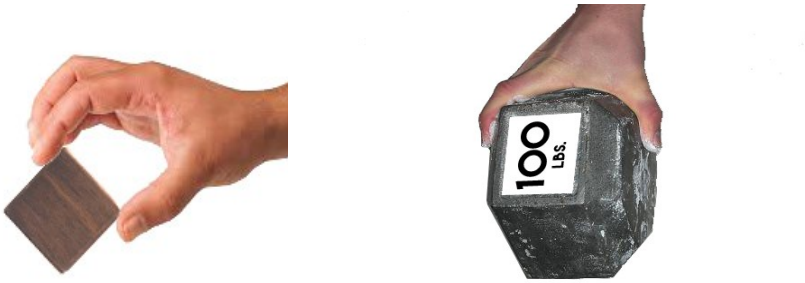
They use ratios that achieve proportions. And I know it's hard to see, but if you let your eyes try to figure it out, you'll start to get a glimpse at a relationship, a pattern. You'll get dizzy maybe a little scared that it's possibly significant.



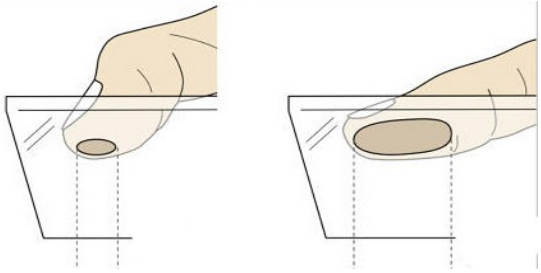
It's a physiological affect either way, you can see circles all through this pinch from Spain, can you not? Moving on.

Here you see Atomik's pinch. From the side you see the same incut, the same kind of doughnut in shrink-wrap, but this guy wants you to get up on it. If you were to pinch high on the body and get in the thinnest mass that's above this bulge, then you can lever off of it with your palm and hang with some of the load transferred through the hold to the wall. He defeats it from becoming ridiculous by tapering away right at the end. It's a “Give me” hold for V0 climbers. It's everything you can give a person to help climb beyond this hold. If it was only so big for two fingers it would be harder, but this is all four, bury the thumb.

Unlike other top edges, the thumb must be used and it's different than the fingers. Even as it's completely natural to pick up a cube...

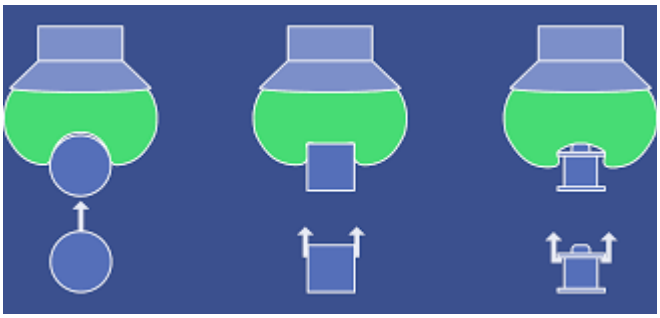


If an object weighted 100 lb and was still only 5x6 your thumb and fingers would be as flat as possible to it for maximum affect. This is a different affect than if the cube weighed 100 grams. You would hold the cube differently and so you must keep in mind that it will gripped in a way the shaper can't reproduce on the bench. Don't get blinded by your own fingers, think instead about the pads underneath, what actually makes contact with the hold and how much contact is made has a relationship to angle and load.



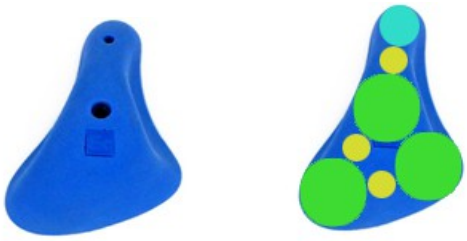
Think about what the pads need to do to achieve the task at hand. Will it clamp on a cylinder? Will it pinch a flat side? Or will it clamp an edge? In the robotics world, these are the questions

engineers ask.



We use our intention and cast on it our requirements, visualization is the key here and as usual the small details make all the difference. Here's a set from Element, with a signature style.

At the 2016 CWA I pulled the shaper aside and had him go through many holds on display and I asked him about his edges. He doesn't taper as much as I do, he sinks his edges, uses pull back on the taper at the edges, but minutely and angles the pocket, it's nice and simple.



We see that the footprint is proportional, to make the others in the set he just moves around, adds or subtracts circles. When confronted about this, the shaper said it's coincidence and he doesn't require concepts like geometry, his hands just know what to do from climbing for forty years. You got forty years? I don't. So what about the side view and those pockets?

One of his strong points I believe is his consistency in curves. I like to imagine the piece as a rubber bag 90% filled with gel. When you squeeze it, it physically expands and deforms in these ways that follow rules of physics. I try to use as many known rules of the universe as possible, fluid dynamics is one of them. If you were to squeeze that half pill pinch on the right, it would look just like that, if the bag was thick enough. The shaper follows nature, you should do the same.

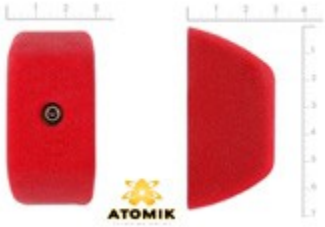
What people screw up with pinches, is that, they get their bag thickness wrong and it deforms as a balloon would, or not enough. Or they imagine it filled with air and not a thick viscus gel. Look at the long pinch, see it and what pops into your head? It doesn't work as a bag, it would not hold that shape if compressed. So, imagine it now, on a wall, as a rubber bag and you need to climb up it, what would it need to hold it's form?

Who would have thought that the flat “Intermediate” area served a real purpose. Anyway this “thing”, this “Spine” we'll call it, is the backbone of the physics. If the purple area, (the flat intermediate area of the body) were a metal plate, than it would support your bag. You could pinch it, get that nice pocket curve and it couldn't just bulge up and pop the bolt out the hole. The plate holds it back, in place.

The shapes of pinches tend to follow a pattern.

This hold has an hour glass shape, it gets wider the farther you go down the hold. It's a cylinder whose curve melts flat at both ends. The climber wants to hit that spot right in the middle and clamp. If he/she can't hold it, they'll slide wider and wider until the pull back taper runs completely out and they fall. Here, that twist where the incut opens up, is super important and super obviously there. People will try to act like that fact is “Maybe” true, the shaper will say it's just less pocket, but he's hiding his nuance, you better believe that if you want to compete with the better shapers, than you better get to know this “Maybe” area.

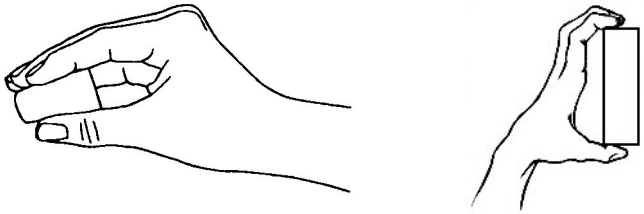
For now, let's do a 180. Geometrics, at their most basic, are simple forms like boxes. A box makes an excellent pinch because it has what we all want when manipulating an object, flat sides and edges. There is no secret to it, the real value of geometrics seems to be in the base shape and what angles can be produced from it. There's usually not much curved tapering going on, no ever so slight change in anything, it's what you see is what you get climbing hold.



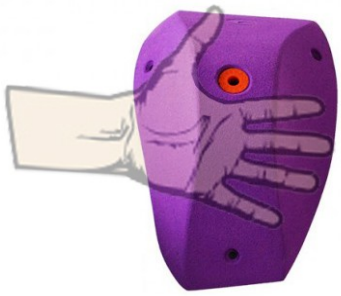
I've done this same style pinch and the first thing I think is that any body can stand on it. I guess, to me, all holds are damn footholds. No matter which way you slice it. If it isn't minutely thin or massively wide, then what do you want from me? Coat it in butter? Atomik is unconcerned, they could dual tex the spine glossy if they wanted, in their opinion, if you can, you should step on it. As a foothold it's quite an angle, they added the bulge to increase the angle. If they had reversed it and tapered into the wall it would create scalloping, makes a pocket. So what they did is correct, it's the other option for geometrics and their relationship to footholds.

This basic body shape if you can see it, is a wedge. The gripping surfaces on the sides are angled in, incut to provide additional friction. This allows the fingers to clamp, normally, but because our gripping surface is so tall, wide and not round, the climber can't clamp like a curve and come back toward the palm, only press toward the opposing plane. The force applied isn't focused into a singular point for all the fingers either, it's distributed across the plain and there's no transition at the pull down taper, there never was anything but a sheer drop.

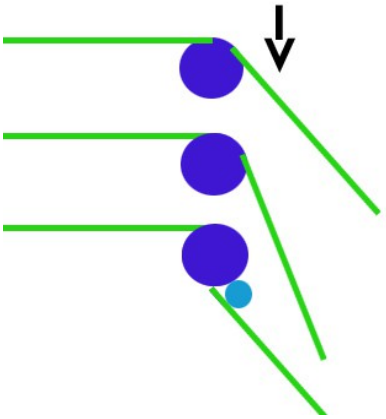
Here we have several pinches from Pyscho Arts top and side. These use edges, but have curved gripping surfaces. As you can see we're dealing with some extreme angles here. They're non symmetrical and the spine isn't straight, they're psycho, but, they are, at the core just our regular elements. I want “You” to identify them. The proportions of the base shape are correct for their height. Some are half hourglass, some don't flare at all. All seem to be very narrow pinches and so their gripping edges are tapered at more of an angle than the one top middle. With the hold on the left, all segments of all fingers are allowed to pinch a relatively steep angle because pinching a thin item is really hard. Just as pinching a wide hold with a shallow angle is really hard.



This one wide pinch allows fewer finger segments to access the gripping edge. The spine width travels the width of your palm and only starts to turn down over the top edge at the second knuckle maybe.



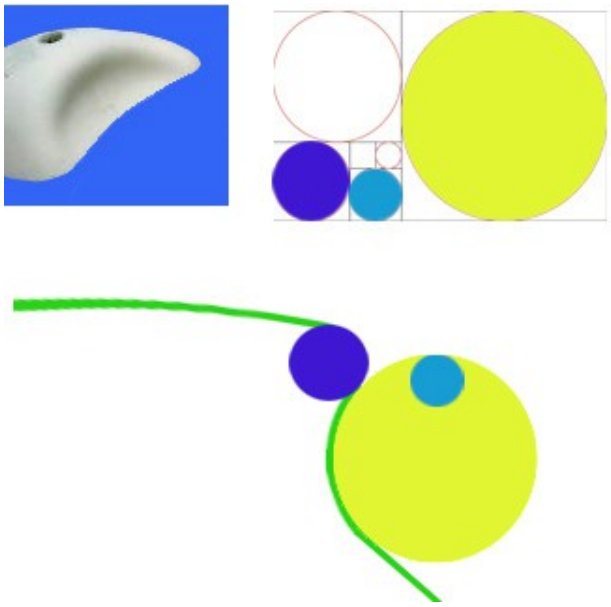
It's upside down, but you can see the curve in this guy's hand between his thumb and fingers, it has to span the spine and the transition over the top edge. Many climbers will attempt to get as much of their fingers and thumb onto the gripping surfaces and so they'll press the palm hard hard up to the spine for every MM of extra span. Because their hand will cover the transition of the spine down over the top edge, that edge has to be rounded. Edges save space, if he had made the transition down from the spine over the top edge a gradual far traveling curve, then the spine would have to be more narrow to fit a human hand. It's easier, if you can control it, to use an edge, keep your fat wide and flat spine and use the angle of the gripping edge to accommodate a comfortable pinch. See the relationship.



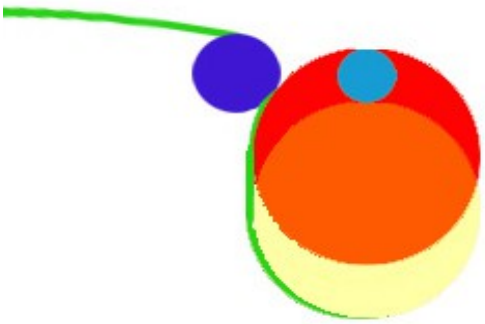
If you don't want a tapered incut top edge, then the down slope for the gripping plane has to match the outer most available apex of the curve. If your angle is like the first example, then the down slope for the gripping plane can only have a radius of the blue space between the green lines. If the angle were to be increased and you tried to keep that same curve you would cut into the circle and no longer have full round. You have to drop where the gripping edge starts, further down the circle perimeter exposing more of the curve.

You can continue dropping the gripping edge green line around the bottom of the dark blue circle, past vertical and come back up to the spine, but I suggest that for creating the start of a pocket, that's for a curved gripping edge, not straight one or you'll just have a lip.

Look familiar?



How can a person pinch this you might be asking yourself. If I were to squeeze at the yellow circle with two finger segments they would hyper-extend trying to follow the curve. Yes, they could. What's happening here is that this is a small pocket. It looks big, wide and long, but he's tricky, he raised up the pocket half way up the hold and made it so small, only one segment of fingers accesses the hold, the rest is just taper.



When this isn't the case, and your pocket is for two or more pads, you typically want a flat spot to park your finger before the up turned taper at the wall. As the gripping edge is again flattening, so is the gripping edge moved up the blue circle, decreasing exposure to the curve. Stay proportional by using the Golden Ratio and extending the flat spot on the gripping edge to the length of the light blue circle.

But I digress, we're satisfied with our simple repeatable edges, the rest is up to body shape and what can be done with gripping edges. We saw Psycho Arts create that wavy center line, that's complex stuff, let's continue to step back for a close up view of E grips. These pinches are very basic, they don't need rules accept no sharp edges, taper one side to the wall. No slight to the shaper, but anyone could cut this up. Holds don't have to be complicated and design heavy, they just need to cover the basics of cause no harm, take the load and have maybe one quality. Like the angles of his gripping edges. The angles you choose determines your top edge curve, but these things are so small the attributes can't be discerned. It's just rounded off and the angles are whatever you need, five at 120 to 140 degrees, five at 120 that are all different shapes and sizes within their relative size category. Some even have their bodies angled so that one side has a gripping edge for two pads and the other only one.

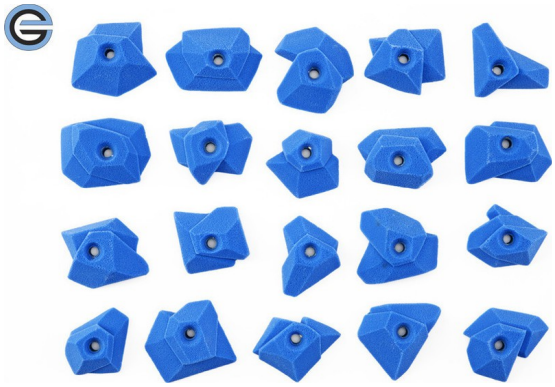
Ok, let's step up in size to something a little more than a handful.

These are larger than your hand and an excellent way to see how skewing one plane causes so much change. By rotating the top plane to the right and dropping the right corner, the whole box is off kilter and none of the edges are consistent anymore. The right gripping edge is drastically reduced, but now has the steepest angle. The left side is enlarged, but has a difficult shallow slope. The top is close to 110 and the bottom is like 130, but they're far away. Is your hand that big, mine isn't, that's not an option to pinch, but I can use it as an edge, or sloper if it's turned 90 from the intended application.

You see all the gripping edges lined up and all are tapered, what could be called “Water eroded” body shape. The edges are curved, there's a general streamlined look and the “Out” of the tapers are very high up to the top edge. This is important to keep seeing and keep remembering. Unlike a curve, the climber has to pinch this. Unlike Element's pinch, this pinch goes deep, it's not pinched with finger tips. If you did, that slight taper near the top edge would accommodate you and if you went deep, all pads on the gripping edge, that fat muscle at the first knuckle fits in well. The thumb of course bends in the same direction of the curve, so you can make use of that, like the hold far left. It has the greatest curve and it's still no where near too concave to be comfortable.

Not only can you rotate the top planes to effect the others, you can also skew the gripping edges making the body a trapezoid instead of a square or rectangle. There are many possibilities and Geometrics are popular holds, some may say they are the intermediate of climbing holds to volumes. What they offer are large gripping surfaces in which climbers can “Guppie”, do open hand maneuvers, full pads often. Unlike a tiny crimp that will cost you in wear to your joints and sensitive parts, a big block has friction you can spread out to large areas of your hand, it's repeatable until the gas tank runs out.

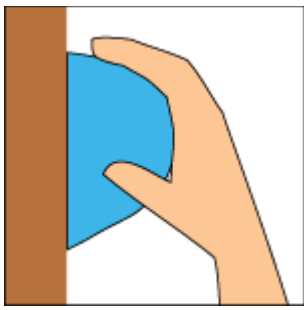
You can use blocks with angles the climbers must defeat that are very difficult, as difficult as that small crimp. You can use geometrics as small crimps.



Ganrly. These guys are for the crimpers who love tiny little wedges. I am one of them. They can hurt, especially if you're sloppy and man handle it, but it's a compact wonder with everything I need. This is advanced stuff, don't try this at home.

Chapter Five
“Slopers”

When I first started I knew crimps and pinches would be easy to learn, jugs would be harder, but nothing so bad as slopers. They confounded me. Mostly because I had only been climbing for a year at that point and had no understanding of how to work a sloper because I didn't have the strength and the only slopers at “My” gym were polished Pusher holds on v8s. I couldn't understand how anyone did it. I got the base concept, it's friction, a climber cups the hold in their palm and somehow sticks.

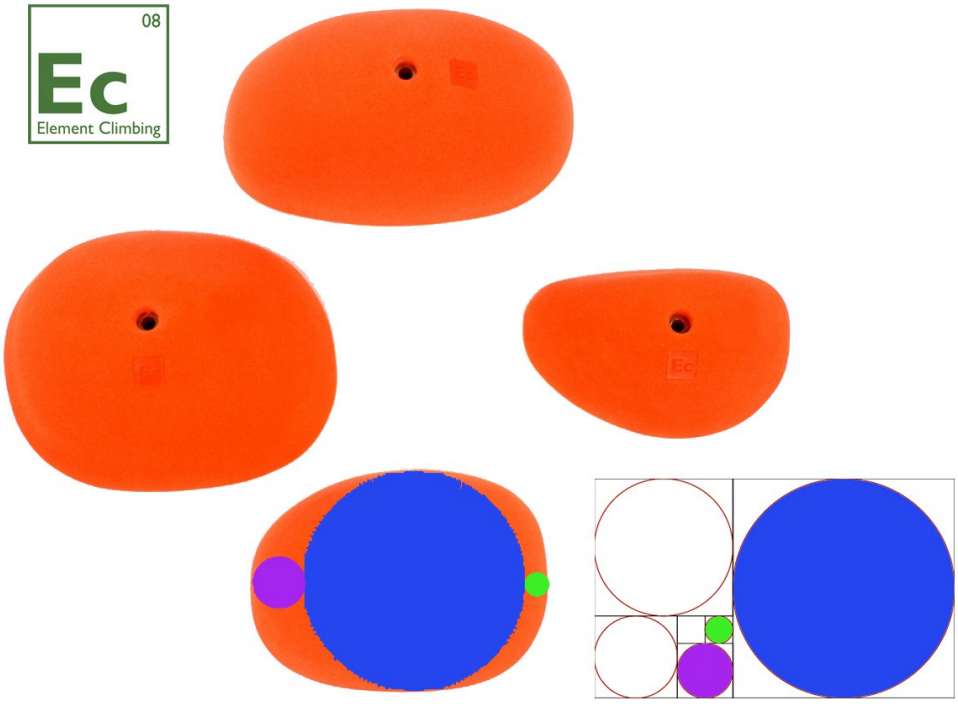


It became more clear that pushing up with the palm is pretty important and that's something to be carefully controlled, like the top slope. It seemed like the thumb thing was again an issue, forcing it to the middle with the rest of the closed fingers instead the side is key. But what angles can people manage? Enix came out with a set everyone loved and no one could climb on. The good climbers could somehow work these nubs and I could tell they followed all the rules, but there was no way I could get beyond it fastened to a wall and I was at v5 at that point.

I just wanted to stay away, but the designer in me would always see how everyone else, loves them. Loves them whether they can climb them or not. I don't know if they were all lying, or it was some preemptive appreciation for the day their own skill improves to a point whereas they could use them. I didn't know. Only that I had to figure it out. Without the ratios, I would just make lumps, bumps, round things with tapers to the wall, I was looking to the animal kingdom for the answer, the other shapers, but neither species speaks English.

Atomik is the King of Images, they just do the best job and so they keep being used. Here we have the base sloper. It's like a seedling, it's barely formed, just enough to survive. It's just beyond the width of a normal hand, it has a taper down the spine and the top has a crease in it to help achieve friction. Wow. Does it come with crutches and handicapped parking passes? Is this guy a genius or what? This makes your hand a suction cup and the wall- glass. It's sort of pinchable in every direction, but only on a slope. There is almost an edge because of this crease across the top, it's not just raw unadulterated slope, but this is a “Sloper”.

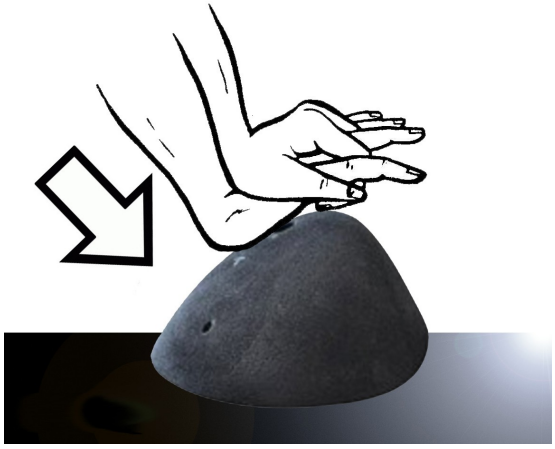
These slopers below from Element Climbing are shaped by an old hand I know graduated from a graphic design school. In the US. I assume he knows everything I do, but he applied his knowledge to climbing holds decades before I first got chalk on my hands. I can and do learn from the objects he outputs for sale. Lets see if he followed those rules, or if he has in fact transcended mortal understanding and become a god by improving on the Golden Ratio.



He proportioned his base correctly and made his slope relative to his height, tapered to the wall in his own special amount and viola'. Now that we know all holds are basically the same combination of a few elements, we can tick them off in two seconds, what's left to go on about? A lot. Slopers kinda save the day, (Maybe all open hand holds do) from keeping climbing holds from being too painful and boring. Take the half sphere sloper for example. At it's base it's just a perfect sphere cut in half and bolted to a wall. The hold is the top of the sphere and sides, you can press up from the bottom maybe, it's versatile. Start stepping back or adding to slopes and suddenly the way it works changes. Typically the first step down is to increase the slope along the spine and stretch it out. Already the sphere is morphing into an ergo crimp or jug shape without the incut.

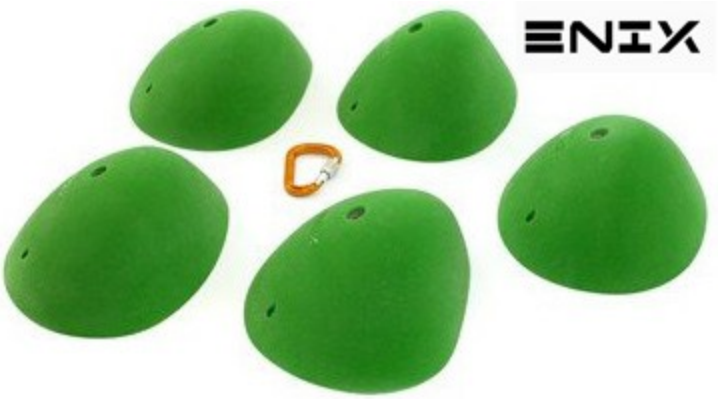
See the long slightly rounded and abrupt taper to the left, the apex has been shifted past the center line at the bolt hole and traveled half the distance to the end of the footprint. The hold is mostly pointed and as I said there is no edge line here, no mass we might extract for pull back taper, there's only a shadow of an edge, a hump added to square it off slightly.

Again here, and I don't know if the shaper visualizes his ideas this way, but if this were the rubber bag again filled with gel; then, if you were you press down on the apex (not the bolt hole) when it's bolted to the wall, it would deform this same way. Remember shift and smush?

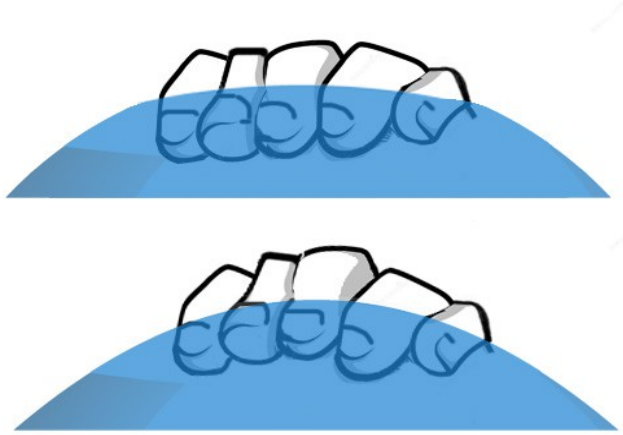


The mass inside the bag would expand left and right slightly while the spine (or palm) kept the spine from expanding as well. He even turns in his taper along the footprint against the wall, back toward the hold, so that there's no sharp edge to break if dropped while routesetting and his contract manufacturer prefers it for pouring the hold.

This hold is sold separately, but most are sold in sets and we would need to make at least four more of these to satisfy our client who ever they may be. An easy way to visualize your angles when rough cutting the other four is to imagine the half sphere that as the base bulk of the sloper having a ball on top that you roll forward or backward to get more or less slope. This helps because the smush for the overall ergonomic, organic shape, flattens your apex and you still need that. You need an angle change to not open the door for Mr. Thumb to sneak back in, you want to maintain that apex.

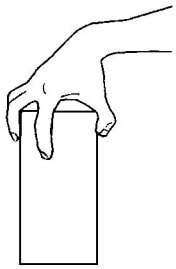


Here's the Huge Set, four other variations in slope and width, but do you notice another variation? It's so obvious it's invisible, the base shapes, some are round, some are triangular because the gripping surface has been flattened. What does this mean? The friction you would have gotten from a slope at that angle can't be pulled down on equally with all four fingers.

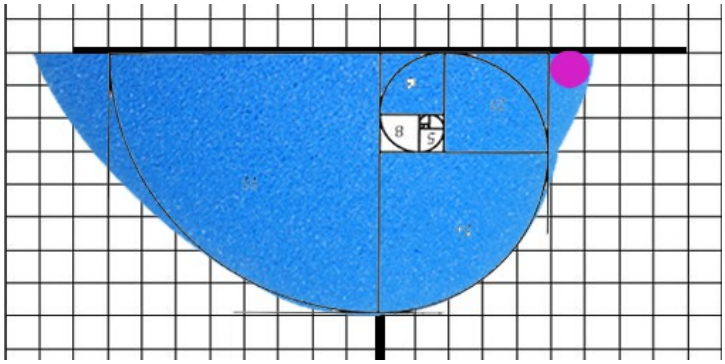


Notice the curvature of the hand on the top image. On the top image, the climber pulls down

and he gets equal resistance across all the fingers, obtaining equal drag. But on the bottom image, the fingers on the sides have their gripping plane on an angle. Their opposing slope is not perpendicular and must be either pulled to the center with the group, in addition to resisting load, or spread apart and turned inward like an eagle claw.



This exaggerated claw example forces each finger to bare the load and they are not of equal strength or length to do.



The spine of a sloper is little different than a crimp, yet people all the time think that “Sloper” means “Ball”. Sloper means that the main gripping edge is utilized with friction, that's it.

It doesn't say you have to allow palm friction, or can't have healthy thumb friction. It doesn't say you can't. The friction area or top slope could be flat, my point is, you need an intention again. You have to know before you start what specific reason is there for you to make “These”slopers. What need

do they fill? Do they provide solutions for common occurrences in climbing. Say I have a high left foothold and I want something for the climber to press against on his/her right to crank up for the the final hold, but I don't want to give them much surface area, I don't have much wall space left. I don't care if it's got a thumb catch, I want to oppose the slope, and it's way out right, so it has to be steep. Use the red one, perfect, done, cheap, everybody needs a hundred in all colors.

Even though it's basic, it's not made and a purpose found.

Ok, a lot of slopers are directional because they have tapers meant to deny any sort of gripping area, say, along the bottom. Some have more than one slope to utilize and some have nothing but. I will say that looking at them after all we've talked about, they kinda scream in your face “TAPER!” I GOT TAPER! The scalloped taper provides additional options for pinching and knowing when and in which way the difference in spacing those will work when the slope is on a steep angle is his skill. One acquired from climbing all across the globe for quite some time now so don't be distressed if this seemingly crude looking shape feels much too complex for you, it is.

I GOT NO TAPER! Cobbles are just like you've heard from Ye' Ole Days, when they used to pave roads with rocks. They are taperless, pinch/clampable and too tall to be a mound, if such a distinction even exists. They are open hand getting closer to that Eagle Claw business we were talking about earlier and so pointed, most of them actually start to come back in on themselves. Usually you get a lean to one direction as if the whole hold is just- a fat top edge.

From here we start to get into objects like the top hold on the right. Unlike a regular sloper with

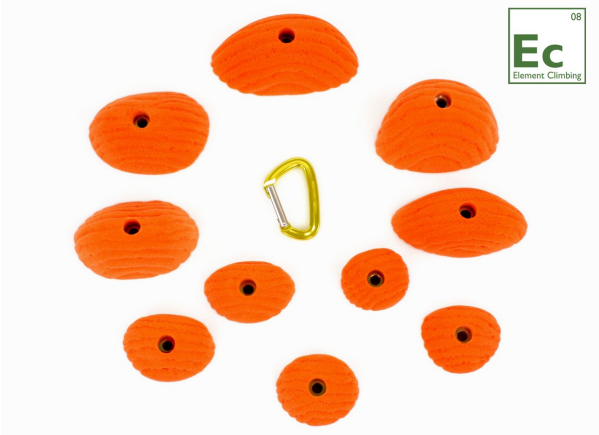
a long tapered spine we utilize from front to back, this has the back nearly removed and the body shape is very compacted. The edge is thick and so large leverage can be achieved with the wrist, some can be pinched at the correct angle, but the gripping edges are both convex and fairly far apart. People love these things, you can get your whole hand around them, there's no edges, they look positive, organic and can be difficult on steep terrain.

Because of the curves and incuts used, we are getting the effect of open hand. Like on a block pinch that's two inches wide versus five, the way our hands can squeeze loses it's power at too thin or too wide. The way our hands can hold an edge loses it's power at too much slope. With both there is a point in the middle where it's both and neither. A pinch becomes so wide, it's a sloper, an edge gets so rounded it turns into a slope and creates its own mix of both.

A popular set from a shaper that was quite viable is “Spawn”. This combination of ergonomic shapes and the eroded sandstone texture has become so iconic no one is allowed to copy it. Beside Ty Foose's Bubble Wrap Texture, there is no other case where a texture has been claimed.

Obviously ratio-ed correctly, obviously his height is right for his angles and his taper is what I consider a competition grade. Now, this guy, he sets routes, he's been a part of gym culture, he owns one that's big, he's been doing that for decades, I think he's older than me. He is the guy who knows what worked for the walk ins, the comps, the regulars, he knows what he needs to run the gym as far as holds. He makes what he needs to set routes, so he gives himself options. He makes solutions and problems, he doesn't just cut angles.

With Spawn he does as I showed with Enix Slopers, (the rolling ball) shifting the apex to one side or the other to make it more or less positive.

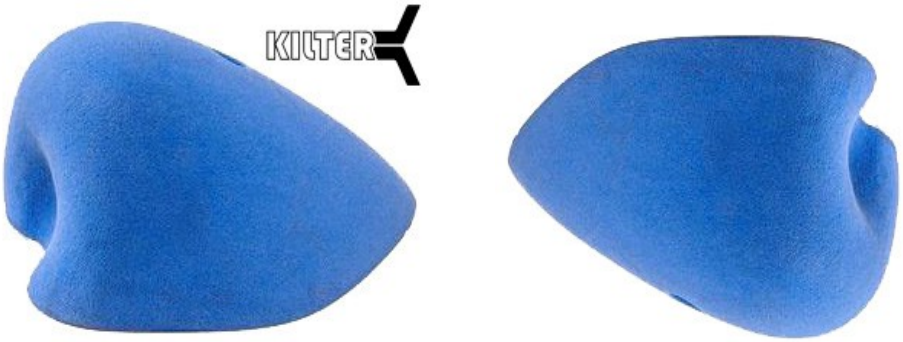


Good variation on the pieces. Before he shapes them, they are rough cut for size and then angle and then edge. He moves from a sphere as his smallest hold and shifts the bolt hole up each time, smearing one side into an incut, the other, a taper. He has ten holds, if each is a change in 5 degrees, than we span 50, which is too much (probably) so he takes two holds and makes them the same angle, but makes one have a squared top edge that's wide and the other- rounded. He might mimic the same body shape twice and use a different angle. He might have a round top slope, or he might have an indented one.

Indented slopers.

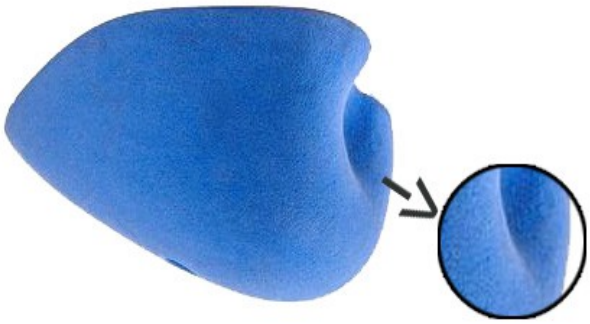
The pocket in these slopers can taper to the wall or appear in it's own mass; act as the top slope or a huge thumb catch. This is an open hand friction hold, but the pocket adds extra squeeze. Look at it, it allows your fingers to start buried and inch into the hold, there's an edge to get behind, slightly, ever so slightly, but it's there. There's a doughnut top edge, a fairly flat top so the angle on your thumb isn't terrible. The corners are properly tapered out to restrict it, but your palm is flatter than a non pocketed top slope. You can also come at these from the sides easier, match.

This of course takes us to Mr. MF and his diligence. I won't say I was there when it happened, but I was in a conversation about slopers a year ago and Kilter said he didn't think that their were nearly enough slopers and that there were thousands of designs still left unused. I thought it an exaggeration and just words, but obviously, not. He started pumping out huge, open handed holds...



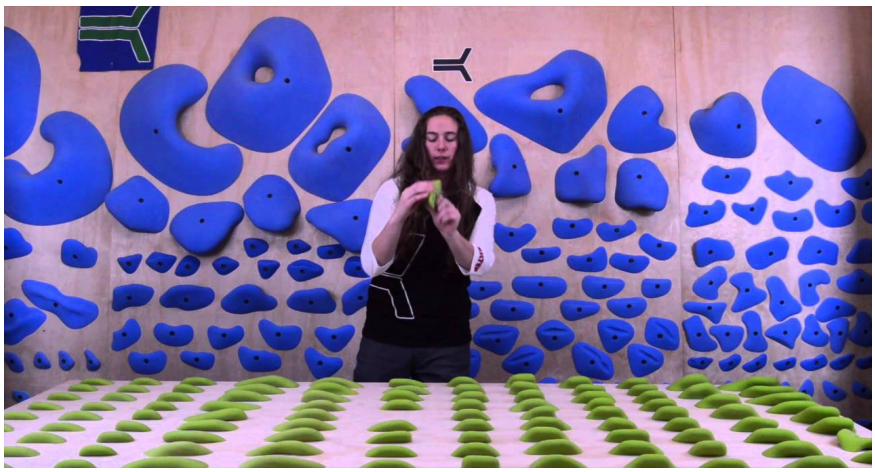
This thing is a roof sloper. The shaper can pull it off because of an ability to make edge slopes is strong. He can take you to a point that's very fine, where edge crosses over to slope there is a golden place where the sun sets and rises at the same time.

His edge isn't just full round, it's (often and not really here) a giant lip. We have slightly convex spine with maximum taper for the height. This is partly why these holds are so large. On this one, he creates a massive slope that travels from the bottom of the pocket, all the way to the bolt hole. This way the palm rests on the “In” of the top slope and the last finger pad is in the “Out” curve inside the pocket. If it were perpendicular that is, not upside down. He has an eye for pleasing radius, this looks like a very forgiving shallow bucket a beginner would gravitate to, but left to wander in it's natural habitat, it's a killer. The intended application is reversed, instead of pulling down through the spine, you pull up. Which is down, when you're suspended by the ceiling. The edge/slope that he gives you makes or breaks the hold.



It's not a pinch, he makes sure that the girth of his fat lip and the spine tapering to the wall makes it not feasible in relation to it's intended application. That pocket is the most positive, hitting the correct spot in it is critical and he gives you tons of space to mess it up. The pocket is so shallow you can just start to get in there and it bottoms out. You must hit that fine line we called the top edge apex exactly. Go over or under and you slip. Getting that margin, that apex under control is why he's so good.

The shapers taper to the wall is small, his pull back taper is immaculate, he has total control over how much thumb action happens. You can almost see the apex of the top slope (when wrong side up) from corner to corner and it doesn't seem to angle in to the pocket at the corners, it seems fairly consistent across the doughnut. So, if a routesetter were to use this improperly, it would still work well.



As you can see from the holds on the wall, that even a giant hold, with a deep pocket can be tapered so that if turned 90 degrees, it would be difficult to stand on. They are used as jugs but also side clings you pinch.

I want to talk about this thing. There's been certain trends in the industry of late. I'm sure you see a lot more volumes, triangles, geometrics popping up. The World Cup and other major comps have chosen a direction for the sport at it's highest levels and it's large open hand holds that require power. Nothing to really think about, you see what you get, are you strong enough is the issue to be determined. The era of Jan and his incredible power sparked the demand for bare holds, wider pinches, not smaller crimps. The shaper has provided what looks like doughnuts that you just put your hand on and climb on, it looks more positive, the more you turn it and areas like that flat spot on the image above are just aesthetic, or structural. Oh no. This is designed to defeat the powerful men of the world.

If you see that cut out in the middle, look at the curves he has coming out of it you might think it's ideal and it is. But the shaper is a master of riding that line remember, he knows what your greasy little mitts are doing when you're doing it. He gives you everything you need and then hangs you out to dry if you haven't got the power.

Like everything this is dependent on the routesetter who may use it as a starting foothold. This improper use of holds can anger designers. Some might think shapers are a little too sensitive, some might say I am a flat out jerk, but they gave the industry more than it deserved, slaved through the early years and created what we know today as indoor climbing. And I have to compete with that. Even if popularity was high and true appreciation has been low, that doesn't mean I won't fight them all for the top. There has been more quality than anyone, (except many advanced climbers and other shapers) could recognize for decades and so, hopefully, this book can now illuminate that quality and why people are so emotional about climbing holds. At the top end there's heart and soul in it, there's a way to live with the talent that must be appeased and so no bodies gonna take that away. No body is gonna apologize for it. This is how bloody war filled with pain and regrettable things happen. This is how empires are built.

This concludes the basic training.

Next-

Book Two- Advanced Attributes
Written by-

Book Three- Texture and Type
Written by-

Book Four- Submissions and Contracts
Written by-

Book Five- Volumes
Written by-

Book Six- Manufacture
Written by-

Chapter Six
“The Writer.”

I see a lot of climbing holds being made incorrectly. There is a method and I believe competition creates quality and innovation, so I'll provide the tools to bring more artists into the industry.

People will tell you, buddy, I like what you're doing, but it's just not good enough. Nice try, you gave it a whack, right? A good whacking, like that means something in the adult world. I'm supposed to go to my grave knowing I tried something, I almost did a thing before I croaked? No. I have more respect for myself than that, so how can I pass on such a sentiment to you? Don't let anyone get in your way, don't listen to people who try to fill your head with their dumb opinions. Work the basic principles, find your style, put your head down and make holds regardless if anyone likes them at all. You will come out the other side eventually and you'll be damn good.