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Getting Started

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1. Which questions to ask?

There are a lot of questions to ask before we can figure out just how much your wall will cost and every wall is different. Feel free to email us for specific advice on your wall even if you are not buying holds from us. We can help! It's hard these days to get the answers you need for free but at Atomik, holds are for sale, not advice.

To get you started, here are a few things to think about.

1. [How much room do I have for my wall and what size should I build?](#)
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1. How much room do I have for my wall and what size should I build?

Vertical walls need about 6 to 8 feet of clear landing area. For steep walls, the standard is to have approximately 13 feet of landing area from the overhang that sticks out the most.

A one panel, 4' x 8' sheet of plywood wall gives small children a "taste" of climbing. It really helps to have them climb up to something such as a platform as the wall will be a

cool ladder up there. I don't recommend this size for teenagers. A five to six foot teenager will be up the wall in one to two moves. However, if it is to be a system wall, I recommend checking out this product [REALLY COOL FREE STANDING CLIMBING WALL IN A BOX](#) I'm seriously considering one for my house.



2. Will the wall be indoors or outdoors?

The holds are rated for outdoors so no worries there. What you will need is stainless steel or zinc hardware if your wall is outside. You also need to consider the wall surface material and how it will be affected by surrounding factors like in a gymnasium where other sports are played or on an exterior wall or structure. If you are lost at this point, call us at 801-404-0280 and ask for Kenny. A lot can be accomplished with a quick call to answer the few short questions.

3. What will my climbing wall surface be?

The most common wall surface materials are...

3/4" plywood

1 x 6 pressure treated boards

2 x 6 pressure treated boards

5/4 Composite board (Trex)

Concrete surface over 3/4 inch OSB (Oriented Strand Board)

4. How many climbing holds and t-nuts should I buy?

More holds means that the holds will be closer together. The average reach of a 6 year old is 18 inches from chest to hold. The average reach for an adult is 36 inches from chest to hold.

Toddler wall = 32 holds per 4 x 8 sheet of plywood (32 square feet)

Elementary School wall = 24 to 32 holds per 4 x 8 sheet of plywood (32 square feet)

Middle School wall = 18 to 24 holds per 4 x 8 sheet of plywood (32 square feet)

High School wall = 16 holds per 4 x 8 sheet of plywood (32 square feet)

Bouldering wall = 32 holds per 4 x 8 sheet of plywood (32 square feet)

Top Rope wall = 16 to 24 holds per 4 x 8 sheet of plywood (32 square feet)

The industry standard for t-nut density is 2.25 t-nuts per square foot of wall surface. That's 72 t-nuts per 4' x 8' foot sheet of plywood. As an example, if you have an 8 foot by 8 foot wall (64 square feet), you should get $2.25 \times 64 = 144$ t-nuts.

Another way to figure it out is...

Total Square Footage \times 32 = Number of Panels \times 72 = Total t-nuts needed to properly equip your wall.

In terms of holds, it's easy to think that that more holds in quantity is better than properly sized holds for your climbers. You can buy 50 small holds thinking they are a deal because they are priced so low but you will have a terrible time on your wall because it will be too hard; or you could buy 20 medium/large holds and have a blast! Let us help you choose the right holds for the climbers that will be on your wall and the angles you are climbing on. If you just want some straight forward advice to the common kids climbing wall or playground climbing wall, if the title has the word "jug", even if it says "mini jug" in the medium or large hold tabs are a good bet to equip your wall. If you are looking for a larger pack of holds, check those sets out our [MIXED PACKS](#)

5. Should I buy screw-on or bolt-on holds?



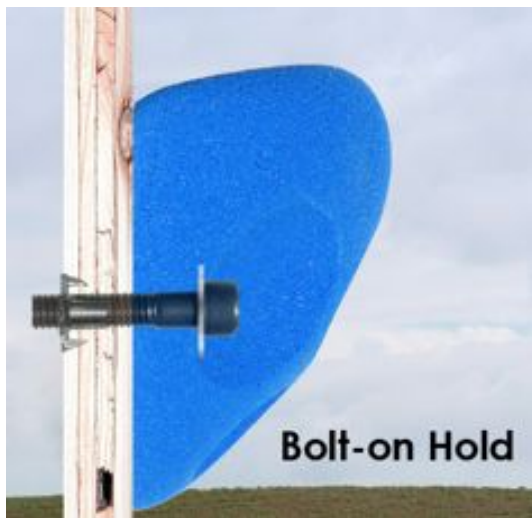
Screw-on's



Bolt-on's

Screw-on holds (green hold) attach with either wood screws or concrete Tapcon screws. All you need is 3/4" thick plywood or a thicker material. See green hold image below.

Bolt-on holds attach with one 3/8-16 Allan head bolt into a 3/8-16 t-nut. The bolt passes through the hold into the panel and then into the t-nut which has been installed in to the back of the panel. See blue hold image below. This system is nice because you can easily move or rotate holds quickly. The t-nuts stay in place in back of the wall.



Screw-on holds attach using drywall, decks screws or concrete Tapcon screws. We use #6 zinc plated 1 5/8 screws the majority of our line. This system is nice because you are not limited to where you can put a hold. If you want to attach our screw on holds to a concrete wall, simply choose the concrete wall option at checkout. You will need a hammer drill to drill holes for concrete screws.



6. Which sizes of holds should I buy?

Toddler wall	= medium to large holds (no need to get extra-large for tiny hands)
Elementary School wall	= medium to large holds (no need to get extra-large for small hands)
Middle School wall	= medium to large holds (no need to get extra-large)
High School wall	= small to extra-large holds (extra-large comes into play when steeper angles and roofs are on the wall)
Bouldering wall	= same rules apply as above. The steeper the wall gets, the larger the holds need to be.
Top Rope wall	= small to extra-large holds (extra-large holds for variety)

7. What color of holds should I choose?

By default for no extra charge, we offer bright tones (red, blue, green and yellow) and earth tones (gold, rust, gray and brown). We are happy to customize for free a combination of these default colors. Any other colors including fluorescent incur an additional charge.

For kids walls, choose **bright tones**. They are easier to identify for the little ones.



For a more outdoor, mellow, muted feel, choose **earth tones**.



Fluorescent Colors.



2. General Materials

- 3/4-inch ACX (good one side) plywood is the industry standard.
- 3/8 t-nuts spaced 72 t-nuts per 4 foot by 8-foot panel (so the bolt-on holds can attach to the wall)
- 2 x 4 furring strips when attaching panels to another wall
- 2 x 6 when framing a wall
- 7/16" spaded wood drill bit

3. Photo ideas for wall design

Follow the below link to our customer photo gallery.

CUSTOMER PHOTO GALLERY

How to start building your wall

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Wood Walls

1. How to frame your wall.

Here is a quick tutorial.

If you have a vertical 3/4 inch plywood wall and want to attach to a concrete or existing wall with drywall on it, you can use 2 x 4s (measures 1.5" x 3.5"), lay them flat so that they stick out 1.5 inches. These are called "furring strips". The basic idea is to give your plywood something to screw into while leaving a gap behind the plywood so that the bolt holding the climbing hold to the wall can pass through the panel and not bottom out against the existing wall.

If you want to build a wall with angles and roofs etc. you need to use 2 x 6 framing lumber. There are some instances on small walls that you can get away with using 2 x 4s for the framing.



2. How to paint/texture your wall.

Many home wall builders leave their walls bare plywood. The disadvantage to this is that holds tend to spin easily. That is why we recommend using a texture. If you simply paint the plywood without texture, holds will stick to your wall leaving unsightly damage when the hold rips a layer off when you try to move it. Even when you follow a paint manufacturer's instructions to cure for 72 hours, the holds still will stick.

i. Prime

First off, you have to prime. I prefer to do all the painting before I drill out my t-nuts. I don't like it when paint gets in the t-nuts. It's just messy. Sure you can put golf's tees or foam into them but why? Prime the panel, paint it, drill it, install it is my motto. I use water based Kilz to prime. There is also a "high hiding" product for old wood or wood being used outside. Kilz Premium is a water-based primer that delivers professional results. The primer aids in the adhesion of the paint. If you are unsure, the paint associate at the hardware store will know. Just tell them what you are doing and with what wood and they will point you in the right direction.



ii. Paint with texture

Basically, wall texture is water based paint with some inert material added into it. Sand, rubber, dicaperl (micro beads) and several others are all used. The heavier the material, the quicker it will settle in your paint tray. Sand is the heaviest and settles within minutes and Shark grip is the lightest which stays mixed fairly well in the paint tray. There will be some exceptions to this and many of the other products on the market are worthy, however, for the do-it-yourselfer, I would go for the Home Depot or Lowes route. They carry a product called Shark Grip. They can mix it into any color of paint. There are some brands that already have it in it. There is a product called Floortex found by all the floor paint. Basically all of these products are a tennis court or anti-skid paint. When rolling these paints out, it is helpful to have a painting helper who spreads out the grit with a 4 inch brush in various directions. Otherwise, you will see roller marks on the panel.



Floor-Tex is primarily used on concrete but can also be applied to other masonry surfaces as well as wood stairs or decking. It provides a durable uniform coating that hides surface imperfections and enhances the overall appearance. Performance-tested by paint professionals on commercial traffic applications, Floor-Tex outwears paint, stain and other conventional non-slip coatings!

iii. Polymer Cement wall surface

Polymer cement is the material that many wall builders are using to get the "real rock" look. The process is, build the frame, sheet it in OSB (Oriented Strand Board) or rebar and lathe, roll concrete bonding adhesive on the wood, use metal lathe to create arêtes, bulges, top outs or any other features you want and then trowel on the concrete. Unless you have prior experience with a trowel concrete, this can go bad with improper mixing and curing. There two main ways to slow the curing on concrete so it won't crack or crumble on you. One is with water; the other is with acrylic additives. If I were to try it, I would use an acrylic additive. I'm not a big fan of putting water on my walls to slow the curing. The end result is truly amazing though. You can trowel in lots of detail to make your wall really cool. If you choose a concrete wall like this, you should use a round based t-nut. They attach using 3 small screws on the back side of the panel.

Get creative! Plywood walls can be made to look really cool. Check out the below walls built by cliffsandcables.org



3. How to set up and drill your panel with t-nuts.

1. Either chalk line or mark the spots to drill using the image below as a guide. The set-up is for a wall with studs on 16 inch centers.
2. Drill each hole using a 7/16" spaded drill bit. You can clamp multiple panels together. Be sure to drill from the good side/ front of the panel through to the back. The bit will blow out pieces of wood which cause unsightly damage. We want that on the back of each panel.
3. Turn the panel over on its face and then hammer in the t-nuts to the back side. Be sure to hammer them in straight.
4. Attach the panel to the wall frame using #8 x 1 5/8" to 1 3/4" inch long wood screws. Your wall studs should be built on 16-inch centers. That means, if you measure from the middle of one 2 x 6 stud to the other, you would measure 16 inches. You might have 2 foot centers if you are attaching the panels to an existing wall. Just be sure you know what you have so that you can land your screws into them.

Concrete Walls

1. Attach your holds directly to a concrete wall
2. Attach your wood wall to a concrete wall
3. How to install concrete drop-in anchors for solid block
4. How to install concrete hollow-set anchors in hollow or solid block
5. How to install a Tapcon screw

1. Attach your holds directly to a concrete wall

To install climbing holds directly to a concrete wall. You basically have three options for conventional attachment methods. They are listed below with pros and cons.

Option #1 - Hollow Set Concrete Anchors – A very versatile anchor. It only needs 1.5 inches of material to set itself making it perfect for cinder block walls. They work on hollow cell cinder blocks as well as solid cell. Drill bit size for these 3/8-16 anchors is 5/8".

For specifications and installation for the Hollow Set Concrete Anchors, follow this link http://www.powers.com/product_09340.html and click "View Product Specs" once you arrive at the link.



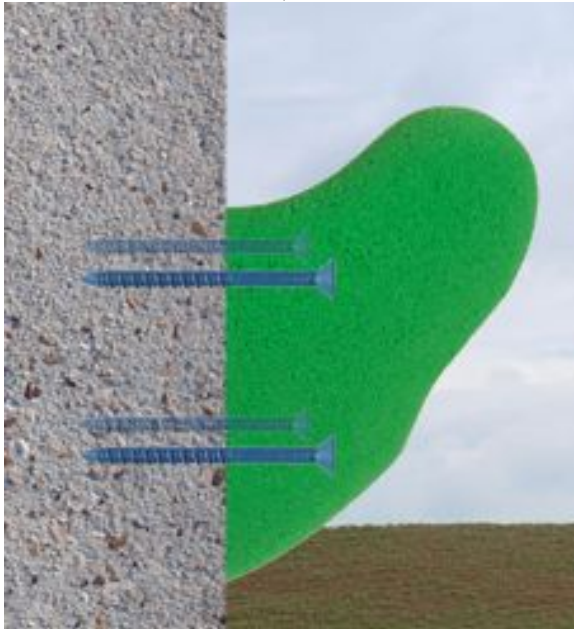
Option #2 - Concrete Drop-in Anchor – This anchor is a little more sensitive to install but at a quarter of the cost of the next option, many builders choose this option because of budget concerns. This anchor can only be used in solid concrete. Drill bit size for these 3/8-16 anchors is 1/2".



For specifications and installation for the Concrete Drop-in Anchors, follow this link http://www.powers.com/product_06308.html and click "View Product Specs" once you arrive at the link.

Option #3 – Tapcons screws

Only a screw-on hold can be attached to a wall with concrete Tapcon screws. Each hold has multiple attachment points which allows for the smaller screw. It's a lot more holes to drill but in some instances, worth it.



For a detailed description of installing screw on holds to concrete, please read below.

Tapcon Concrete Screw – Technical Information

The Tapcon® brand concrete screw cuts threads in a predrilled hole in concrete, brick or block. The screw has alternating raised and lowered threads with diamond cut notches which provide exceptional holding power and stability. The Tapcon® brand concrete screw is available in both 3/16" or 1/4" diameters with either a flat Phillips #3 countersunk or a 5/16" hex washer head. All screws are plated using the Stalgard coating which provides extended life and additional lubricity for ease of installation.

Tapcon Concrete Screw – Applications

Light to medium duty in concrete, brick and block.

Tapcon Concrete Screw – Installation

- (1) Drill hole into base material using a hammer drill and the drill bit provided with the screws. The depth of the hole must be at least 1/4" deeper than the Tapcon screw. Blow out or vacuum the hole.
- (2) Place object to be fastened over hole.
- (3) Insert point of Tapcon into hole and drive screw in using a nut driver or #3 bit tip. Do not over torque the screw or you will strip the hole.

Tapcon Concrete Screw – Screw Length

The length of the Tapcon® fastener to be used is determined by combining the thickness of the material to be attached with the desired depth of embedment in the base material. It is recommended that a minimum of 1" and a maximum of 1-3/4" embedment be used in determining fastener length. The diameter of the fastener and the depth of embedment affect pullout strengths. A carbide-tipped drill bit is supplied with each box of Tapcon® fasteners. The correct hole must be drilled for the screw to obtain holding values. In all cases the hole must be at least 1/4" deeper than the depth of the fastener embedment.

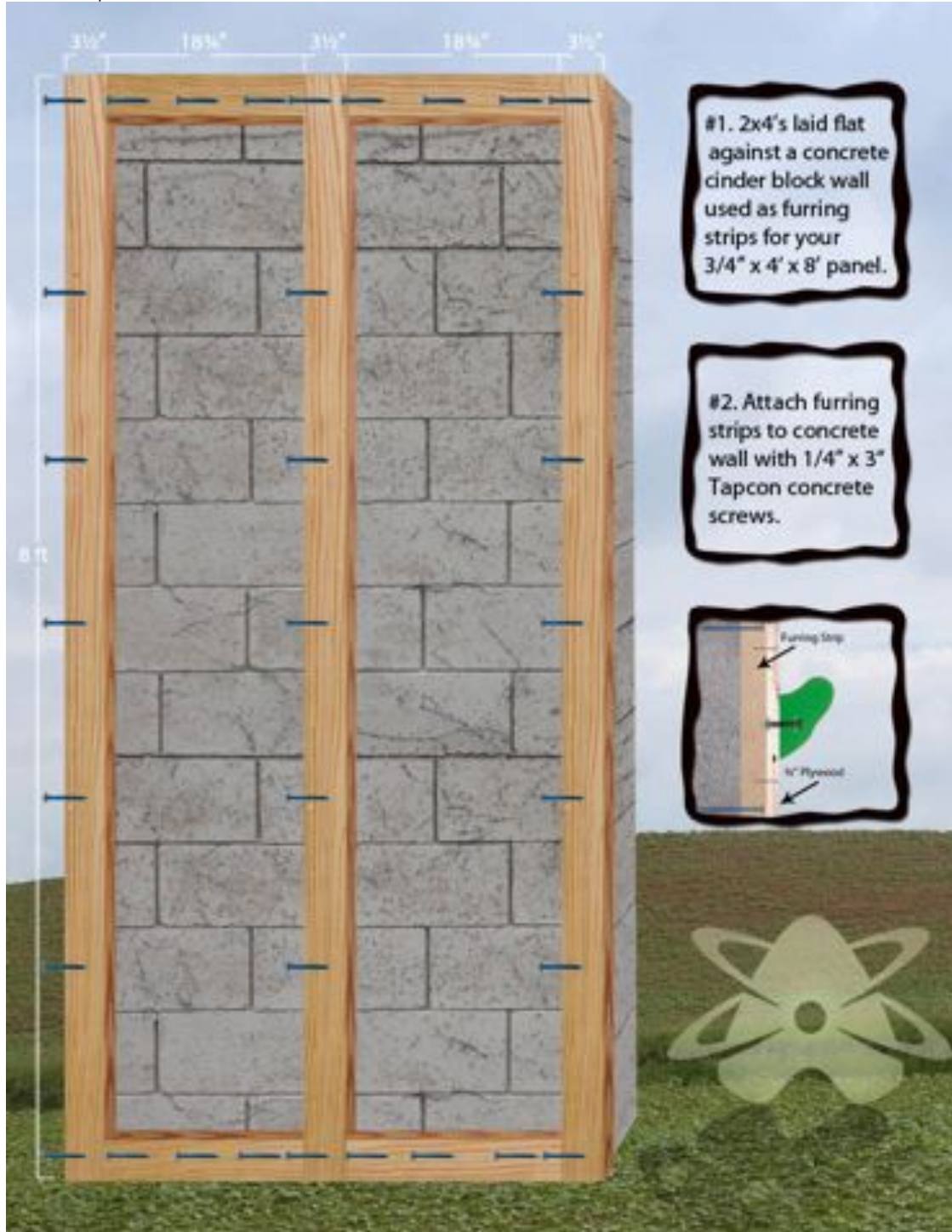
2. Attach your wood wall to a concrete wall or existing wood framed wall.

This approach attaches plywood panels to furring strips which are attached separately to a concrete wall or an existing framed wall found in wood framed construction. These furring strips are an extremely important step. This space allows for a bolt to pass through the hold, through the panel and into the 1.5 inch space we just create with the furring strips. The method is to lay 2 x 4s (which actually measure 1.5 inches by 3.5 inches) on their side so that the outside edge is protruding out 1.5 inches.

Attach furring strips to concrete

To attach these "furring strips" to a concrete wall, you can use 3" to 4" long Tapcon Screws (one screw every 12 to 18 inches along furring strip) or 3/8" expansion bolts (one every 18 inches). I prefer using the hex head variety of Tapcon screws over the Phillips head. I use the 1/4 inch Tapcon screw using a 5/8 inch socket driver since they rarely slip in the bit and strip the head. Phillips head screws tend to slip. You should be sure that whichever screw you use, that the head of the screw installs just below the face of the 2 x 4 so that your panel never touches the screw. You want your panel to lay perfectly flat against you furring strips. I countersink the the wood to accommodate the head of the screw. These longer 1/4" thick screws are available in the "Hardware Aisle" at your local Lowes or Home Depot. To attach a 2 x 4 to a concrete wall, I prefer using 1/4" x 3" to 4" hex head Tapcon screws. Phillips head are nice because you don't have to worry so much about the head of the screw protruding as the funnel head lays nice and flat on the face of the furring strip.

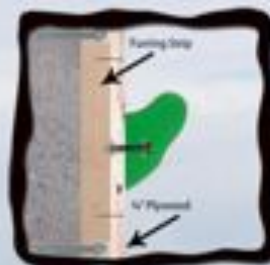
Since cantilever ratios don't come into play on a vertical wall, these furring strips can be fastened to the cinder-block or studs behind drywall at 24 inch centers. I prefer to have one furring strip on the far left side of the wall and the far right, flush with the edge of the wall so climbers cannot get their hands around the panel. I cap the top of my wall using the same method. You will end up with one vertical strip on the end of left side of your 4 x 8 panel, one in the middle and the third 2 x 4 furring strip can be shared with the next panel.

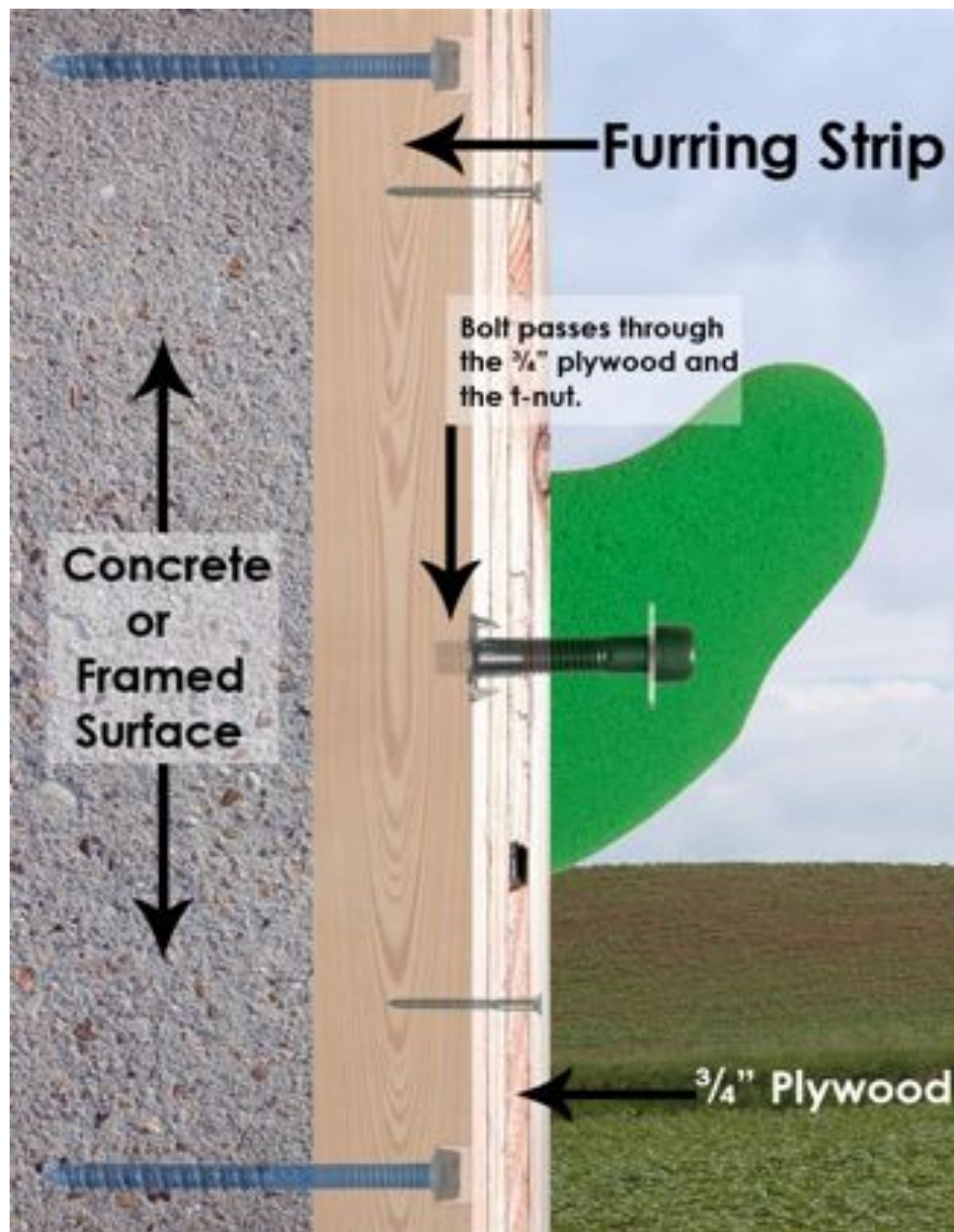




#1. 2x4's laid flat against a concrete cinder block wall used as furring strips for your 3/4" x 4' x 8' panel.

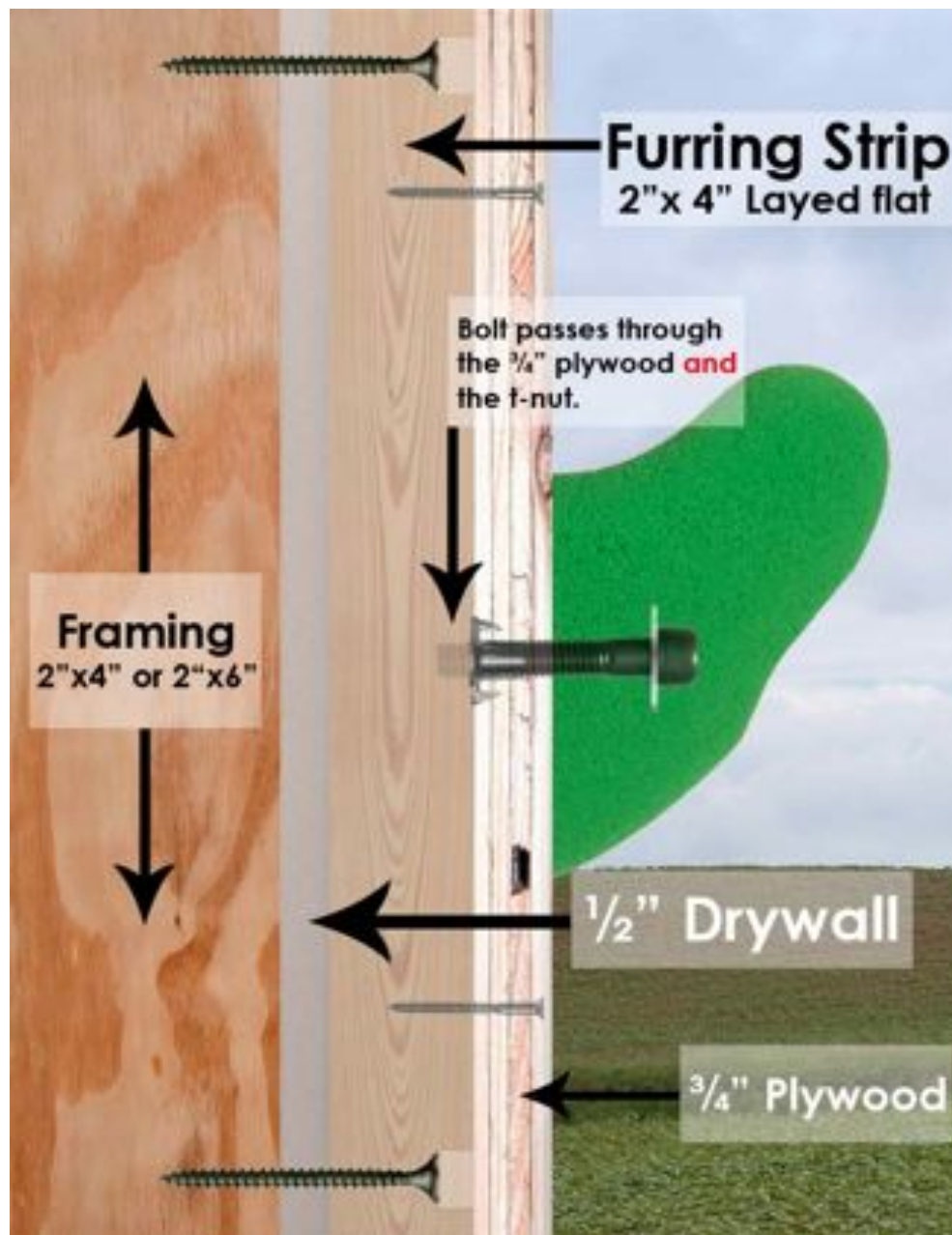
#2. 3/8" x 3 1/2" expansion bolts. Countersink the bolt head.





Attach furring strips to an existing framed wall

To attach these "furring strips" to an existing framed wall, use 3" long #8 wood screws (one screw every 12 to 18 inches along furring strip. Locate your vertical running studs. If the studs are visible your job just got easier. If not, use a stud finder to locate them behind whatever material is covering them. Since cantilever ratios don't come into play on a vertical wall, these furring strips can be fastened to the cinder-block or studs behind drywall at 24 inch centers. I prefer to have one furring strip on the far left side of the wall and the far right, flush with the edge of the wall so climbers cannot get their hands around the panel. I cap the top of my wall using the same method. You will end up with one vertical strip on the end of left side of your 4 x 8 panel, one in the middle and the third 2 x 4 furring strip can be shared with the next panel.

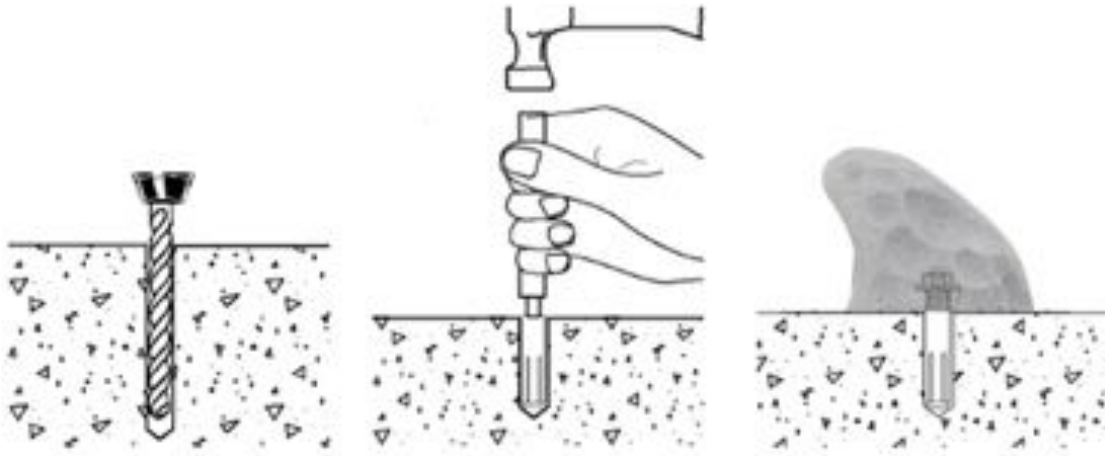


Now that your frame is up, you can attach your panels to the frame using #8 wood screws. We use #8 Phillips head 1 5/8 screw. I prefer to countersink the heads of the screws so they don't split the panel leaving splinters and unsightly damage.

3. How to install concrete drop-in anchors for solid poured concrete.

Concrete Drop-in Anchor – This anchor is a little more sensitive to install but at a quarter of the cost of the next option, many builders choose this option because of budget concerns. This anchor can only be used in solid concrete.

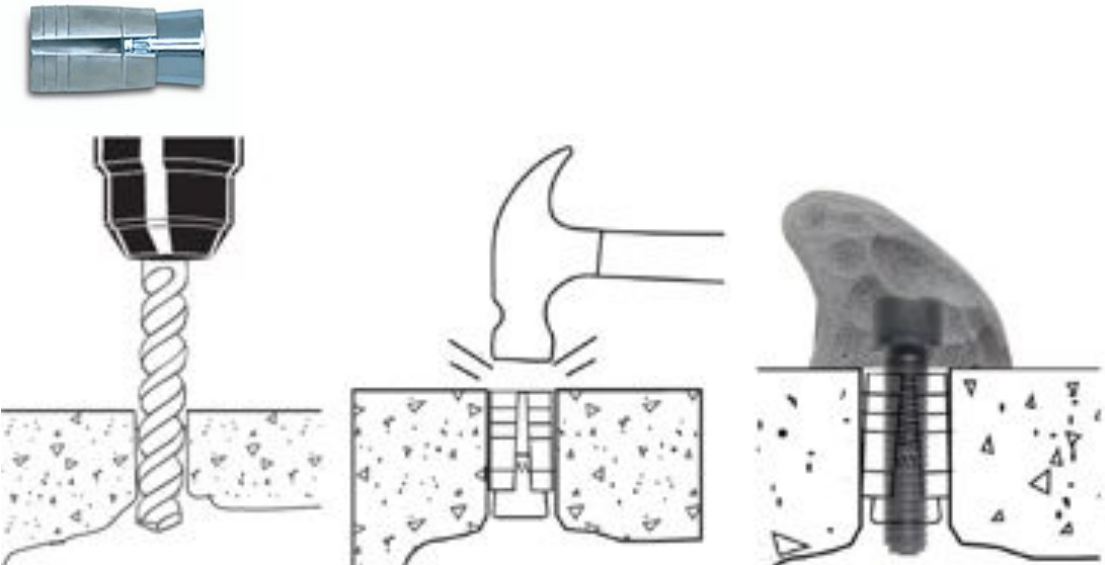




For specifications and installation of the Concrete Drop-in Anchor click "View Product Specs" once you arrive at the link.
http://www.powers.com/product_06308.html

4. How to install concrete hollow-set anchors in hollow or solid block

Hollow Set Concrete Anchors – A very versatile anchor. It only needs 1.5 inches of material to set itself making it perfect for cinder block walls. They work on hollow cell cinder blocks as well as solid cell.



For specifications and installation on the Hollow Set Concrete Anchor click "View Product Specs" once you arrive at the link.
http://www.powers.com/product_09340.html

5. How to install a Tapcon screw



Tapcon Concrete Screw – Technical Information

The Tapcon® brand concrete screw cuts threads in a predrilled hole in concrete, brick or block. The screw has alternating raised and lowered threads with diamond cut notches which provide exceptional holding power and stability. The Tapcon® brand concrete screw is available in both 3/16" or 1/4" diameters with either a flat phillips #3 countersunk or a 5/16" hex washer head. All screws are plated using the Stalgard coating which provides extended life and additional lubricity for ease of installation.

Tapcon Concrete Screw – Applications

Light to medium duty in concrete, brick and block.

Tapcon Concrete Screw – Installation

- (1) Drill hole into base material using the drill bit provided with the screws. The depth of the hole must be at least 1/4" deeper than the Tapcon embedment.
- (2) Place object to be fastened over hole.
- (3) Insert point of Tapcon into hole and drive screw in using a nut drive or #3 bit tip. Do not over torque the screw.



Tapcon Concrete Screw – Screw Length

The length of the Tapcon® fastener to be used is determined by combining the thickness of the material to be attached with the desired depth of embedment in the base material. It is recommended that a minimum of 1" and a maximum of 1-3/4" embedment be used in determining fastener length. The diameter of the fastener and the depth of embedment affect pullout strengths. A carbide-tipped drill bit is supplied with each box of Tapcon® fasteners. The correct hole must be drilled for the screw to obtain holding values. In all cases the hole must be at least 1/4" deeper than the depth of the fastener embedment.

Outdoor Walls

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1. The framing

For outdoor applications, pressure treated or other weather resistant wood should be used. For free standing walls, 4 x 4s, 6 x 6s and telephone poles are all good choices. The more supports you put in, the more stable the wall will be. I recommend at a minimum of 2 foot centers.

2. The wall surface

Outdoor walls

Trex:

It will not rot or deteriorate due to harsh weather or insects. Trex is splinter-free and has excellent traction, even when wet. It contains no toxic chemicals or preservatives. Trex resists damage from moisture and sunlight, making it the natural choice for pools, hot tubs and spas. Trex is available in a wide range of colors and finishes to suit any style.

Pressure Treated Lumber:

Pressure treated lumber is a good choice for standing up to Mother Nature. It does have a bad reputation with people who hear "chemically infused wood" and say "shame on you" when we even mention it. Until 2003, the preservative most commonly used in residential pressure-treated lumber was chromated copper arsenate (CCA). It is an extremely toxic chemical for humans. However, one must distinguish between the toxicity of the chemical and the toxicity of the wood product in everyday use. The facts are that your local home store or lumberyard is now selling lumber treated with less toxic alternatives... amine copper quat (ACQ) and copper azole (CA)... though you may find other chemical combinations in specific areas. The reason these new copper-based alternatives are considered safer than arsenic-based preservatives is based on the human body's inability to absorb these poisons. To sum it all up, the pressure treated wood you get locally isn't as bad as people make it out to be. It's a great product. When I handle it, I wear gloves, a face mask when cutting it and I wash my hands once I have finished handling it. PT comes in plywood, 1 x 6 (aka 5/4 board), 2x6, 2x8.

Plywood:

I'm not a big fan of plywood outside. The edges are untreated so when even a little water gets on it, delamination and bloating happens. Using pressure treated plywood is the best choice if you are adamant about using plywood. I recommend drilling the panels, priming the wood and then painting it. I am a little crazy and I might even spray inside the holes (no t-nuts installed at this point).

Cedar:

Cedar is incredibly resistant to rot and insects just don't like cedar. Its bacterial and fungal resistance coupled with the fact that Cedar is 80% the strength of Oak, makes it a desirable wood to use for building. Cedar is a lightweight and dimensionally stable wood that lies flat and stays straight, which means it resists the natural tendency to crack and check as you might find in many other wood species. I personally have never worked with cedar in a climbing environment but it does have a compelling sales pitch. Keep in mind that it has to be 3/4 or thicker in order to accommodate the length of the t-nut shaft.

3. Protecting the wall from the elements

The wood has to be sealed in some way. Even pressure treated wood. That means priming and painting or using a wood sealer. Bottom line is that sun dries out wood and rain deteriorates it. The better job you can do to keep these elements off the wall, the longer life you will get out of it.

4. Which hardware to use

Stainless steel is the way to go. We sell a stainless steel bolt with a zinc plated t-nut. We recommend this mixture so that your bolts won't "gall" in the t-nuts. "Galling" is fancy way of saying the bolt and t-nuts will "bind" or "weld" together.

5. Attaching holds to a tree

[Click here to watch the how to slideshow](#)

So you want to turn the tree in your back yard into a climbing wall. First off, screwing anything into a tree invites disease to the tree. So be warned right off, it's not the best idea. Using the tree as a support for a wood climbing wall is a better idea but I understand, you really want to try it.

The first thing is what holds. Screws ons are the easiest. They attach with multiple wood screws so they won't spin plus they have a small back to many of them which allows them to lay as flat as possible on the tree. This is important. You have to get the hold to lay as flat as possible against the tree. Do this by placing the hold against the tree and rotate it until it lays flat. You will often find that you have to choose a different sized hold for the spot you want a hold. Now screw it in with screws no less than 2 inches long. You can ask us to send long zinc plated screws in the Special Requests window or you can buy your own deck screws.

Bolt on holds are not recommended for two reasons. A single lag bolt can loosen. The second reason is that even if you could get a lag bolt into the hold, you would not be able to get a socket inside the tower in the hold to tighten it. Sockets are wider than the hole. Even thin walled sockets are too wide. Yes, we've tried.

When attaching the holds, the cannot wiggle or flex at all. They have to be tight. If they are loose once you have screwed them in, try again in a different spot. Movement means the hold will loosen and come off. Try not to let the edges of the hold protrude off the tree. You can hurt yourself by cutting your hand if you grab around the back of the hold. Ouch!

Now the anchor. See photo below. Use 3/8" chain. Zinc plated is nice as it doesn't rust. Wrap the chain twice around a limb that will hold at least 2000 pounds. 12 inch thick limbs should be the smallest used. I like to use a carabiner or quick link to stop the chain from rotating on the limb. When setting up an anchor, the cardinal rule of thumb is to have two points of protection. That means that if the limb should rip off the tree, there is a back up limb with another anchor to avoid a climber from hitting the ground.

For ropes, I like static for trees. They stretch much less than the common dynamic climbing ropes. Never use a rope that you bought from a local hardware store. Only use climbing rated equipment. NEVER leave ropes outside and NEVER use webbing or rope for the anchors. They will deteriorate in weeks, if not days outside.



Hang Boards and System Walls

Hang boards



1. Decide on where you are going to put your board. 24" to 30" is common to most bathroom doors. 30" is the standard bedroom door; 36" is the standard entry door. Try and choose a location with ample head room and a clear landing. At the top of a staircase is a bad idea. There's nothing worse than doing a pull up and hitting your head on a rafter or the ceiling or worse, falling down the stairs. Our photo example is a 12" high by 48" wide hang board over a hallway door.

2. Cut your 3/4" plywood to the size you want. You cannot cheat on the thickness of plywood for two reasons. #1 is the height of the t-nut cylinder. #2 is the structural integrity of thinner plywood. 3/4" is the industry standard. We recommend 12" tall. 12" tall gives you enough room for 2 to 3 rows of holds. When you build one larger in the 18" to 24" inch tall board, you'll find that your hands are almost 8 feet off the ground. It gets a little sketchy at that height plus the lower holds on your board are now hitting your forearms and elbows.

Tip: Not everyone has saws to cut the plywood. No worries though. Both Lowes and Home Depot have a lumber cutting area. They sell pre-cut 3/4" Birch plywood in 2' x 4' sizes. Cut a 2' x 4' piece long ways at the 12 inch mark which will give you two pieces that measure 1' x 4'. Now simply cut one of the pieces to the width you desire.



3. Cut the 2 vertical furring strips that are the height of your board and 1.5 inches wide. Now cut the 2 horizontal furring strips the width of your board less the 3 inches from the vertical furring strips. I like to use 1" x 2" (actual measurement is 3/4 x 1.5") material as it is readily available at your local hardware store. Cut to size the left and right side furring strips. Attach to the back of the panel using glue and finishing nails. Now glue and nail the strips to the back of the board. I used Elmer's Wood Glue and 1 1/4" finishing nails.

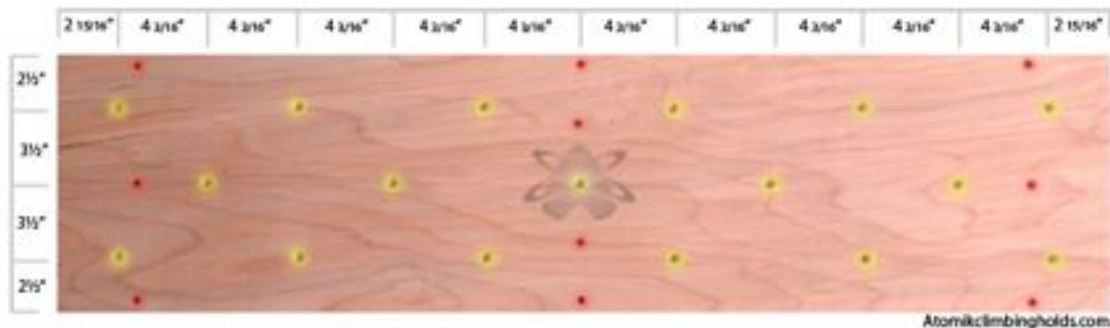


*Furring strips allow the bolts that the holds are attached with to pass through the hold, through the plywood, through the t-nut and then into the open space the furring strip created. This will keep the bolt from touching the surface of the wall that the board is attached to. Otherwise, the longer bolt would "push" the hang board off the wall which is undesirable. In a perfect world, you might think to just get exact bolt lengths and skip the furring strips. The only problem with that is that there are several different sizes of holds and each set has a different bolt length needed.

[For a photo explanation of why you need furring strips, click here.](#)

4. Leave the panel raw at this point or finish it with paint or a stain sealer. I like to use a sander to take the edge off the board and smooth out the edges. If painting, always prime first or use paint with primer in it. Textured surfaces are nice as they hinder holds from slipping when you are hanging on them. You don't have to texture paint though. Just tighten the holds down more.

5. Below is a t-nut layout that will give you clear arm paths on all 3 levels. Of course, you can tweak the layout in any way you like. Be sure to drill your holes so that you miss your furring strips. The yellow highlighted dots are the t-nut holes that are drilled with a 7/16" wood bit. The red highlighted dots are the attachment points (#8 x 3.5" screws) for this board. The red screw dot positions may be different for your wall due to the spacing of your studs. You put these screws where your studs are in the wall. That's why, even if you don't want the extra width of the board, a larger board often makes hitting the outside studs easier.



6. Drill 7/16" holes into the panel from the front to the back. This will keep the unsightly wood 'blow outs' from the drill bit on the back where you won't see them.



7. Hammer t-nuts into the holes on the back side of the panel.



8. Sand the edges and the face of the board.



9. Locate the studs over your door frame and mark the center of your opening.



10. Countersink 3 holes per vertical stud and set the #8 x 3 1/2" wood screws into the pre-drilled holes.



11. Center board over opening and attach board into the studs.



12. Now the fun part is picking your holds. First off, all holds are sold as pairs. The price you see is for two holds. For the specific holds this is where our system is awesome. Let's say you are in endurance mode during the winter. Set your board up with slopers and nice rounded jugs. That way you can spend long easy hangs on the board. Getting ready for Hueco? Crimp the board out. Whatever it is that you want to train on, simply switch the holds around. It doesn't hurt to have extra holds around to give you options so buy yourself options. Below is the board we set as a beginner board with big slopers, big jugs and big pinches. There are a couple edges in there too. You can see the symmetrical layout. This is just one of thousands of variations.



Photo Contest

We love photos so when you build your own with our holds on it, send us a pic. We'll hook you up with a free pair of hang board holds on your next order. As with any training device, please be careful. Take it slow. It's better to be 10% under trained than it is to be 1% over-trained.

System Walls

Though the photo example is not a true system wall, it does deliver the idea. The point of a System wall is to do repetitive hand movements so you can target your training. For instance, you can set a line of pinches up the wall and then move to slopers. The ideas are limitless. My favorite is to train high intensity pinch strength first then as i get tired, move towards open handed training like slopers.

Click [HERE](#) to see a retail packaged wall perfect for system training. More info to come at a later date on how to build your own.