

HOW WE INSTALL AN ALUMINUM LATTICE PATIO COVER



 **patiocover**installation.com

READ THIS FIRST

We are in no way affiliated with any one aluminum manufacturing company

This information is for entertainment purposes only

We can under no circumstances assume any responsibility of damages to building materials or the structure in which the cover is to be installed

These installation methods are our methods of installation and are not the suggested or recommended installation methods set by any one manufacturer of aluminum patio cover materials

Always use your manufacturers perscribed installation instructions and engineering to build any patio cover

CAUTION

- 1. Use caution when handling Aluminum materials as this material is extremely sharp**
- 2. Use caution when cutting or using machinery**
- 3. Always use safety glasses and gloves**
- 4. Use caution when cutting into the building**
- 5. Pay close attention to where electrical lines and water lines are placed within walls**

Suggested tools

With the installation of your aluminum lattice patio cover there are some Essential tools required and some that are optional no matter who the manufacturer is. There are also some ***tools** which you may or may not have access to but we'll include them because they will just make your job easier
*These ***Tools** are easily rented.*

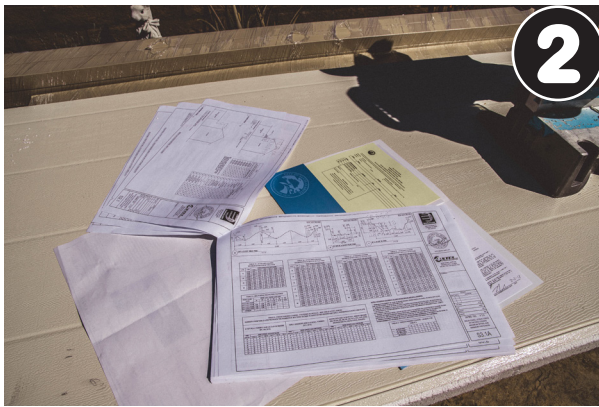
- Razor knife
- Caulking gun
- ***Cordless screwdriver**
- Drill
- ***Cordless Impact driver**
- Levels - between 3' to ***8'**
- ***Laser level**
- Chop-saw with Carbide blade (we do not recommend a hack saw or sawzall)
- String
- Line Level
- Chalk-line
- Concrete nails
- Stakes
- Speed-square
- Pencil or china marker (No sharpie)
- Numbers #8, #10, #12, #14 Hex Head adapters
- Hex Head extension bit 2-4"
- Saw horses or table length of the longest member
- Hammer
- Roto Hammer drill
- 3/8" concrete drill bit
- 3/16" concrete drill bit
- Step bit up to 5/8"
- Spade bit 5/8"
- "Blue tape"
- Gloves
- Safety Glasses
- Ladders 6'-10' or ***scaffolding** or both



INVENTORY YOUR MATERIALS

We suggest the builder inventory the kit to ensure the kit and its components are / is:

- **Complete**
- **Not damaged**
- **Correct colors**
- **Long enough**



CHECK THE DRAWINGS AND ENGINEERING

Prior to starting check over the engineering / plans to ensure the materials received match the minimum standards set by your local jurisdiction having authority.



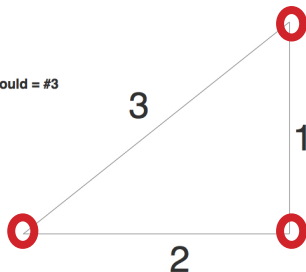
Study your engineering or drawings from the manufacture or supplier

SQUARE 3-4-5 measurements

4

STEPS:

- 1) Measure right side #1
- 2) Measure bottom side #2
- 3) Measure long side #3
- 4) Add #1 and #2 together and should = #3

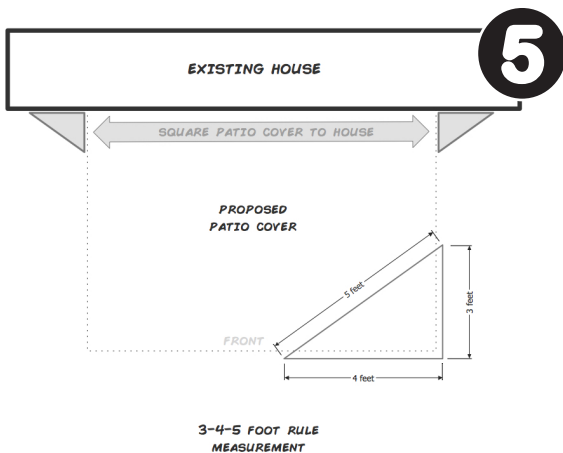


From a corner, **measure outward 3 feet** and mark that spot (#1)

From the same corner **measure outwards the other way and mark 4 feet** (#2)

Take both marks from measurements #1 & #2 and measure across from point to point #3.

This measurement should be 5 feet.



SQUARE THE PATIO COVER TO THE HOUSE USING THE 3-4-5 METHOD

Measure the area where the patio cover is to be installed

Note: The house and / or the patio slab (if used) are rarely square.

Measure your area based on the 3-4-5 squaring method



6

Take the string line and place it at the side or face of the building on two sides the width of the patio cover to create a square



Place a nail / stake at the front beyond where the front of the patio cover will be installed



Measuring for 3-4-5



Measuring for 3-4-5



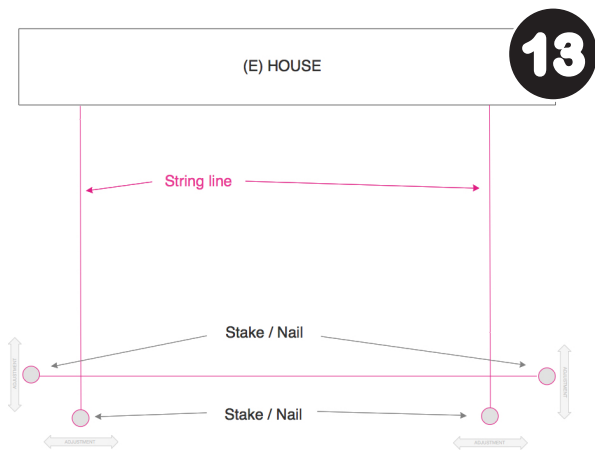
Measuring for 3-4-5



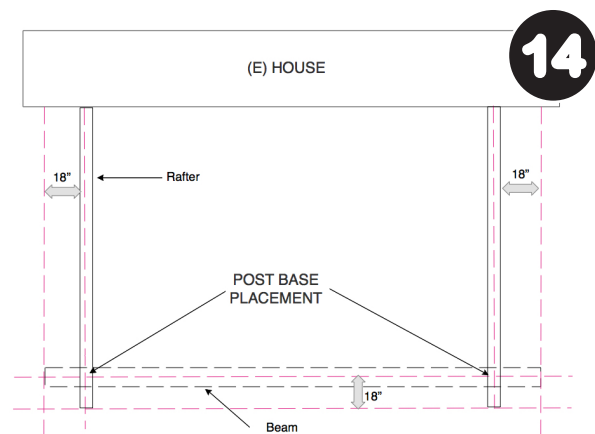
Adjusting the stake left to right to square the cover



This square demonstrates the effectiveness of the 3-4-5 measuring technique



This illustration demonstrates the placement of the string-lines and stakes



Prior to setting the post bases, you will need to account for the "setback".
 1) This is the distance from the tip of the rafter to the center of the beam. Mark this location
 2) This is the distance from the tip of the beam to the center of the beam where you just made the mark. This is the location post.

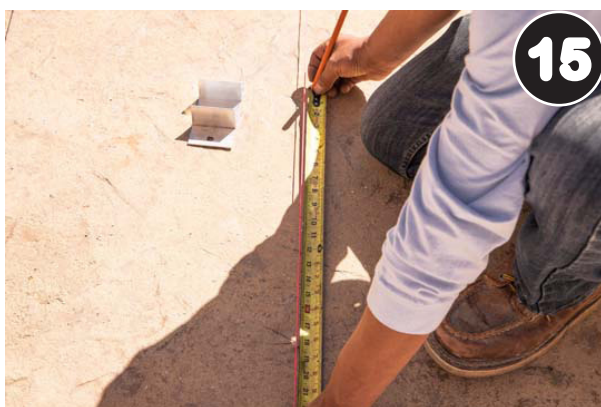


Image of the 18" set back measurement taking place reference step 14



Mark the center of the post base



Place the post base on the mark from the measurement take in step 14 & 15



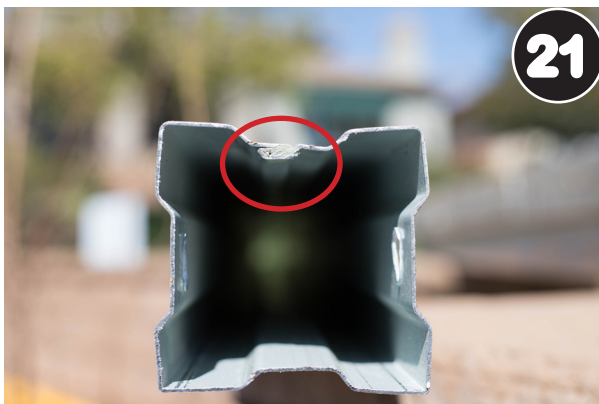
Paint the post base prior to its installation



Drill the two 3/8" holes in the concrete for the expansion anchors using a concrete drill bit and hammer drill

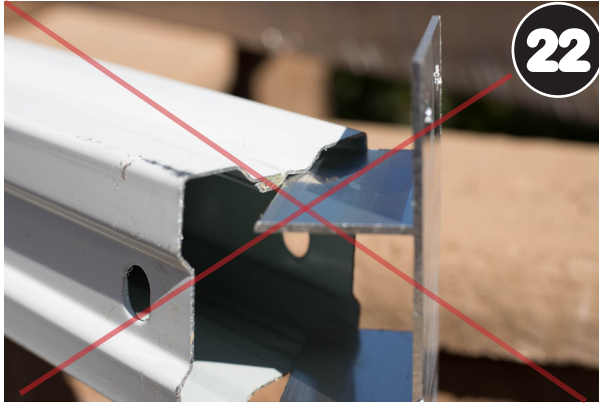


Using an impact drill, torque the anchors into the concrete slab



If you are using steel post, make sure you are aware of this seam when setting the post base

Most kits do not come with this steel post inserts. We like them because they make the cover more stable in our opinion. Also, it makes installing the post covers easier. *A post cover is installed over this post.*



The post base will not fit past the steel post seam pictured here and step 21



The steel post base fits perfectly



Setting the steel post into the post base



The steel post is “plumbed”



This is the screw we are using to set the steel post



While one person plumbs the post, the other screws and secures the post



While one person plumbs the post, the other screws and secures the post



While one person plumbs the post, the other screws and secures the post



Always keep re-visiting the drawings or engineering documents



If you do not have access to a laser leveling device like this, we suggest renting one

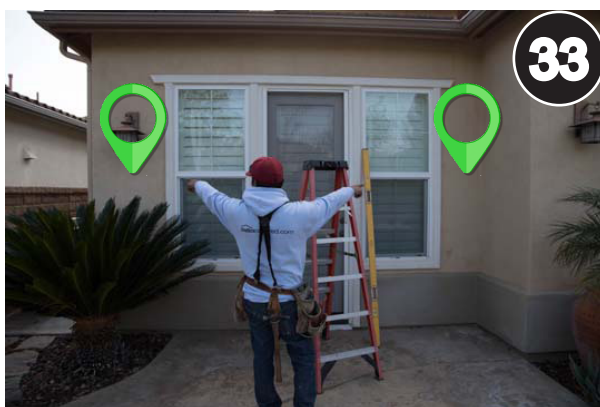
In this demonstration we will be using a laser level.

If you do not possess a laser level, these measurements can be taken in a traditional manner using string and a line-level but is not as accurate



With the laser level, we mark level on two locations (about center of wall/post):

- On the wall of the house
- On the posts



Here is Francisco showing you the two locations on the house where he will mark his points



Using the laser, mark the wall level point as well



From the “level” mark on the wall, transfer that measurement up to where the bottom of the ledger is to be placed for your finished height (bottom of the ledger)

Note: Keep in mind the width of the ledger + the height of the shade bar. (6.5”+2”=8.5”)

Watch for clearance between fascia and the roof where applicable



Note: Keep in mind the width of the ledger + the height of the shade bar. (6.5” ledger + 2” shade bar = 8.5”)

This is important if you have clearance issues such as a fascia or roof



Once you have the TOTAL HEIGHT

Mark this location on opposite sides of the ledger

This is necessary to mark the total height with a “chalk line” from end to end



Chalk Line example



Here's Francisco marking the center and left side of the span



This image shows Steve holding the chalk line at the left side mark (past the mark)



Once the chalk line has been applied, it's time to look for studs within the wall system



We'll use the smallest masonry drill bit possible when working on a stucco wall to search out wall studs

The smaller drill bit is so we can seal the holes which are not used more effectively

Although studs are supposed to be placed every 16" on center, this rarely happens.



Once we locate the studs within the walls we mark each location ABOVE the chalk line



When measuring the total width of the ledger, make sure you take into account the width of the end caps (+1")



Proceed to cut the ledger

MEASURE TWICE CUT ONCE



Prior to installing the ledger... install the caps



These are the screws that come with our kit



This is Steve... installing the screws

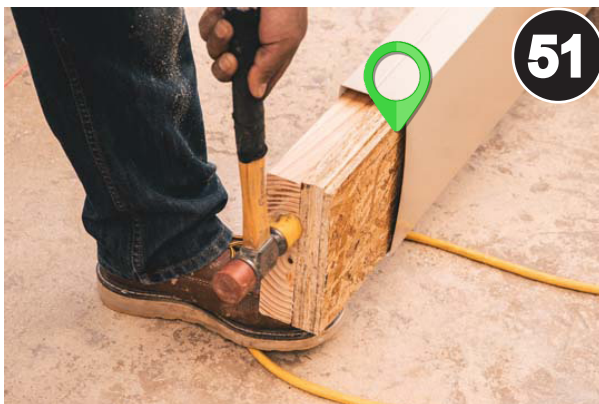
Keep in mind the screw has to penetrate the cap also



Here we have Francisco measuring and cutting the wood to fill the ledger solid.



We will screw the wood together down the middle every 12" so we don't hit a screw head when we go to install the ledger onto the wall



This kit has a 3" X 8" ledger which is not typical
The wood will be hard to install into the ledger

You want as little space possible between the face of the ledger and the inner wood.

Typically you will use a 2" x 6" ledger
(When we fill with a 2x8 + 3/8" OSB)
You may wish to verify this for your kit
**You will need to rip the 2x8 to fit snug*



Steve has to hold one end as Francisco pushes and taps the wood through



Time to get a bigger hammer... :)



This is what you will want the ledger / wood insert to look like when finished

Leave a 1/2 - 5/8" gap between the wood and the ledger for the cap to fit onto the ledger

Check with your manufacturers kit's cap



Prior to installing the Ledger, we seal EACH and every hole with a special caulking provided by your manufacturer

EVERY HOLE



Proceed to making your hole for the plugs

In this kit, the plug will use a 5/8" hole so we will use a 5/8" "spade bit"

Note: Press the metal against the wood so wood does not get caught between the aluminum and the filler wood.



Here is a finished hole

We install two per every 16" On Center (OC)



We install two per every 16" On Center (OC)

Note: Press the metal against the wood so wood does not get caught between the aluminum and the filler wood.



We install two per every 16" On Center (OC)

Note: Press the metal against the wood so wood does not get caught between the aluminum and the filler wood.



Steve is holding up one side while Francisco installs the other side

You may need to borrow a buddy for this part



With one guy (or girl) on the other side, you can hold this side with one hand and drill the actual pilot holes for the ledger screws into the interior wood studs



Here is Francisco drilling out each hole for the ledger structural screws or lags

Check your engineering for the proper sized screws or Lags here



Almost done.... two more



He's finished with all the holes and he's stoked....



Check all your holes and fill them with caulking prior to setting the screws / lags



Big Steve throwing down a sweet caulking bead

Make sure to use the caulking provided by your manufacturer



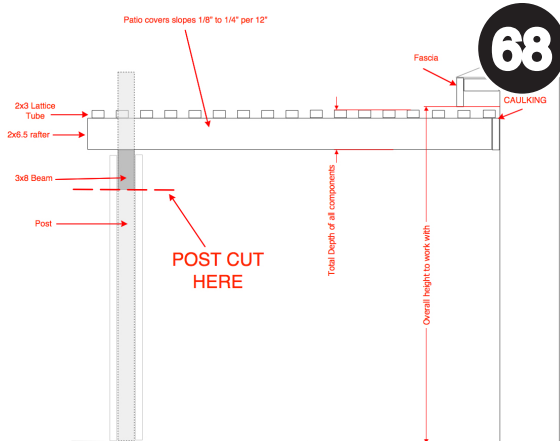
67

It's now time to cut our steel posts for the beam

Take into account the total height from the ground to the bottom of the rafter

Deduct the beam size
Deduct the slope or pitch

Mark and Cut the post there...



68

Here is an illustration of the process from a side elevation



69

We will remove the steel posts from the bases



We will remove the steel posts from the bases



We use a separate saw just to cut steel



The saw has a special blade just for steel and not aluminum



Francisco is measuring for the post sleeve that slip over the steel post inserts



Cutting the aluminum post sleeve

Measure twice cut one time



Slip the sleeve over the steel posts



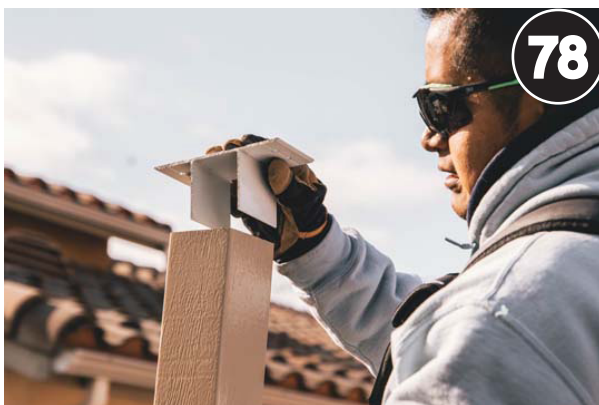
The aluminum is very easy to damage.

The saw likes to pull on the aluminum if you try to move the material while cutting or while the blade is still rotating



Make sure you install the post covers so that the seam is facing towards the house or away from the house

Otherwise it will not be covered by the 2x6 post covers



We are ready to set the beam

Install the post / beam bracket

Make sure to paint it first



Make sure to measure the beam overhang



We allow 18" for overhang past the post



Mark the placement of the posts on the beam (on the underside)



When we install beams we place a piece of wood in the bottom part of the beam

This wood allows a more stable connection between posts and beams



Replace the plastic cover



Heres an image of the wood placed at the bottom of the beam



These are the screws which connect the post to the beam

We use sms #14 x 1 1/2"



The post / beam connector gets 4 screws as shown here





Next step is to install the rafter brackets

The first bracket is over the posts

Next step is to divide the remaining rafters between the two rafters on either ends

Typically rafters would fall 24" on center or less.



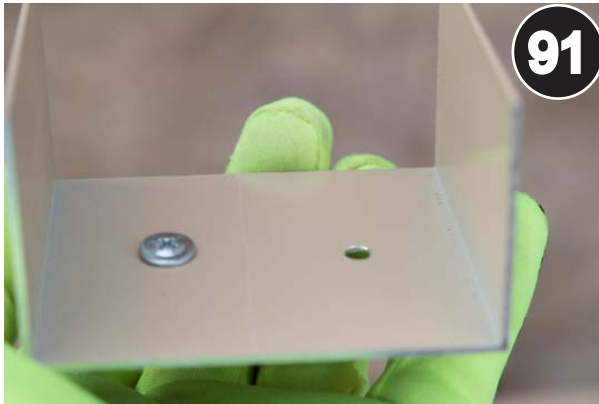
Mark the remaining brackets as shown here



We use screws that are the same size head diameter and shank as provided by the manufacturer of our kit

Note: This screw was approved by an Engineer prior to use

The only difference is that we elected to use a screw with a flatter head so the rafters sit closer to the



This is an image of the rafter bracket with the screw head in place



The rafter sits closer to the bracket as shown here



Heres big Steve installing the rafter brackets onto the beam



Here is an image of all of the rafter brackets in place



Preparing to lift the beam into place on top of the posts



Heres the beam installed and in place



The rafter spacing is established by locating the center line



Here we are measuring outwards away from the center line and marking accordingly



Here's the screw which we use to secure the rafter hangers to the ledger

We use these Simpson structural screws which exceed those which are provided by the manufacturer



Keeping the bracket straight using a square, install the first screw in the middle



We install 3 screws to every hanger bracket





Francisco and Steve setting the first rafter



After the first rafter is installed they will square the rafter to the beam and ledger to confirm that the rafters are installed straight



Francisco is squaring the rafter to the ledger here



The rafter hanger gets screws which look like these
For us, we're using #8 sms screws



Prior to securing the first rafter, the post is suggested to be plumbed



While Steve holds the level, Francisco will install the screws through the bracket and into the rafter



With one person holding the level, the other screws the screws in place



We will install the two outer rafters in order to square the plumb the patio cover

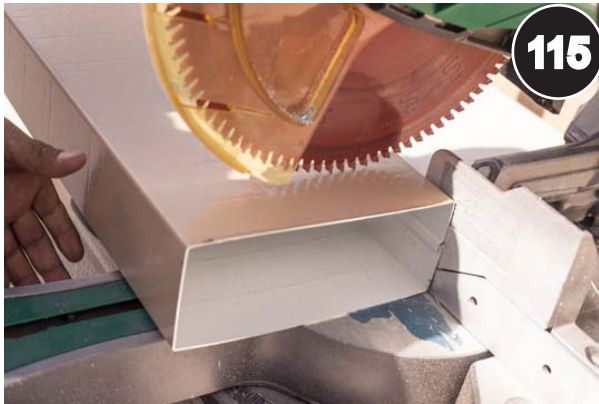
After which, the remaining rafters are set



When installing the rafters, make sure that the rafters sit tightly against the ledger

By scribing the rafter like this, you can cut the rafter in accordance with the ledgers shape

You will likely need to cut all rafters as the ledger may not be plumb



Once you scribe the rafter cut carefully
Measure twice, cut one time



As you can see the rafter sits very close
to the ledger without a noticeable gap



Each rafter gets 2 sms #8 colored
screws

Check your engineering because some
high wind areas may get up to 3 screws



118

Francisco is inspecting the rafters for tightness prior to securing the rafter



119

Steve is squaring the rafters once cut and ready to be secured



120

This is how the rafters should look once installed and secured



Locate and count the lattice bar caps to ensure you have enough

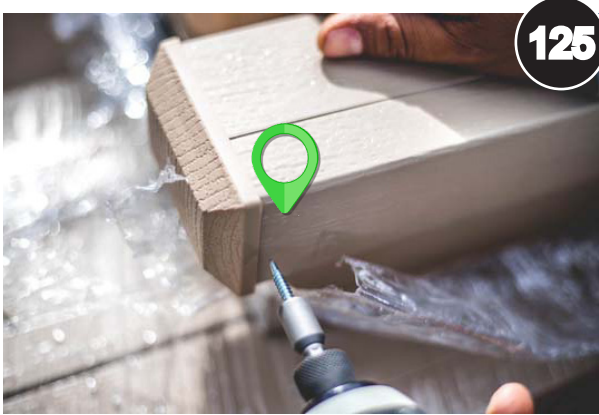


These are the screws which will secure the plastic caps onto the ends of the lattice tubes





Tap the end cap onto the lattice tube lightly



Secure the cap with one screw on either side of the lattice tube

The screws are installed on the lateral sides of the tubes



The screws should be placed in the center close to the end like this. The screws must penetrate the cap



These are the screws which come with the lattice tubes



Setting up the lattice tubes for easy installation



The installation of the lattice tubes may require alternative tools in tight locations



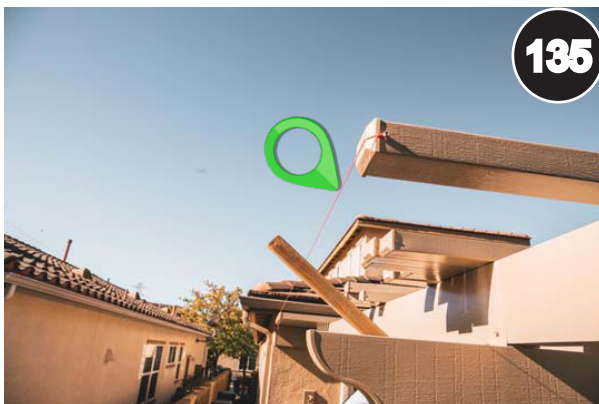
We install a front lattice tube and a rear lattice tube

The lattice tubes will be cut flush with the length of the beam

And run a string line from front to back



Francisco installs a string line at the front and rear lattice bars in order to keep the lattice bars square



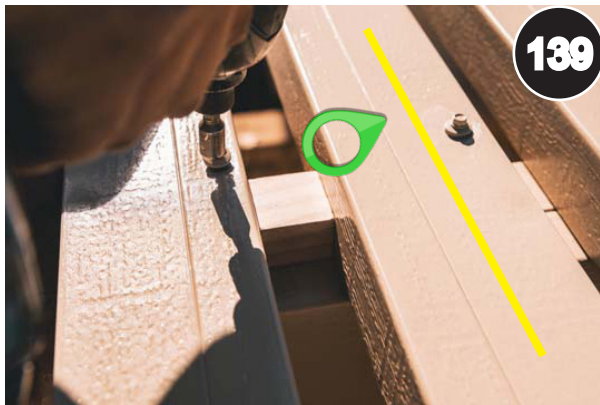


This is a wood spacer that we use between each lattice tube

Depending on your spacing requirements, you can make a spacer whatever size required



The manufacturer should have included screws which resemble these in your kit



When securing the lattice tubes make sure you **DO NOT SCREW THROUGH THE SEAM**

Placing the screw too fat to one side like in this example will damage the lattice tube as show in the next 3 images



A screw which is placed too close to the edge and torqued too tightly will buckle the tube





When securing the tube to the rafter, keep in mind that the screws are not self tapping which means when they penetrate the lattice tube they will naturally pull the lattice tube up leaving gaps like this

Try to keep your pressure consistent and penetrate the lattice tube and rafter at the same time



This is how the lattice tube will look

It's impossible to get the lattice tube any closer without damaging the lattice tube itself

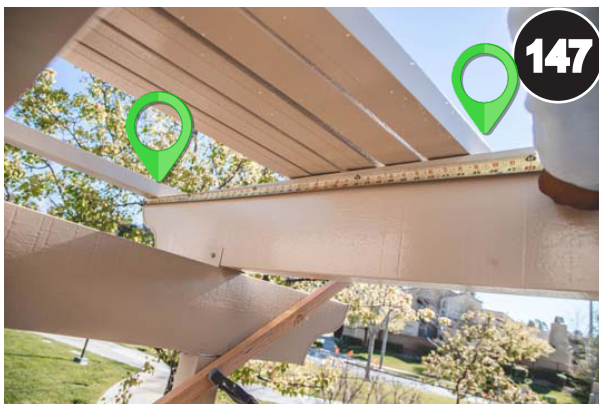


The progression...



As you progress, you will want to keep measuring the lattice tubes at either end to make sure you are tracking correctly

Make sure you have the same measurement on either ends as shown here



Make sure you have the same measurement on either ends as shown here



Once the lattice tubes are installed you can start to measure for post covers



Here Francisco measures for post covers



When removing the plastic cut within the seam with a razor knife



This is the post cover with the foam insert



Screw the post cover caps in the same manner as other caps

Make sure you stay about 1/2" from the top and in the center with one screw



Measure twice ...cut one time



Check your fitments...



Mark your holes to be drilled for attachment and caps



Here is the post cover layed out with screw holes marked out...



We use a “step bit” which allows us to make precise holes

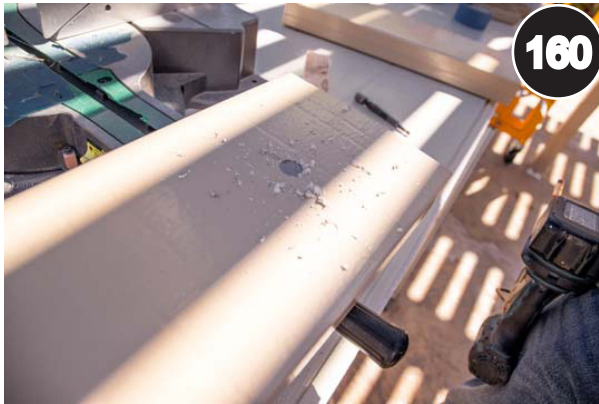


Start by drilling slowly...



Progressively drilling further until you’ve hit the level on the step bit if this is what you’re using also

Do not drill through the other side



One finished hole..



Five finished holes...

4 holes for the connection into the beam
1 hole for the connection into the post

Check your engineering to see where and how many holes you are required to drill



Since we are drilling through both the post sleeve and steel post we are using #14 self tapping sms screws

Check your engineering to see which screws you can use



Check fitments...



To center the top.. Measure on both sides of the post covers from behind the post covers



To center the top.. Measure on both sides of the post covers from behind the post covers



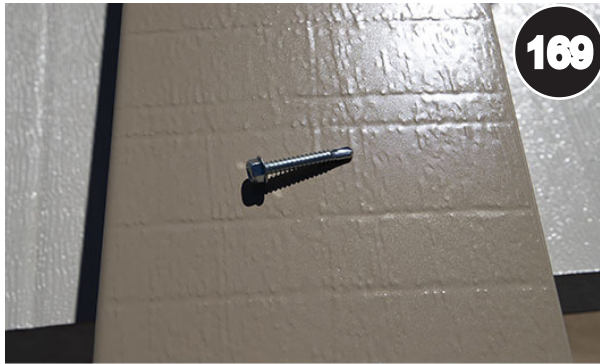
To center the bottom.. Measure on both sides of the post covers from behind the post covers



To center the bottom.. Measure on both sides of the post covers from behind the post covers



In order to reach the screw and place the screw tightly on the back of the post cover through the foam you will need an extension like this...



We're using the same #14 screw however, we use this self tapper because we use steel posts within all of our posts for maximum stability



Once you have the same measurements on both sides of the back between the exposed post cover and the post as shown in images 164-167, you can begin to secure the covers



We screw into the beam with the #14 sms screws provided by the manufacturer



Here is the look you want prior to installing the caps



Installing the caps next...



Here is the finished look of the post cover



Time to clean the marks off the cover.
We use a china marker so our cleaner of
choice is WD-40



Next we touch up the bases and other
areas around the cover with the spray
paint provided by your manufacturer



Next we go back to the ledger and install the caps. If the rafter fell on the same location or just halfway over the holes, we cut the caps and seal them in



Cleaning...



More cleaning...



181

Finished.



182



183

