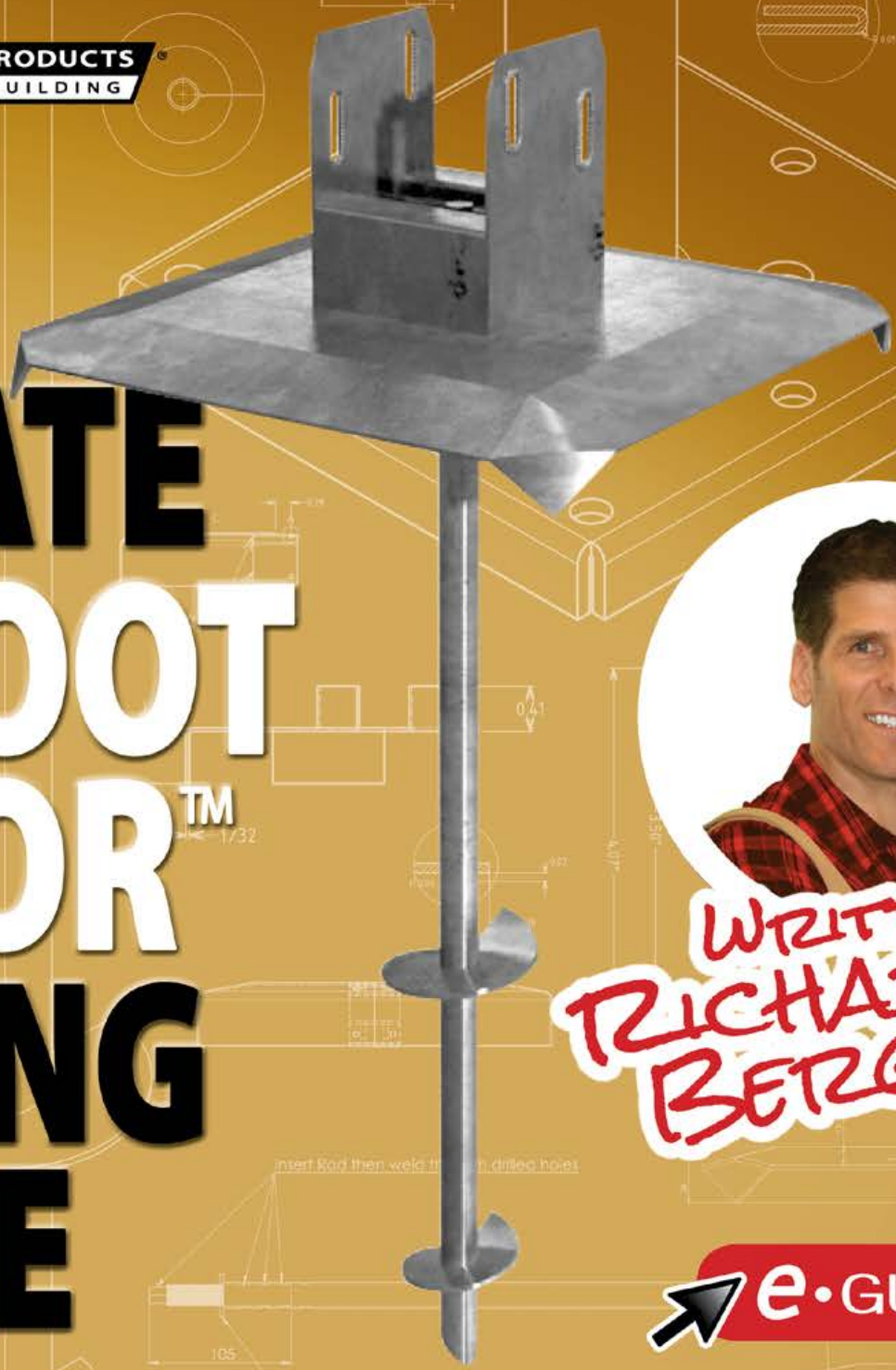
TITAN BUILDING PRODUCTS
THE ART OF BUILDING

THE ULTIMATE DECK FOOT ANCHOR™ BUILDING GUIDE



WRITTEN BY RICHARD BERGMAN

e·GUIDE

Hey, it's ***Rich Bergman*** here.
I want to make sure you have the very best tips that I use on the job site when I am building with the Deck Foot Anchor™.

While there are some soil conditions that will prevent the use of the Deck Foot Anchor™, in most cases it will be your best friend on the job site.

Here are the most important things you need to know...

TITAN BUILDING PRODUCTS® THE ART OF BUILDING

What is the Deck Foot Anchor?

Secure. Fast. And **Easy.**

It's the first helical ground anchor footing system that installs easily with a lightweight hand held tool. Your deck is firmly anchored to the ground and won't be blown away in the next high wind storm. And it looks better than an unsightly concrete deck block.

Out-Of-The-Box Thinking.

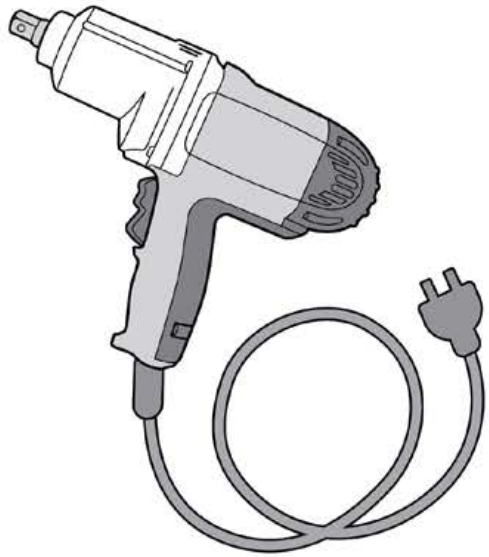
It was designed for free standing decks (floating) that are not connected to the ledger so that during seasonal changes with frost the deck is free to rise and fall ever so slightly as the ground expands and contracts during freeze thaw cycles.

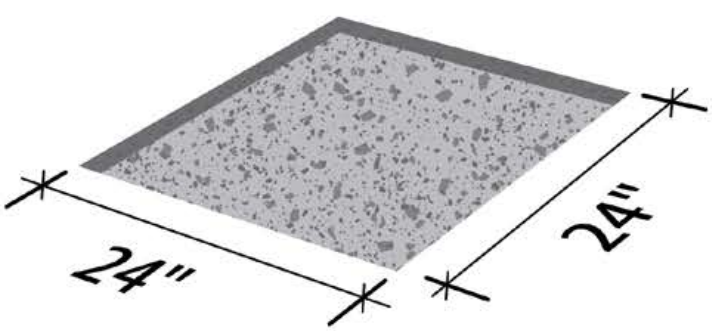
Yes, it can be used with ledger connected decks if you do not have freezing conditions where you live. Otherwise do not use it for ledger connected decks. Use a traditional concrete frost footing.

Tools For The Job:

Get yourself a nice DeWalt 350 ft-lbs corded electric impact wrench and a 12mm six point impact socket. The six point sockets have six hexagonal faces and really grip the drive head nicely.

You will never strip the drive head if you use a six point socket.





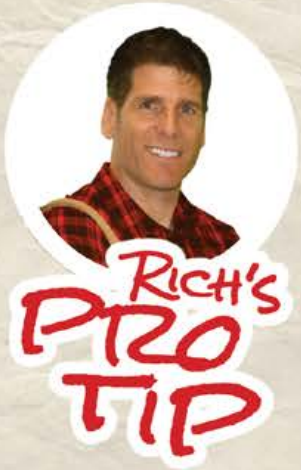
Site Preparation

Remove sod and any organic material. Also remove any loose top soil to expose the undisturbed soil. Try the level the area as best as possible. Add 2"-3" of crushed stone dust base.

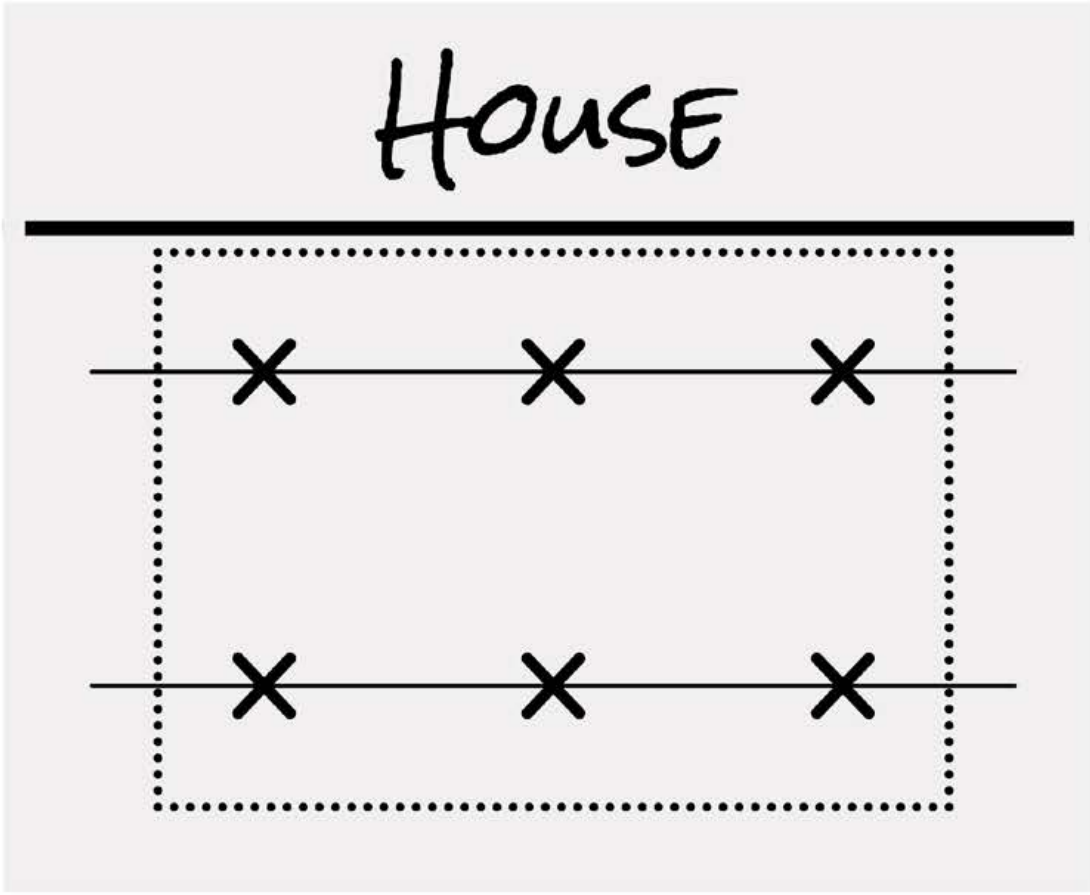
The one thing that can stop you dead in your tracks is if your soil is full of rocks to lots of roots. If that is the case, you will have no choice but to dig by hand with a clam shell digger. If you want test your soil in advance just order one of our single augers and try it out on your soil to see what you are working with.

Marking Beam and **Footing** Locations

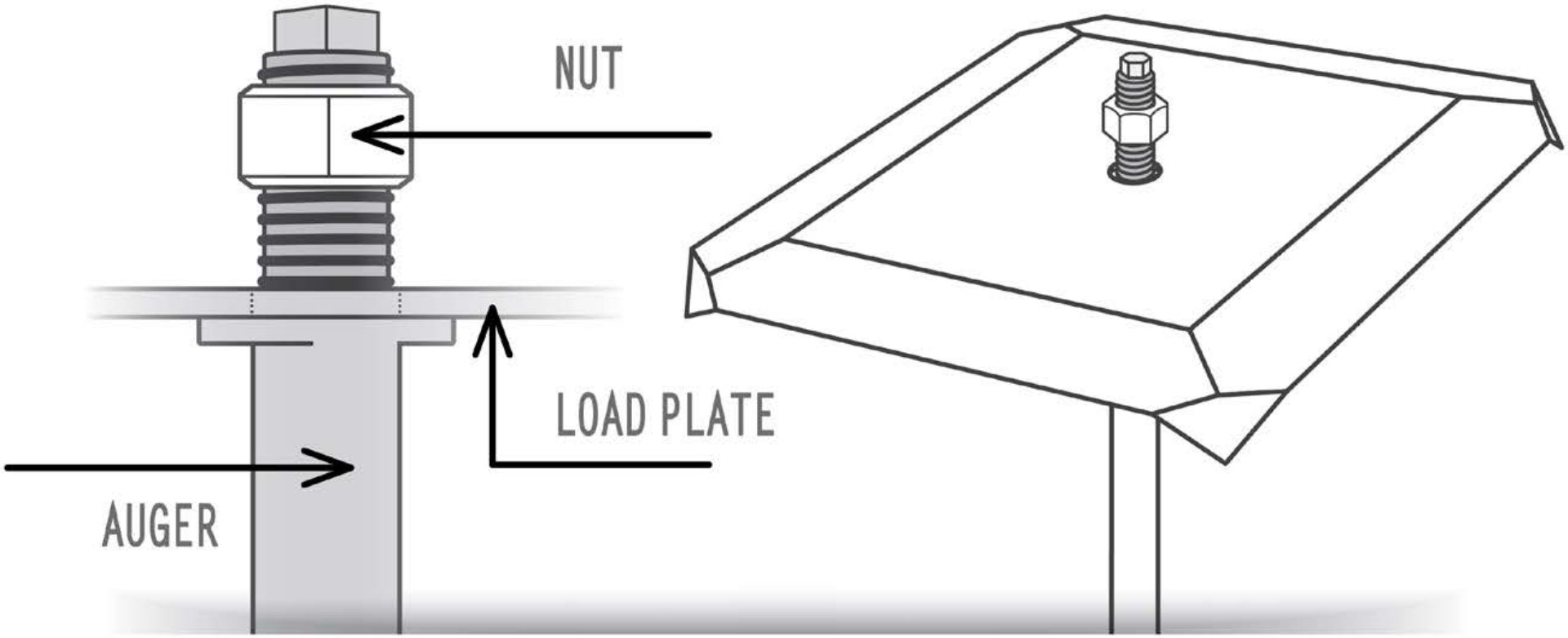
Mark out the perimeter of your deck with spray paint or string lines. Do the same for the beam locations and then mark "X" for each footing location.



By also marking out the ***line of the beam*** you give yourself a line to reference if you ***hit a rock*** in one location and need to retract and move the footing slightly. ***Just move it along the line of the beam.***

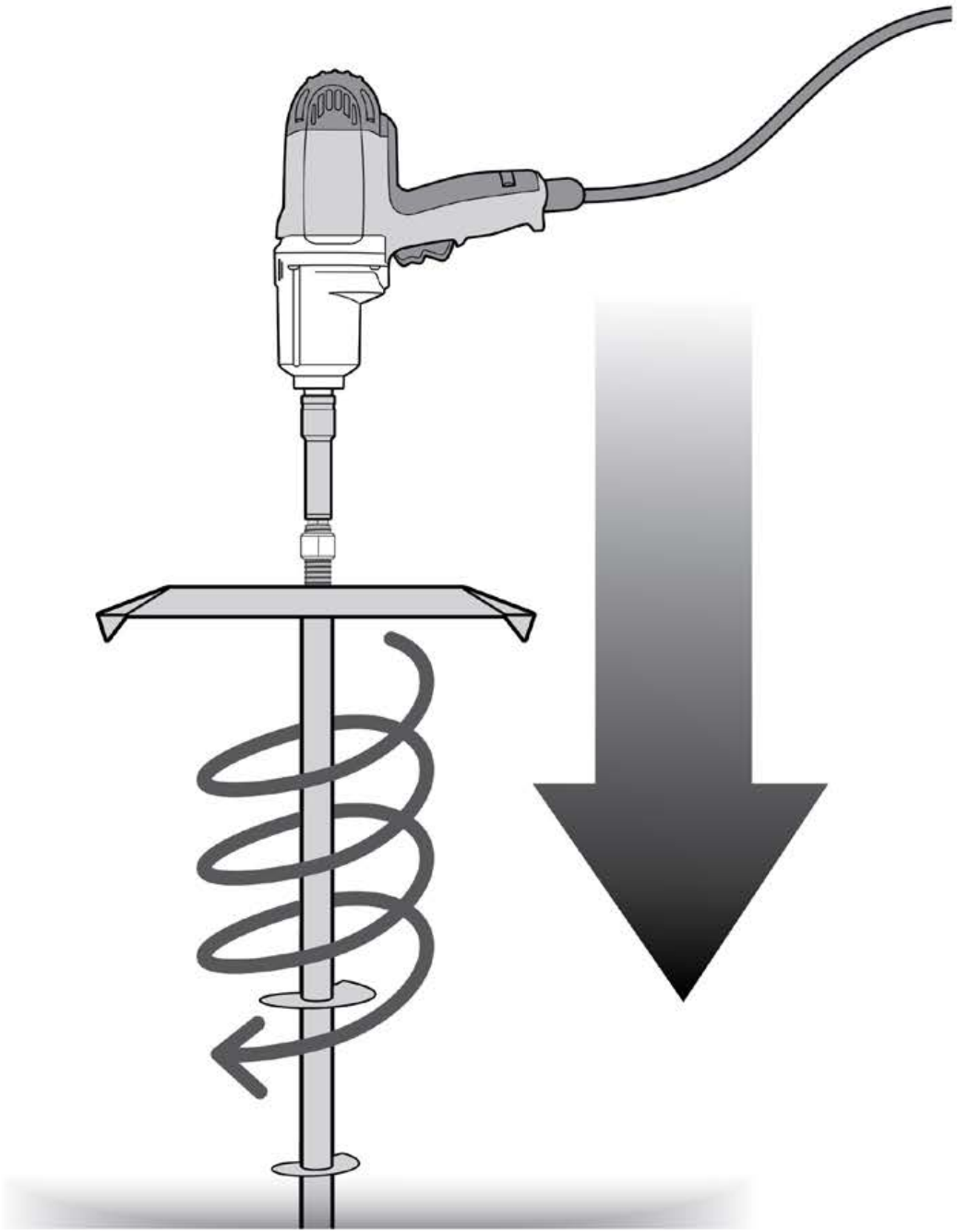


Installing the Deck Foot Anchor



1

Set the nut near the top of the threads of the auger just below the drive head. Wear gloves and hold the shaft of the auger perpendicular to the ground while driving the impact wrench.



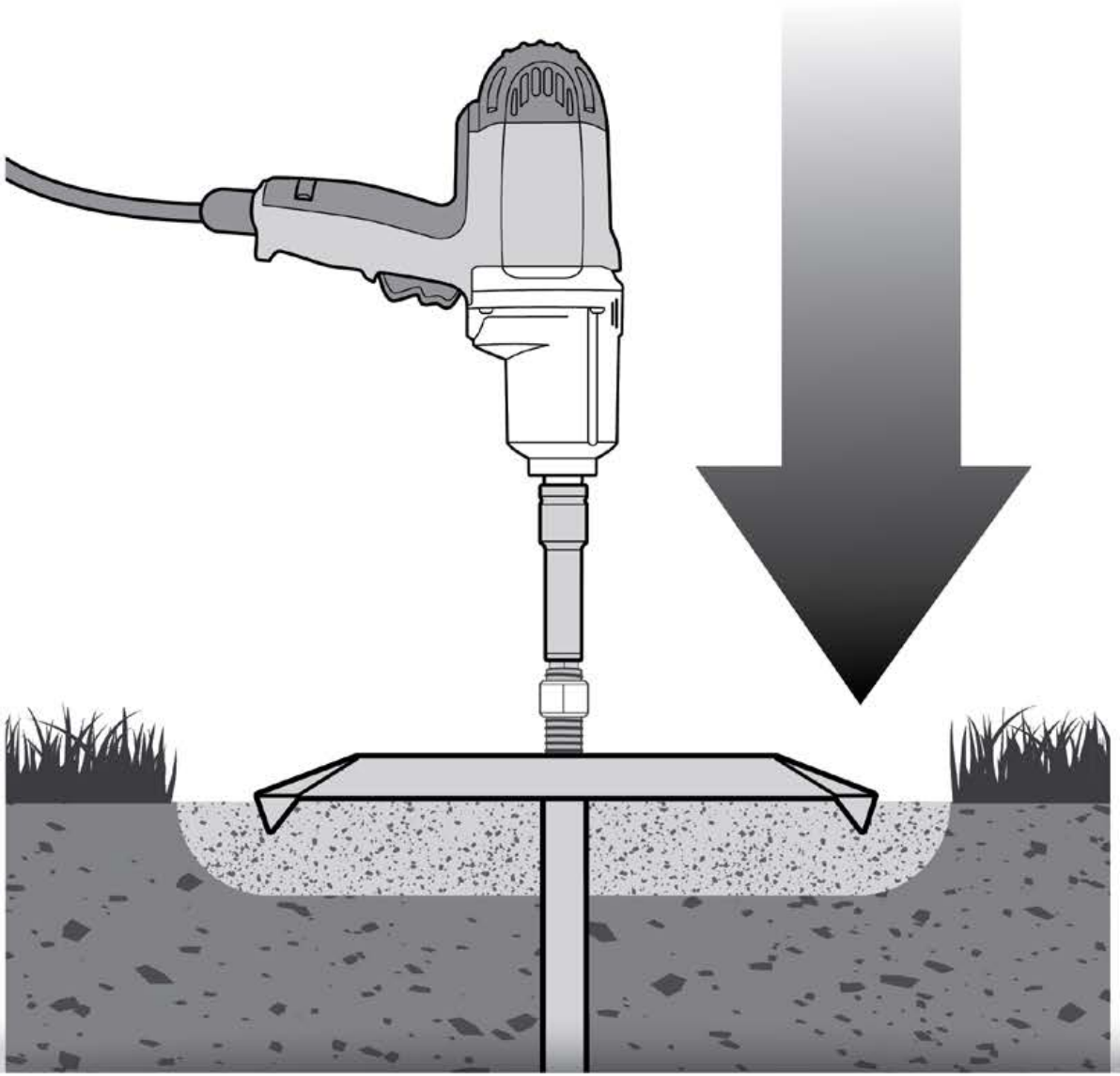
Installing the
Deck Foot Anchor

2

The load plate will stay stationary while you drive the auger down.

If you hit a rock or root that is immoveable, retract the auger and move it six inches away but along the common beam line of the other footings and try again.

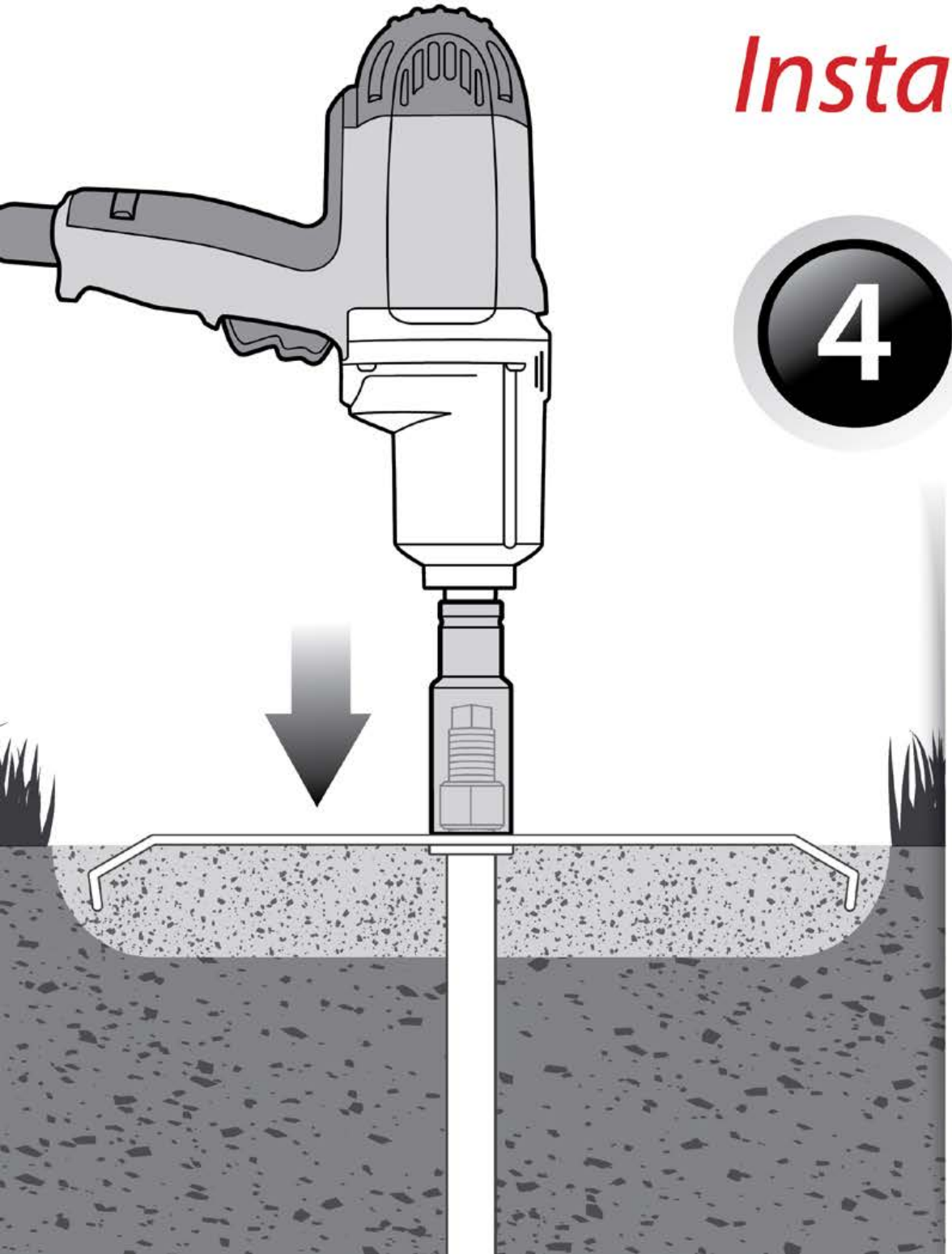
Installing the Deck Foot Anchor



3

Drive the auger down until the load plate contacts the crushed stone and the load plate touches the underside of the nut that you set at the top of the threads.

Once the plate touches the nut stop driving the auger so you do not churn up the soil unnecessarily.



Installing the
Deck Foot Anchor

4

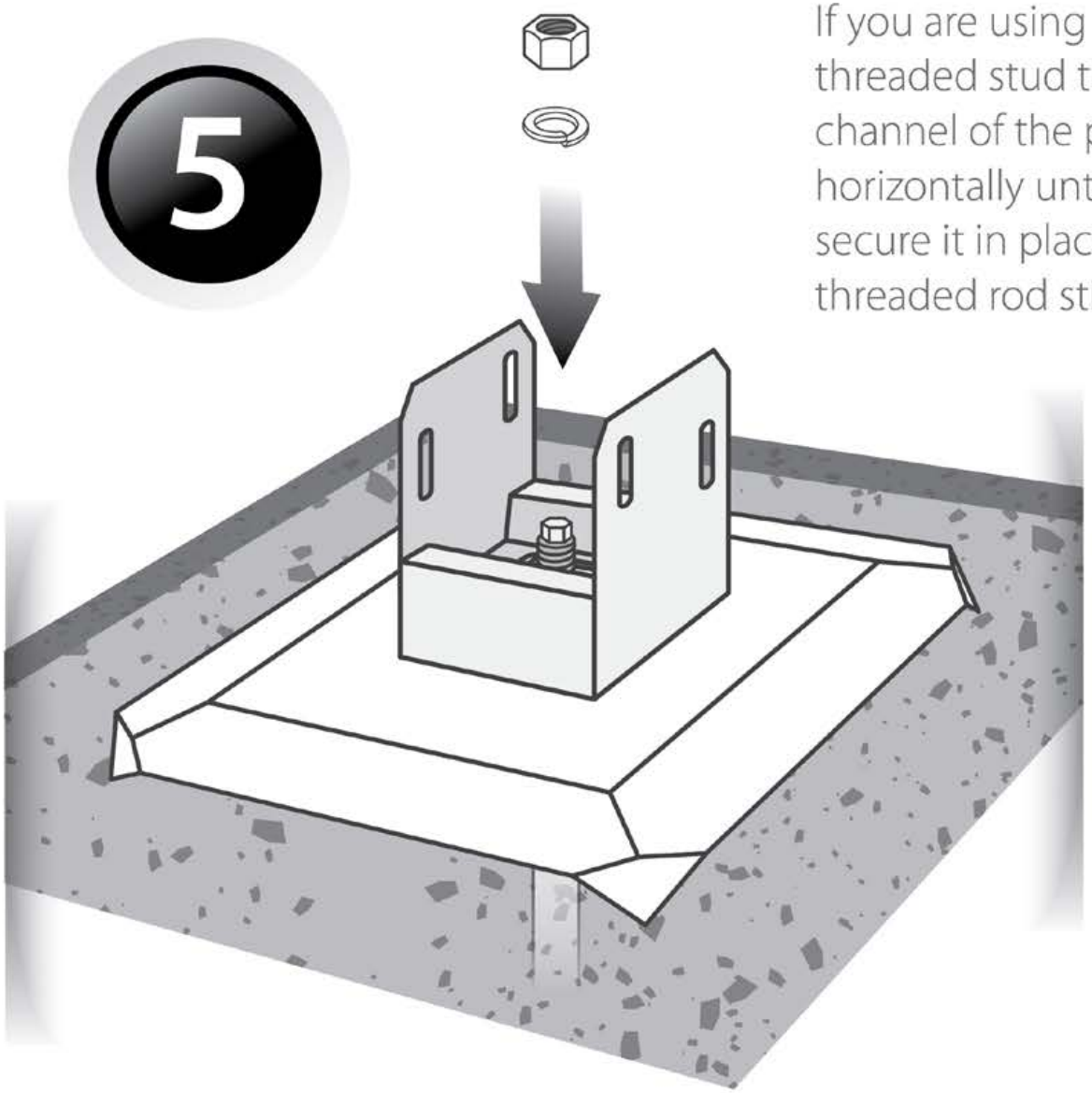
Switch the 12mm socket with a six point 24mm socket (a 1" socket will also work) or just use a wrench and drive the nut down until it contacts the load plate, pushes down the load plate, compacting the crushed stone below the plate and until you feel the load plate stop firm against the stop collar that is welded to the auger shaft.

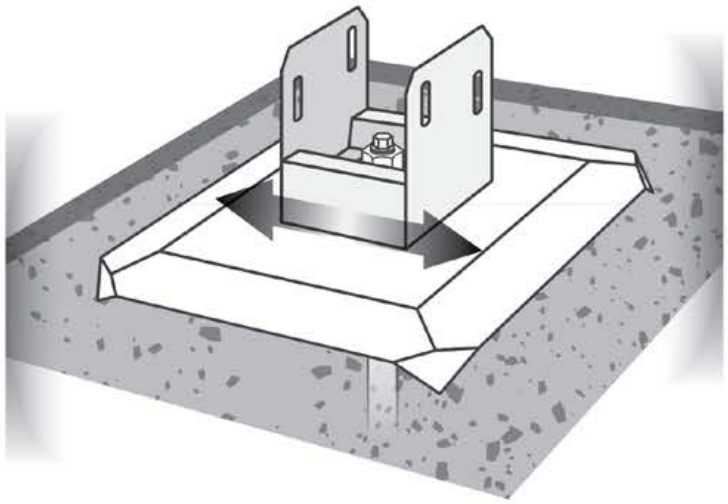
You have just compressed and compacted the soil a little bit which is something you want to do. Now you are ready to install the post bracket.

TITAN BUILDING PRODUCTS® THE ART OF BUILDING

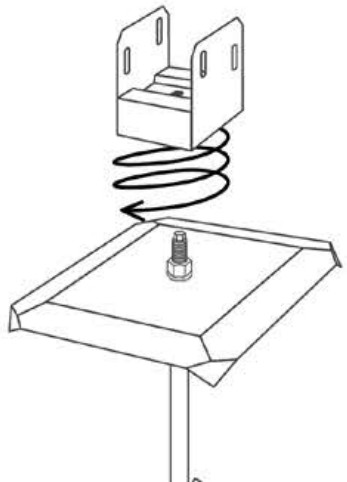
5

If you are using the later model of post bracket, fit the threaded stud through the elongated aperture in the channel of the post bracket and slide the post bracket horizontally until you have it where you want it. Then secure it in place by tightening the nut over the threaded rod sticking up into the channel.

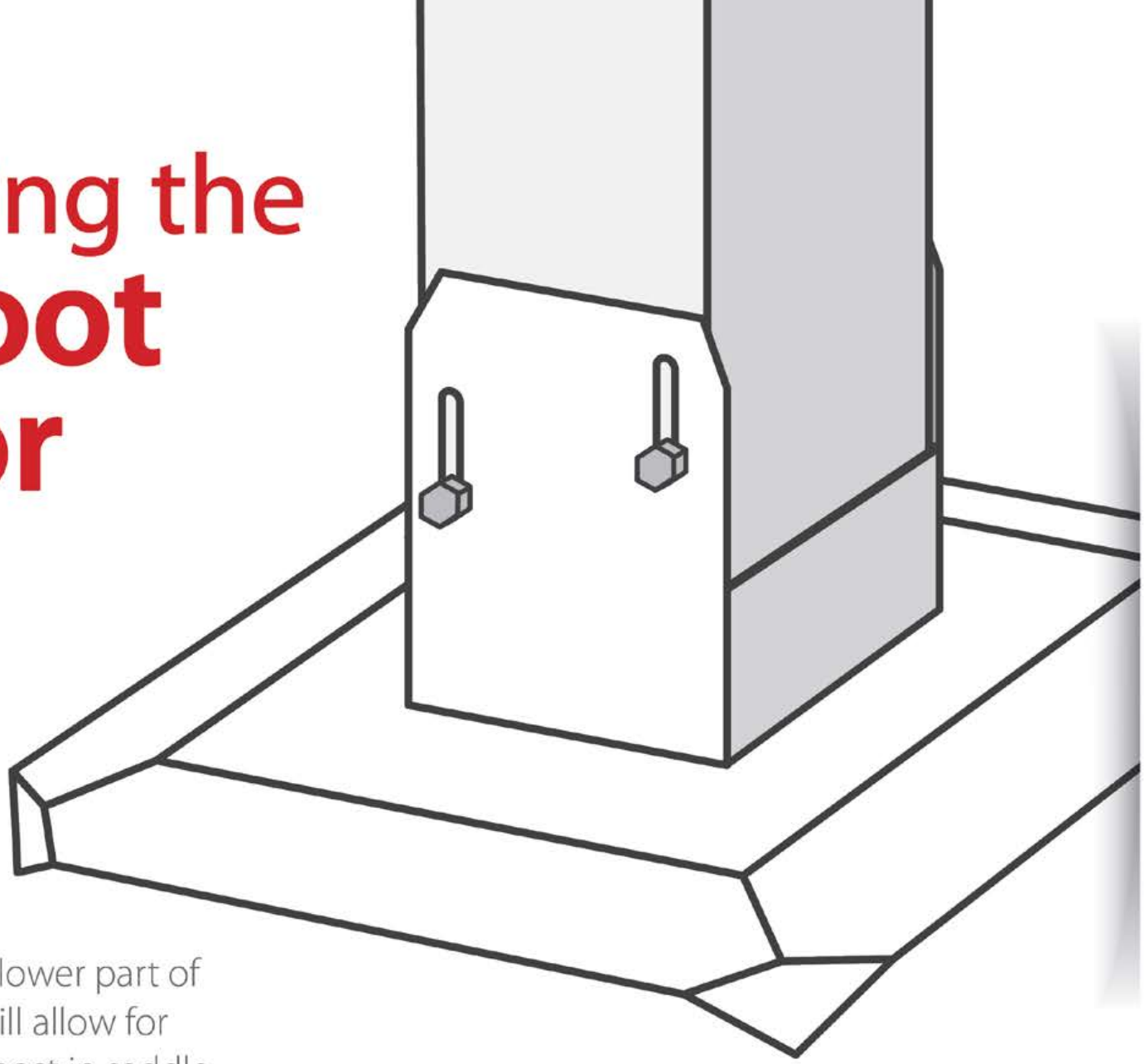




If you are using the original model of the post bracket, just turn the post bracket down onto the threaded stud sticking up above the load plate. There is a nut welded to the underside of the post bracket that the stud will feed into.



Installing the **Deck Foot Anchor**



6

Place the lag screws in the lower part of the elongated slots. This will allow for upward movement of the post in saddle if the soil under other footings moves during the winter. It will settle back down again when it thaws.

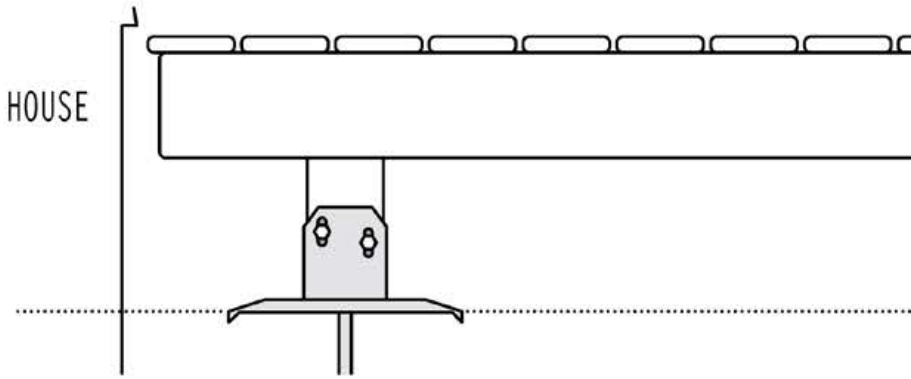
TITAN BUILDING PRODUCTS® THE ART OF BUILDING

Frost and the Deck Foot Anchor

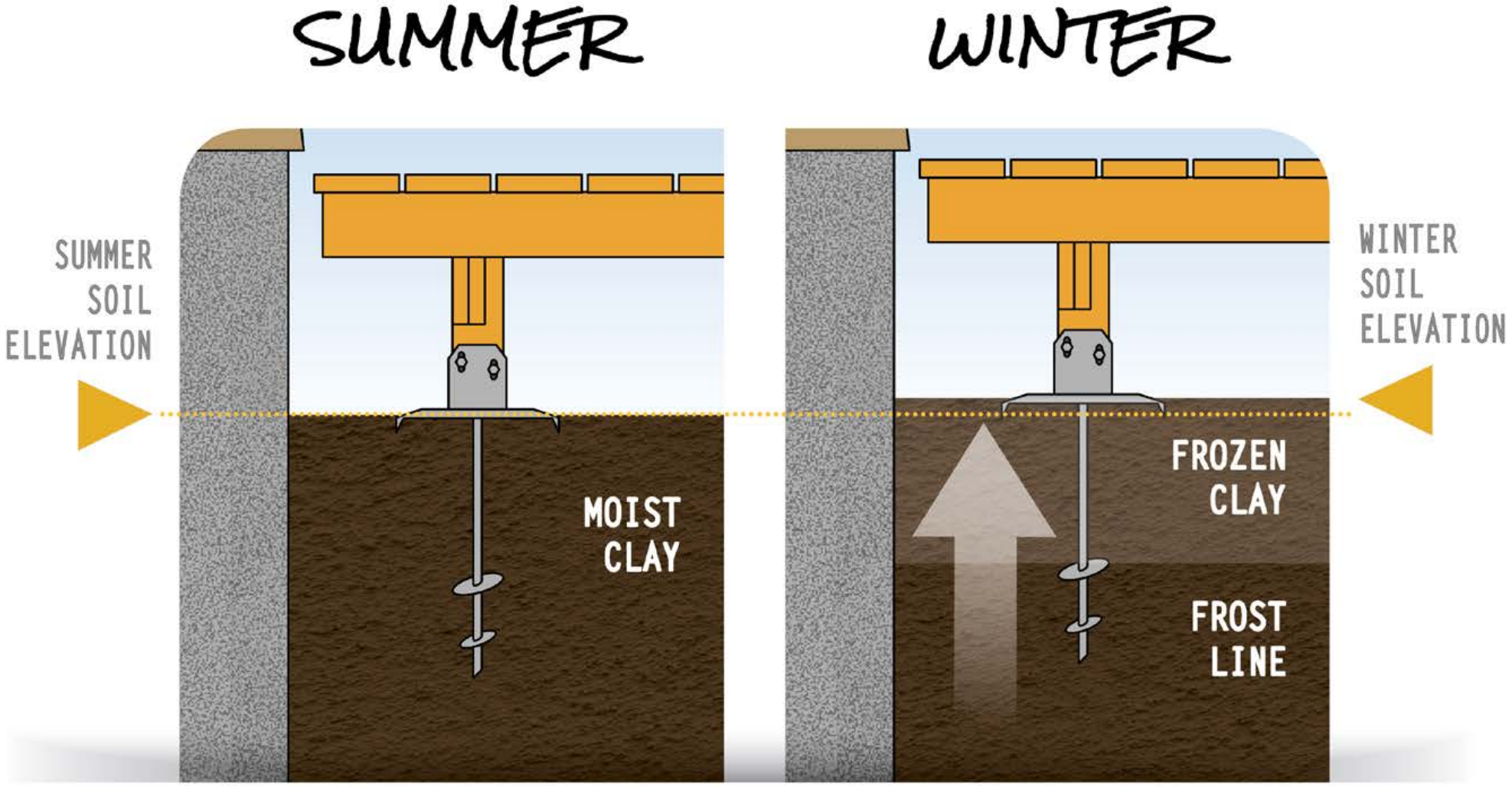
Let me clear up a common misconception right off the bat!

It's not a frost footing.

It's designed for use with floating decks.

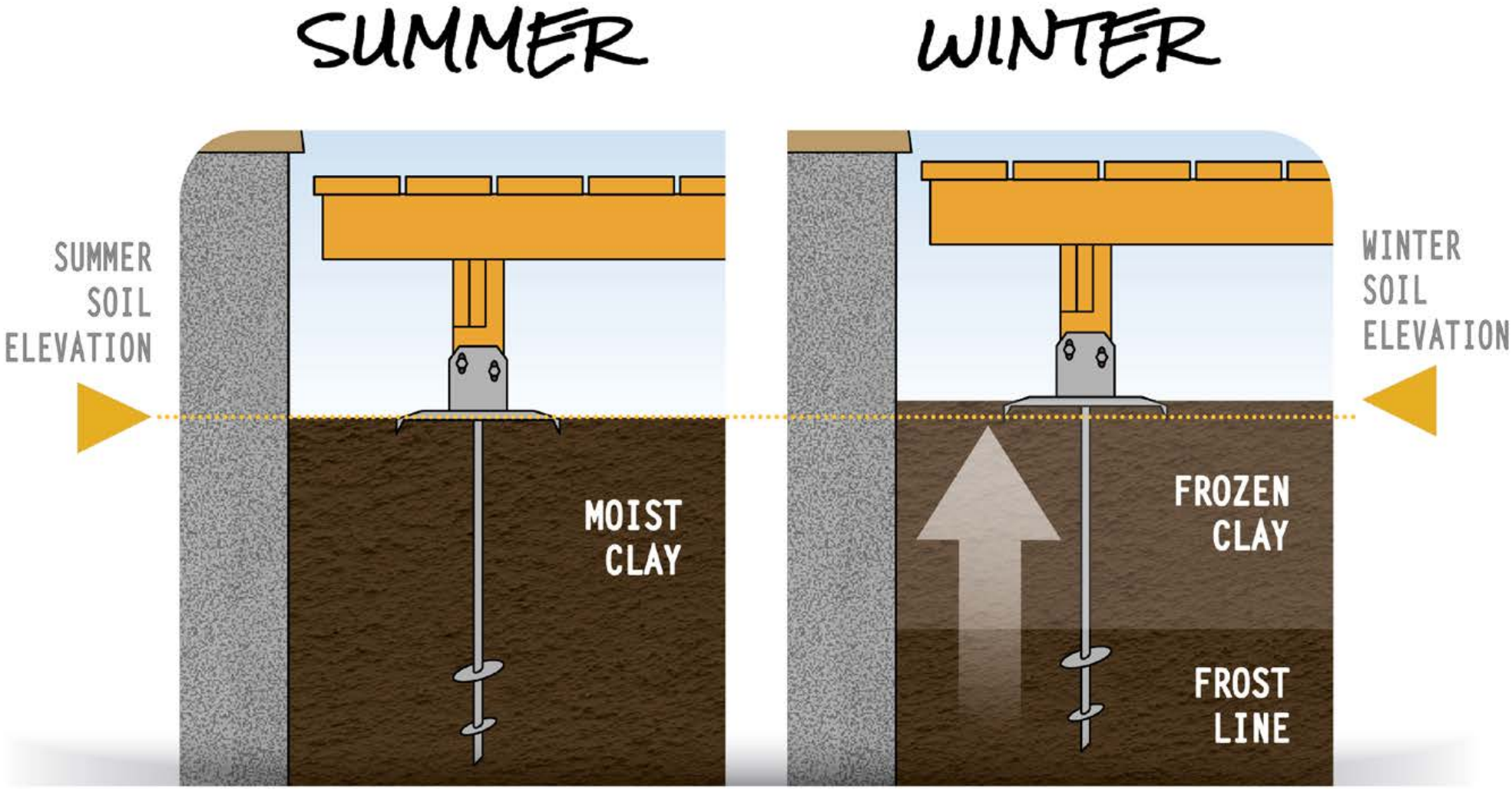


Floating decks are detached from the house.



24" Auger

In freezing soil conditions, ***people often think that using a 36"auger will prevent the deck from rising in the winter.*** But that is not what happens.

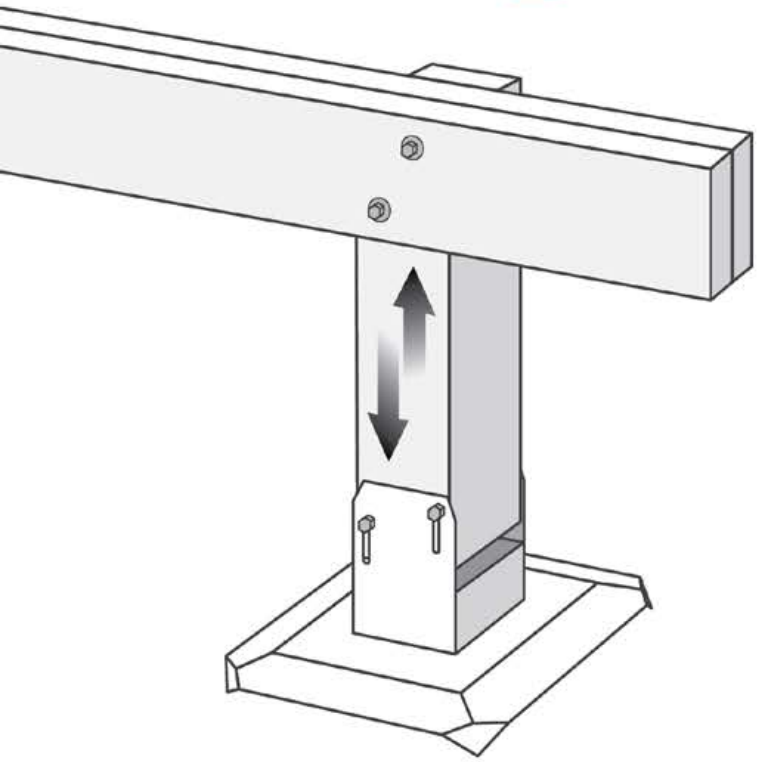


36" Auger

The load plate rests directly on the surface of the soil and it is like an elevator platform. Whether the blade of the auger is 24", 36" or deeper, down in the ground, the hydraulic force of expanding frozen water ***will lift anything sitting on it.***

Introducing *Terra-Shift™*

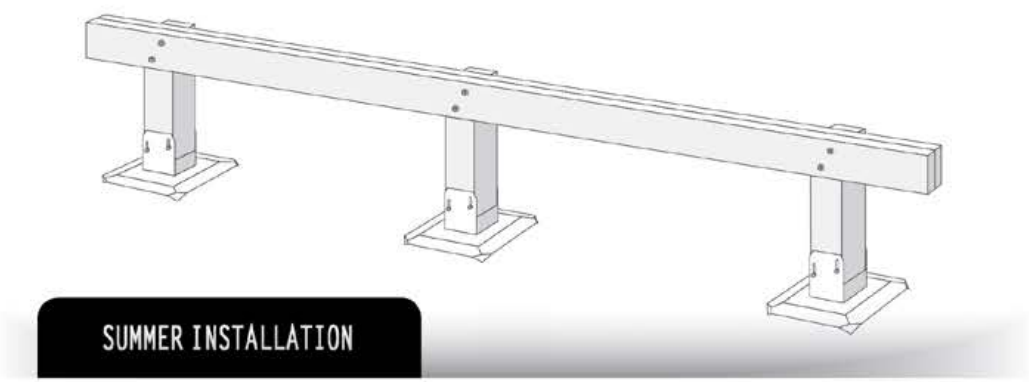
TERRA-SHIFT™ Technology

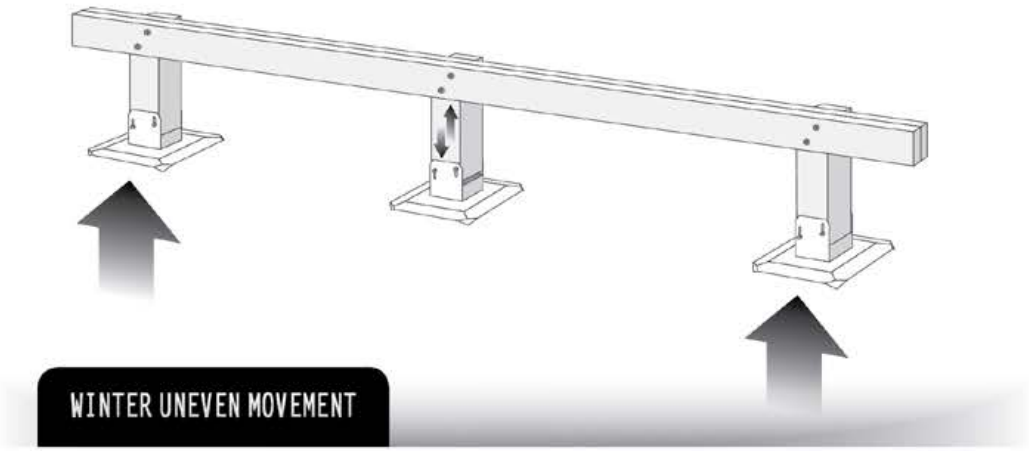


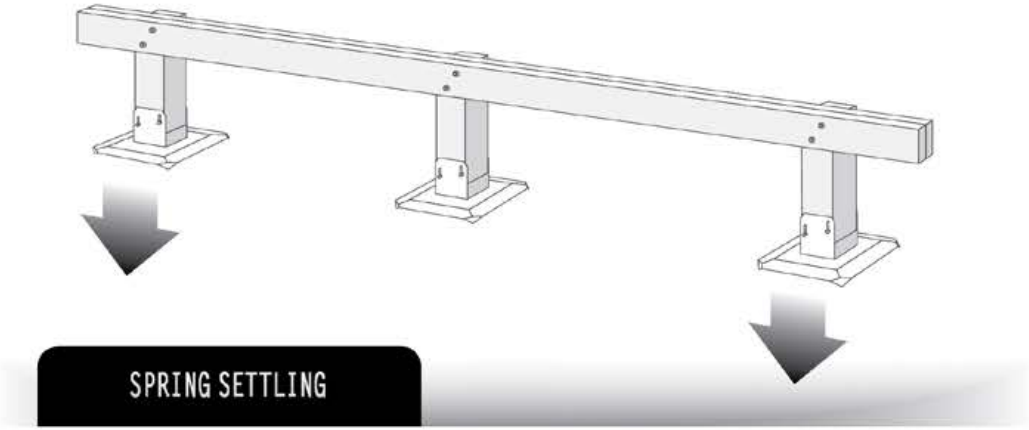
"A SHOCK ABSORBER SYSTEM FOR YOUR DECK"

The Titan Deck Foot Anchor™ uses our patented ***Terra-Shift™ post bracket system*** to help keep soil around the anchor undisturbed and prevent damage to all post and beam and other structural connections.

More beautiful decks... ***Real easy.***

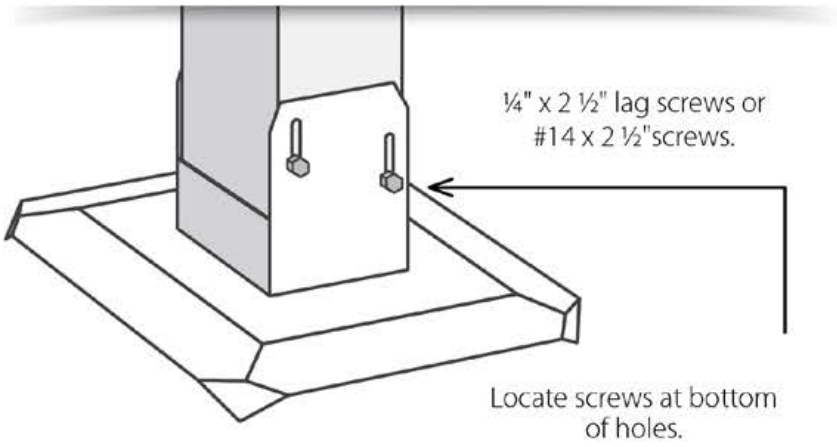






Here is how it works:

The fastener slide holes reduce friction between the post and bracket just enough so that if the soil shifts or expands unevenly along a series of footings under a beam, the post is free to slide vertically and then settle back to normal. It's like a shock absorbing system for your deck.



What length of **Auger?**

The augers are available in
24" and 36" lengths and here is what I recommend.

The **24"** Auger:

The 24" is in most cases what you should use. Driving the 24" auger into undisturbed clay can have a pullout resistance anywhere from 500 lbs to 1000 lbs or more. Your deck is not going anywhere anytime soon.

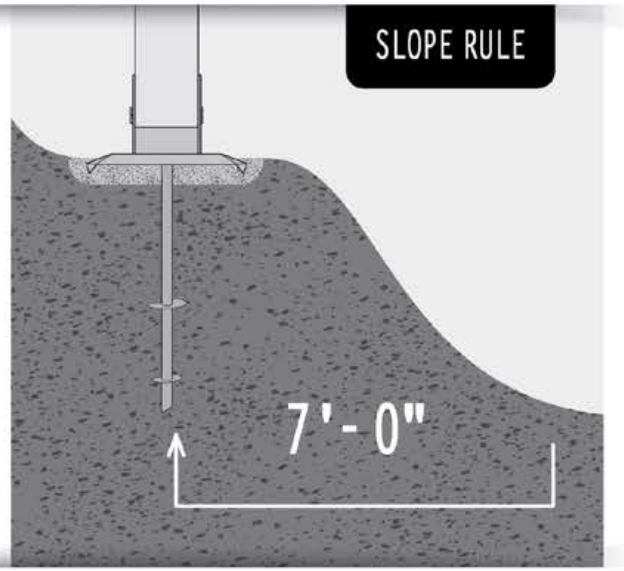
The **36"** Auger:

If you live in a tornado or hurricane zone and or have compact sandy soil you may wish to use a 36" auger and get greater pullout resistance. However keep in mind that with a longer auger there is a greater chance of hitting a rock or a root. So it is a tradeoff.

It Does Not Freeze Where I Live:

If your soil never freezes and is stable then theoretically you could connect the deck to the ledger and I have customers in places like California and Texas that do that. But all the same rules of never loading a footing more than the soil below it can support still apply. The only thing you should do is make sure your local building inspector is not going to ruin your day. If he or she is familiar with the sections of the building code that I refer to below then there should be no problem.

Lastly, if you are building on any kind of slope you should use a 36" auger and try to follow the slope rule .



Building Codes

People from all over North America use the Deck Foot Anchor™. That means the deck foot is on job sites from Alaska *(yes, way up north)*, to Saskatchewan, New Hampshire, Florida, Texas, California and all points between. So I have had to become familiar with building codes in both the USA and Canada.

INTERNATIONAL RESIDENTIAL CODE (USA)

Area And Height

Section R403.1.4.1 Exceptions 1-3 allow for light framed structures such as a deck up to 600 square feet to be supported on non-frost footings which a deck block or the deck foot anchor is.

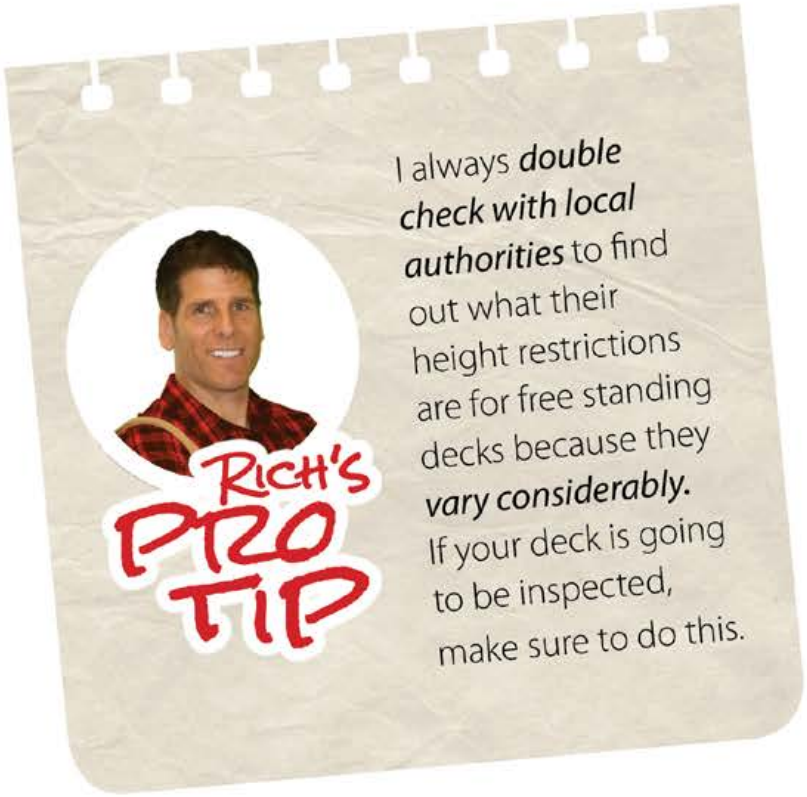
No height restriction is specified but I recommend keeping any floating deck six feet high or less provided there is sufficient post to beam or joist bracing to prevent swaying.

CANADIAN BUILDING CODE AND ONTARIO BUILDING CODE (CANADA)

Area And Height

Section 9.12.2.2 states that foundation depth requirements do not apply for decks and other accessible exterior platforms that are not more than 592 square feet (55 m2) where the distance from the finished ground to the underside of the floor joists is not more than 23-5/8" (600mm).

However, local building departments across Canada allow a wide variance from this and there are many cities that permit free standing decks up to 60" above grade.



I always ***double check with local authorities*** to find out what their height restrictions are for free standing decks because they ***vary considerably.*** If your deck is going to be inspected, make sure to do this.

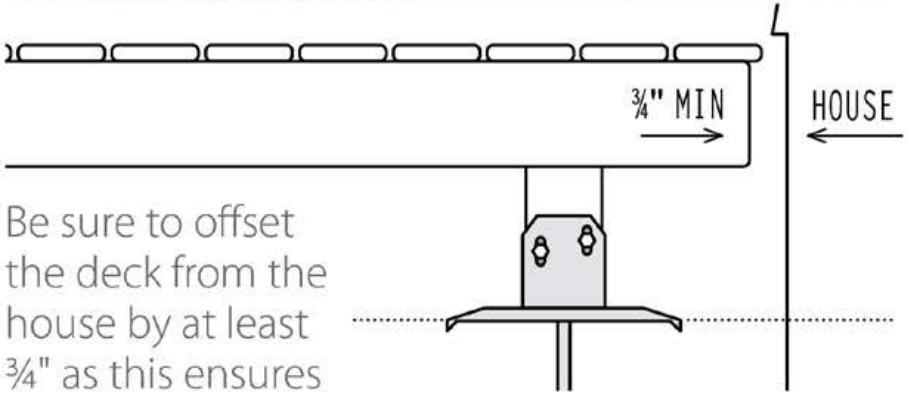
Number of **Footings to Use**

The Rule of Thumb to consider is ***6' from center to center.*** This assumes the ground has an average soil bearing capacity of ***1800 psf.*** And the IRC and most other residential building codes call for a design load of any floor deck (outdoor decks included) to be designed to support ***50 psf.***

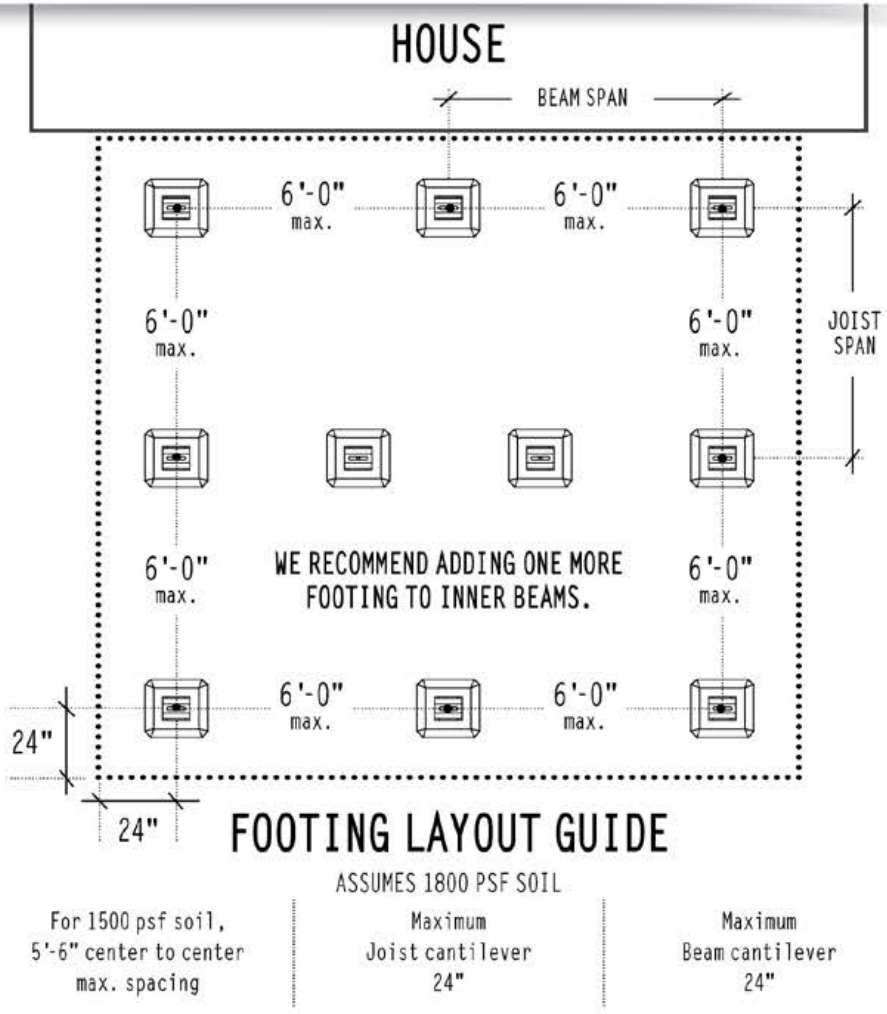
So with a 6'x 6' average tributary zone that is ***36*** sqft x ***50*** psf equals ***1800 psf. That is a great rule to follow.***

I like to recommend ***adding one extra footing along the central beam(s).*** That is because the zones in the middle of the deck always ***carry more load*** than the perimeter zones. This means you will never overload one footing and you will avoid having a footing settle in the middle of the deck.

Detached from the house



Be sure to offset the deck from the house by at least ¾" as this ensures that the deck is free to move up or down without damaging the envelope of your house.



Framing Different Types of Decks

1

Ground *Level Decks*

Here is how I frame and brace different styles of free standing decks to take advantage of the benefits that the Deck Foot Anchor™ allows.

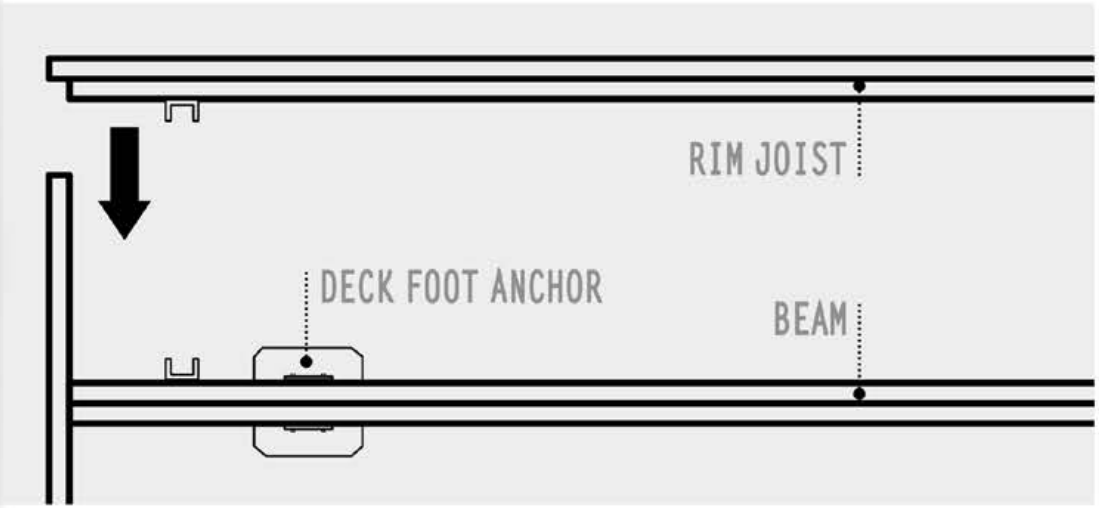
TITAN BUILDING PRODUCTS® THE ART OF BUILDING

1 **Ground** *Level Decks*

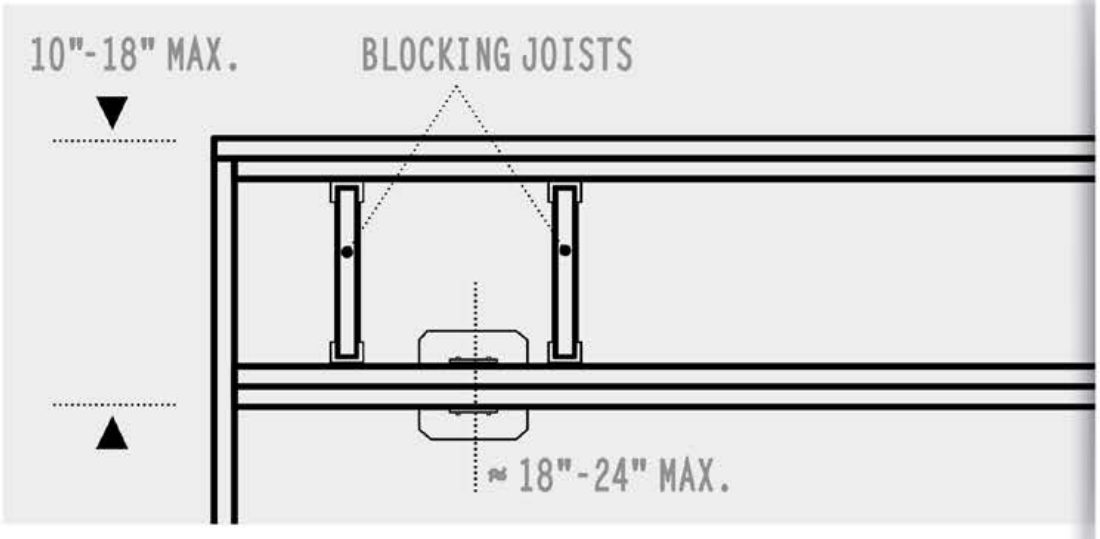
EXTENDING FRAMING BEYOND PIER OR DECK FOOT ANCHOR.

Beam set into post Bracket of Deck Foot Anchor.

1 Ground *Level Decks*

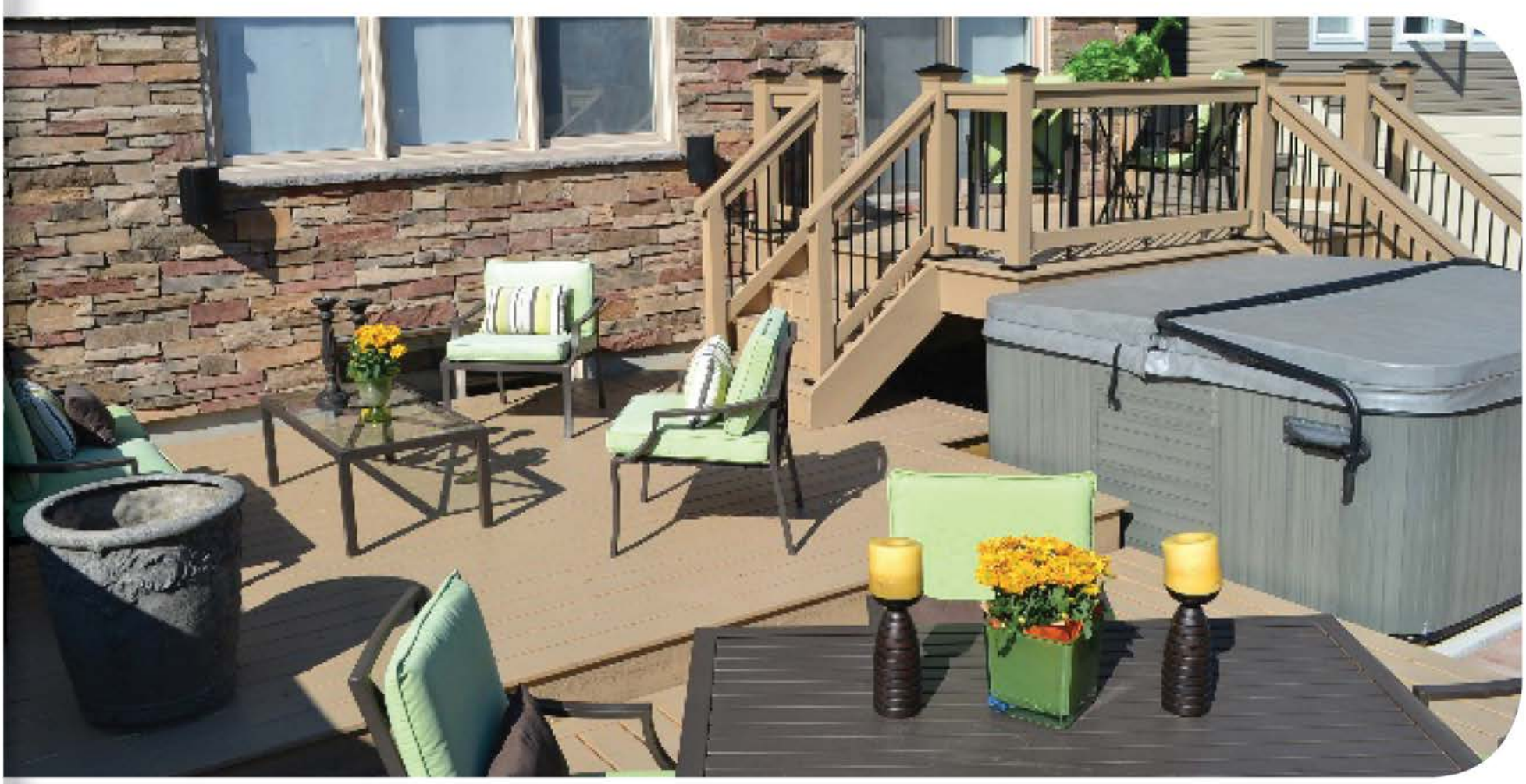


TOP VIEW



TOP VIEW

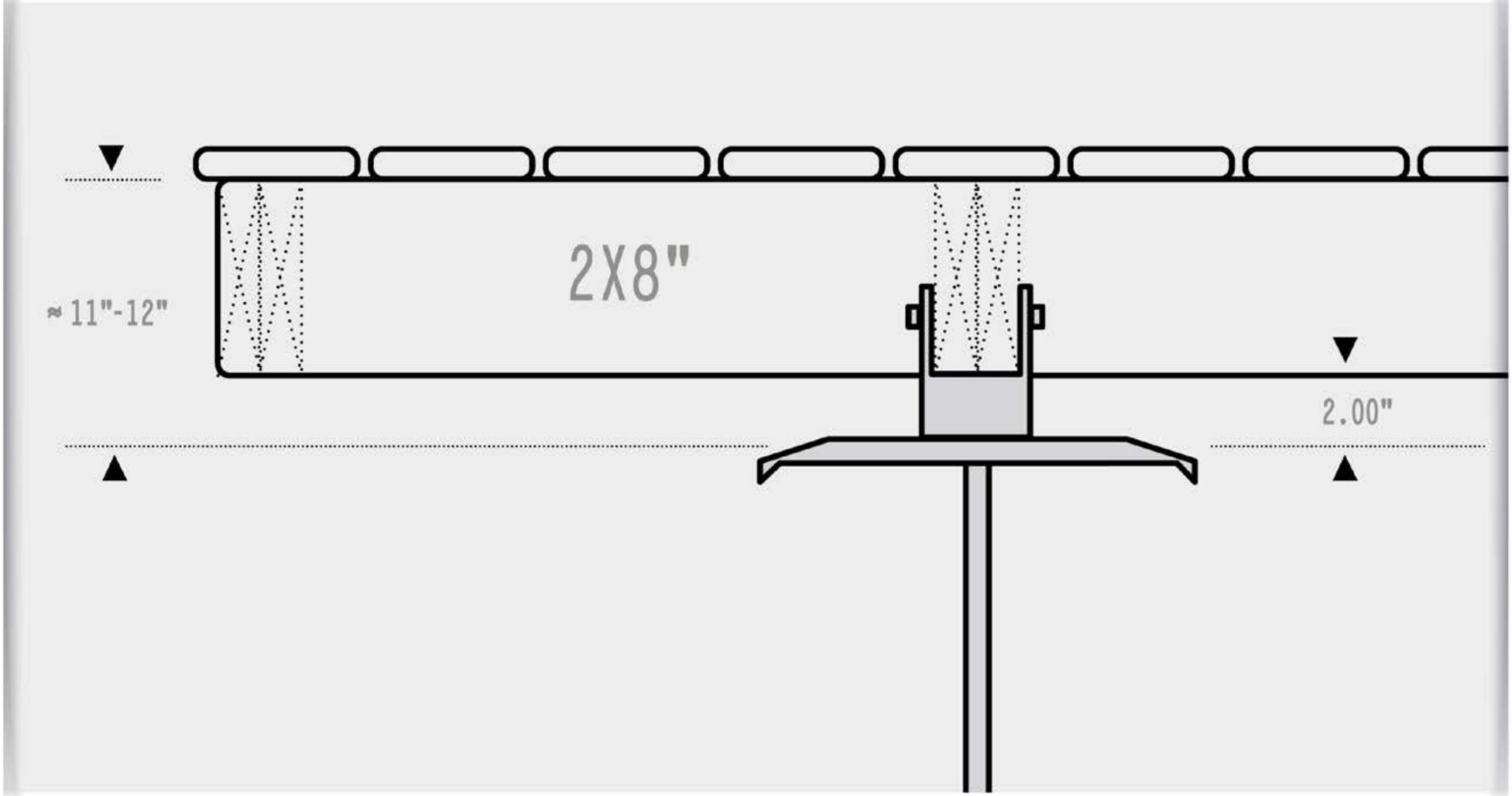
2 **Multi** *Level Decks*



Here is a beautiful job I did at my house with the main floor about 48"above grade. It has three levels that link together and wrap around a hot tub.

1 Ground *Level Decks*

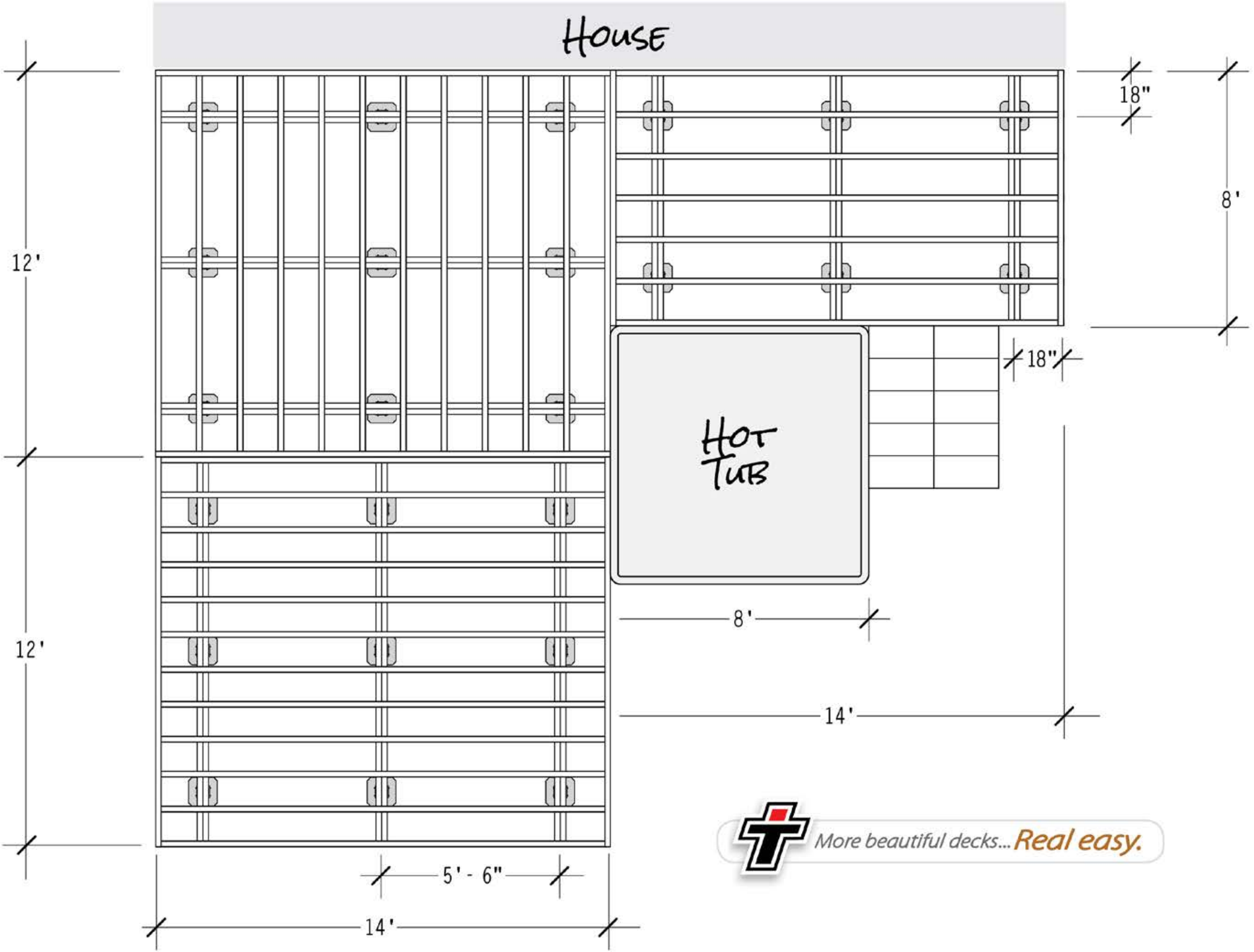
More beautiful decks... Real easy.



THE FINISHED ELEVATION VIEW

This framing technique leaves you with a lovely deck that appears to be hovering above the grade and shows no hint whatsoever of the Deck Foot Anchor™

It's over 400 square feet with twenty-four footings so this would have been a massive excavation job and the house was already finished with ledgestone masonry so I would have had a major task and expense trying to ledger connect this deck.


House
12'
12'
18"
8'
18"
Hot Tub
8'
14'
5' - 6"
14'
More beautiful decks... Real easy.

Here's the multi-level deck job site at my house...

before I began building.

Deck Foot Anchor to the Rescue!

You can see there are twenty-four footings. The soil on this site was solid clay. Nice clean clay and virtually no rocks. So this was an ideal site. You may not be so lucky. Lot's of rocks and roots may mean the only option is hard digging.

Using Elevation Changes to *Enhance Privacy and Visual Interest*

At 48" coming off the back patio door, the first deck is quite visible to all the neighbors and will be that way until the trees grow tall enough to offer more privacy.

Carrying on with this idea of changing the decking direction from one deck to the next, I had to also alternate the beam orientation from parallel to perpendicular. Here is the job site once the footings were down and the beams were in place.

2 Multi *Level Decks*

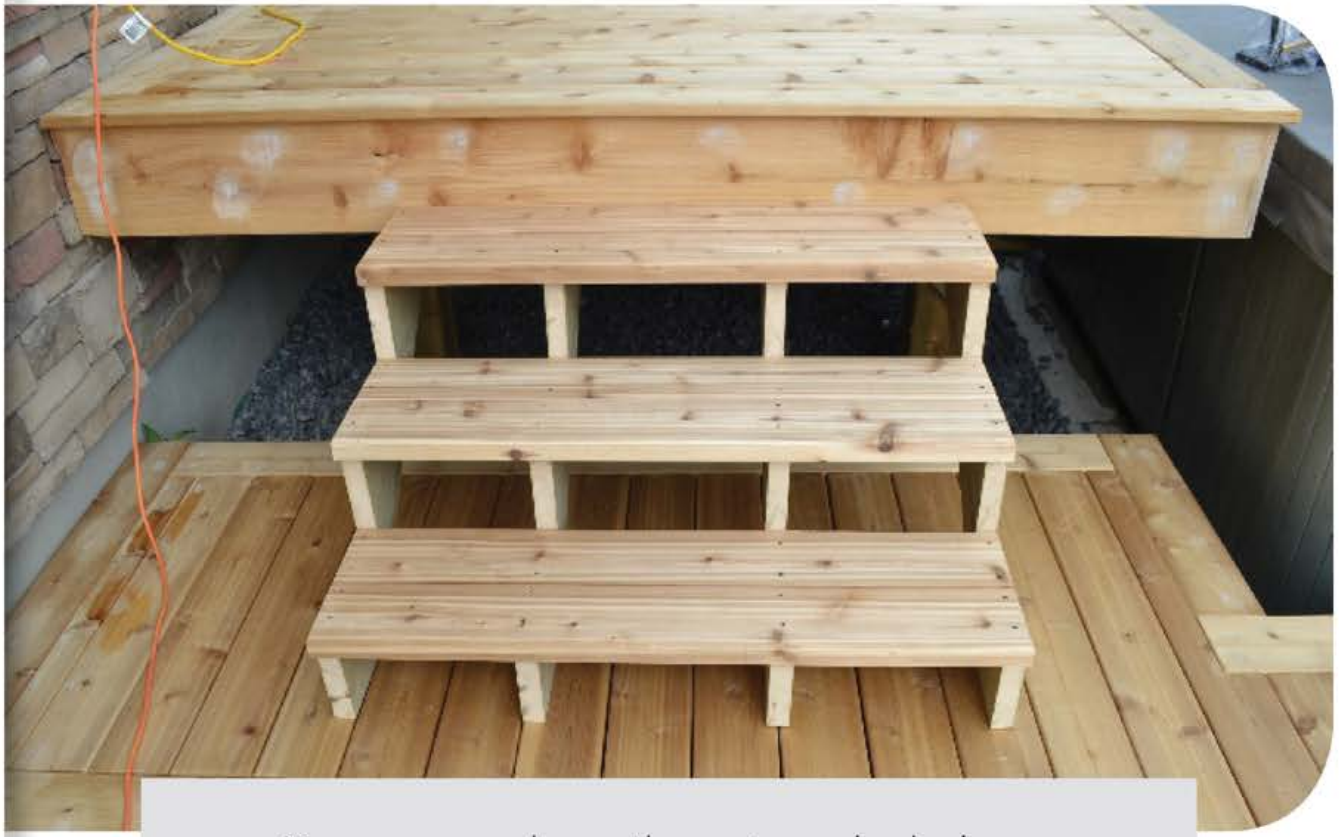
More beautiful decks... Real easy.

So one design tip I like to share with folks is to use multiple elevations to create lower level decks that are below the fence line so you have more privacy and to create multiple decks with opposing decking direction to create visual interest. It also really contrasts each deck or area with the next.

And with the Deck Foot Anchor™ making it so easy to install footings, you can go wild in your design and put various deck shapes against each other to create the backyard oasis you really want without worrying about all the time it would take to dig many of these various footing configurations.

This beautiful contrast is even more obvious when you see

stairs connecting the two decks.



You can see how these two decks have
decking running at perpendicular angles.
It clearly distinguishes one deck from the next.

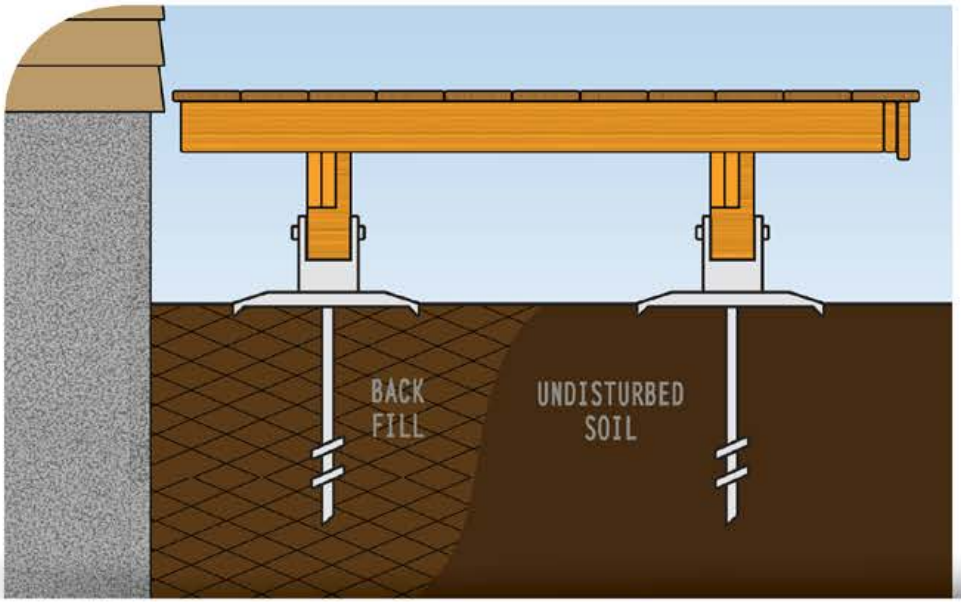
Each adjacent deck had beams running perpendicular to the next. This allowed me to run the decking at perpendicular angles to the next which is a very simple way to create visual contrast and make your deck, especially a big one like this look really nice.

Bracing.

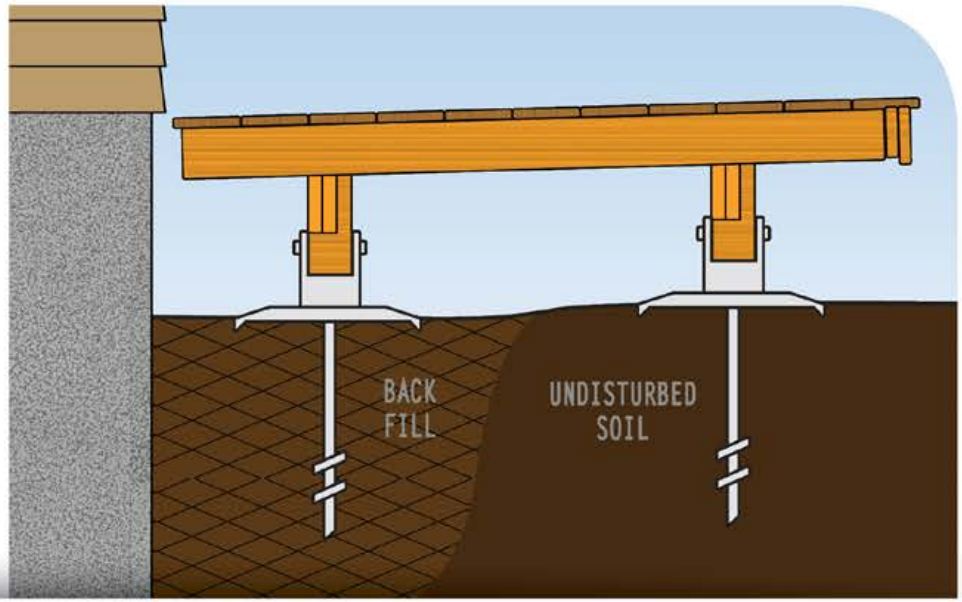
Any deck 24" or more above grade needs to be braced to prevent any swaying. This is essential for free standing decks because they are not connected to the ledger of the house. *This relatively small 12 x 8 upper deck was a solid as a brick house once these braces were installed.*

Building on **Disturbed Soil**

JUST BUILT IT... IT'S LEVEL



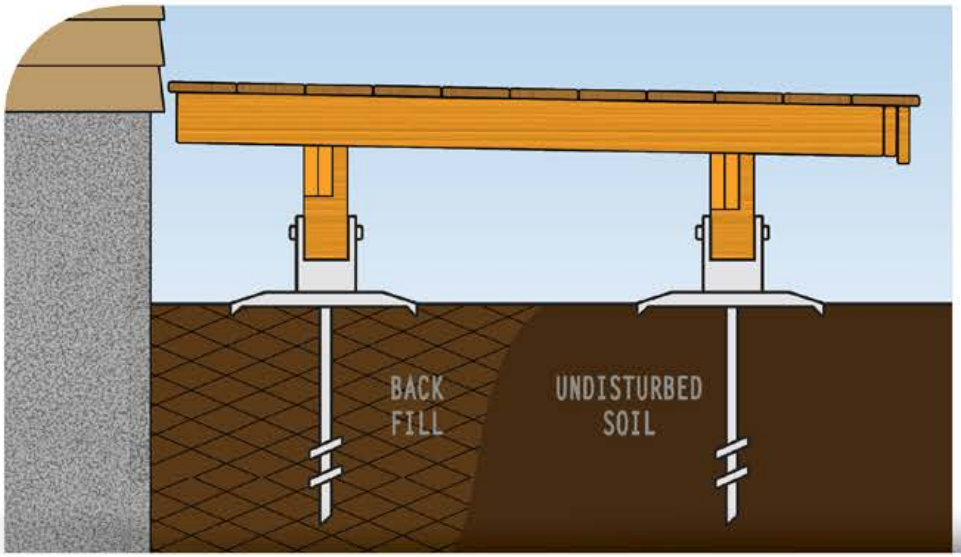
ONE YEAR LATER.... WHAT HAPPENED?



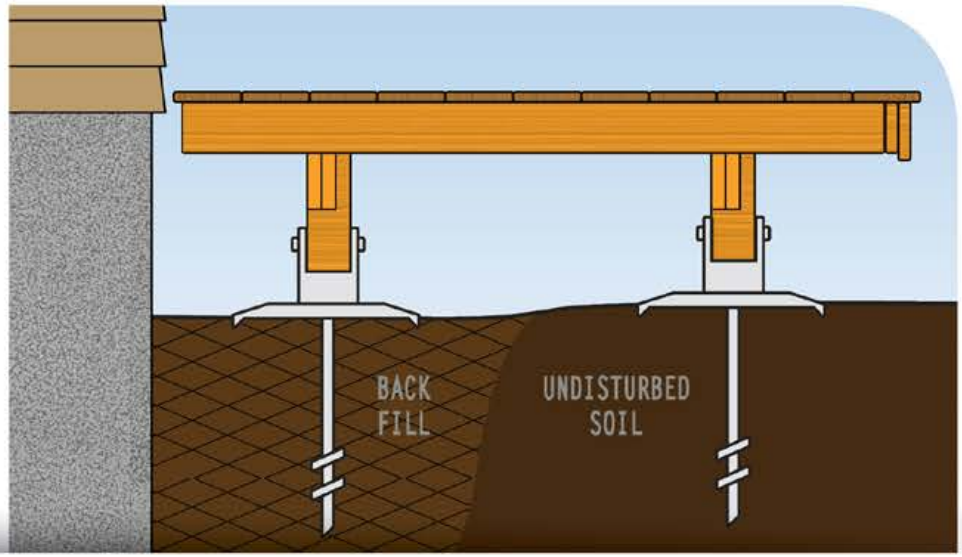
Ideally, you should build on undisturbed soil. But if you must build on disturbed soil *(which includes the back fill zone around a home)* you have to be prepared for settling of the soil. And this means a deck that may be perfectly level at the time of construction might be an inch lower and sloping back towards the house one or two years later.

How do you **prevent this?**

JUST BUILD IT WITH SLOPE



ONE YEAR LATER..IT'S BACK LEVEL



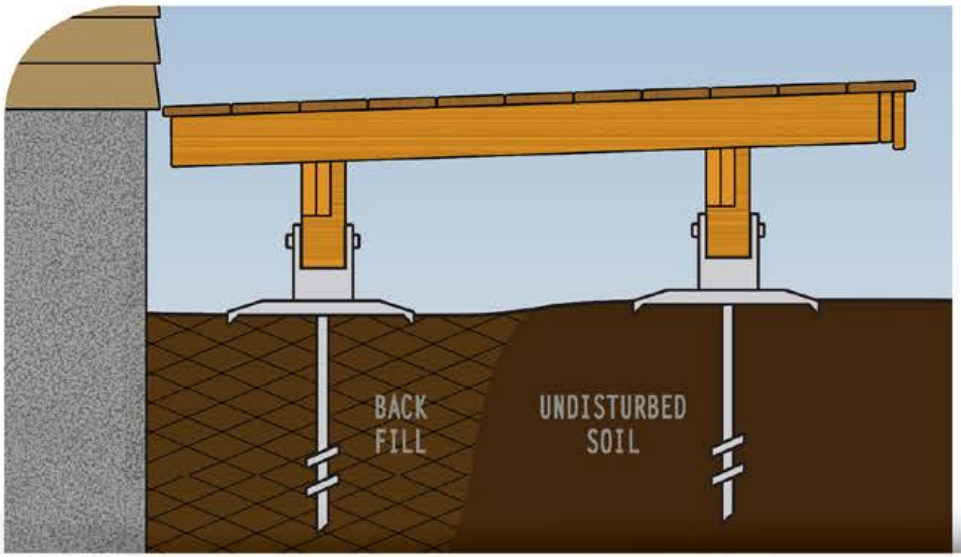
SLOPE THE DECK A BIT MORE THAN USUAL.

The simplest thing to do is slope the deck a bit more aggressively than you normally would for typical water egress. Then when the soil settles the deck comes to rest at the desired slope.

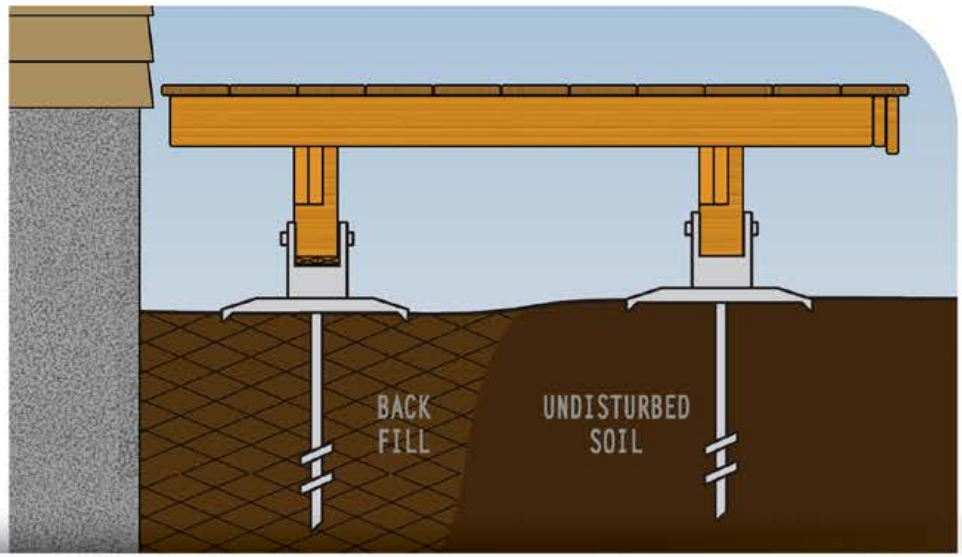
Building on **Disturbed Soil**

IF THAT DIDN'T WORK?

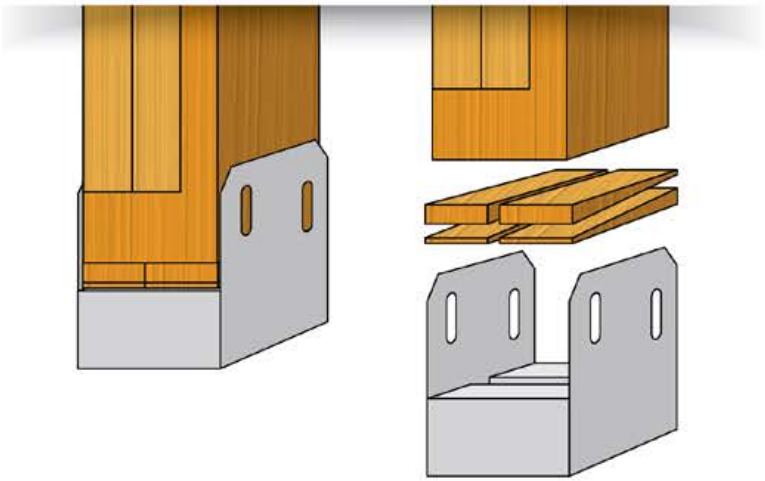
STILL SINKING?



TRY SHIMS... IT'S BACK LEVEL



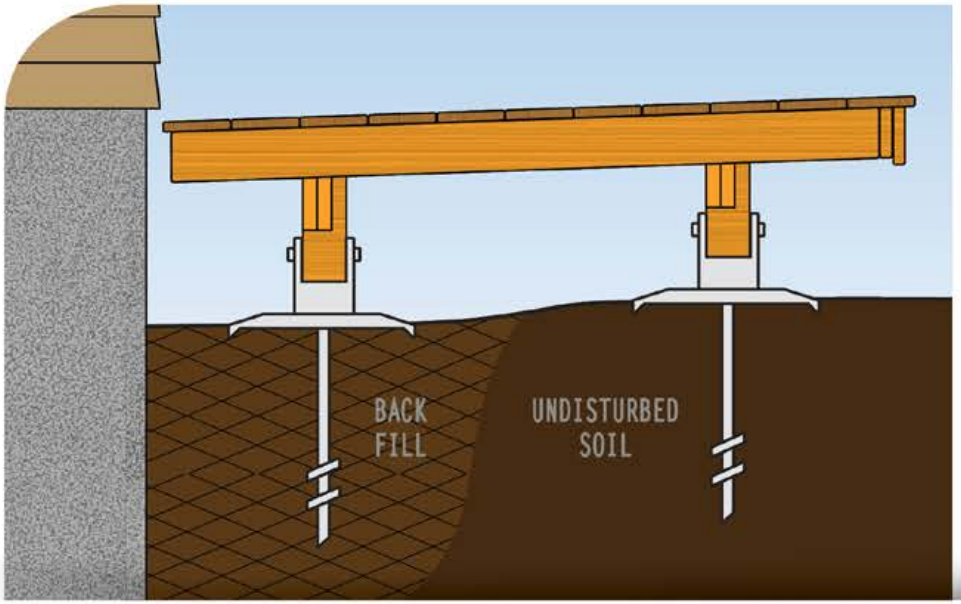
If you do not do this and the deck settles significantly the only other option is to jack up the deck and shim under the post in the saddle. But if the settling is severe and more than a few shims cannot fix it, you will have to install a taller post.



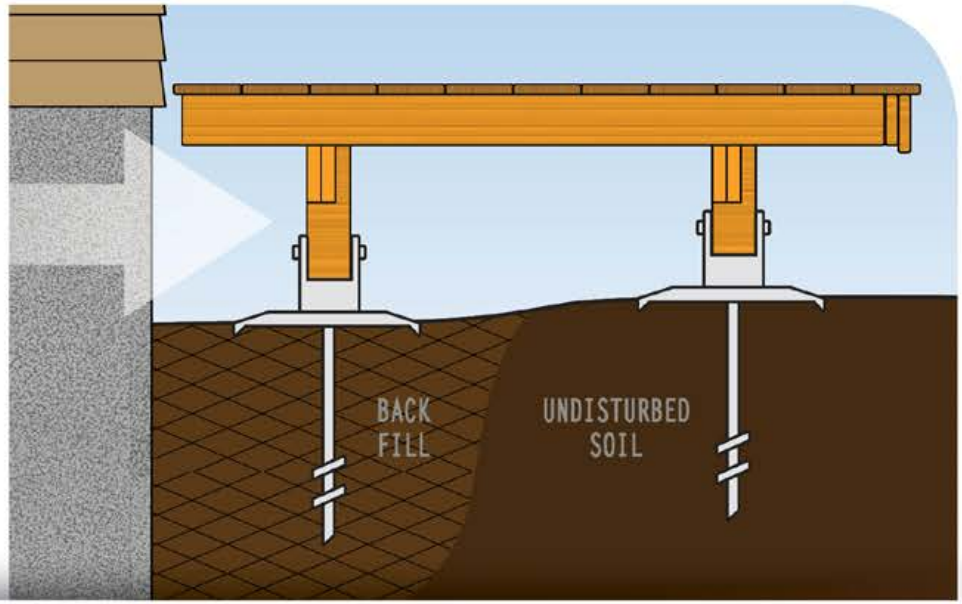
More beautiful decks... *Real easy.*

...AND IF THAT DIDN'T WORK

SEVERE SINKING?



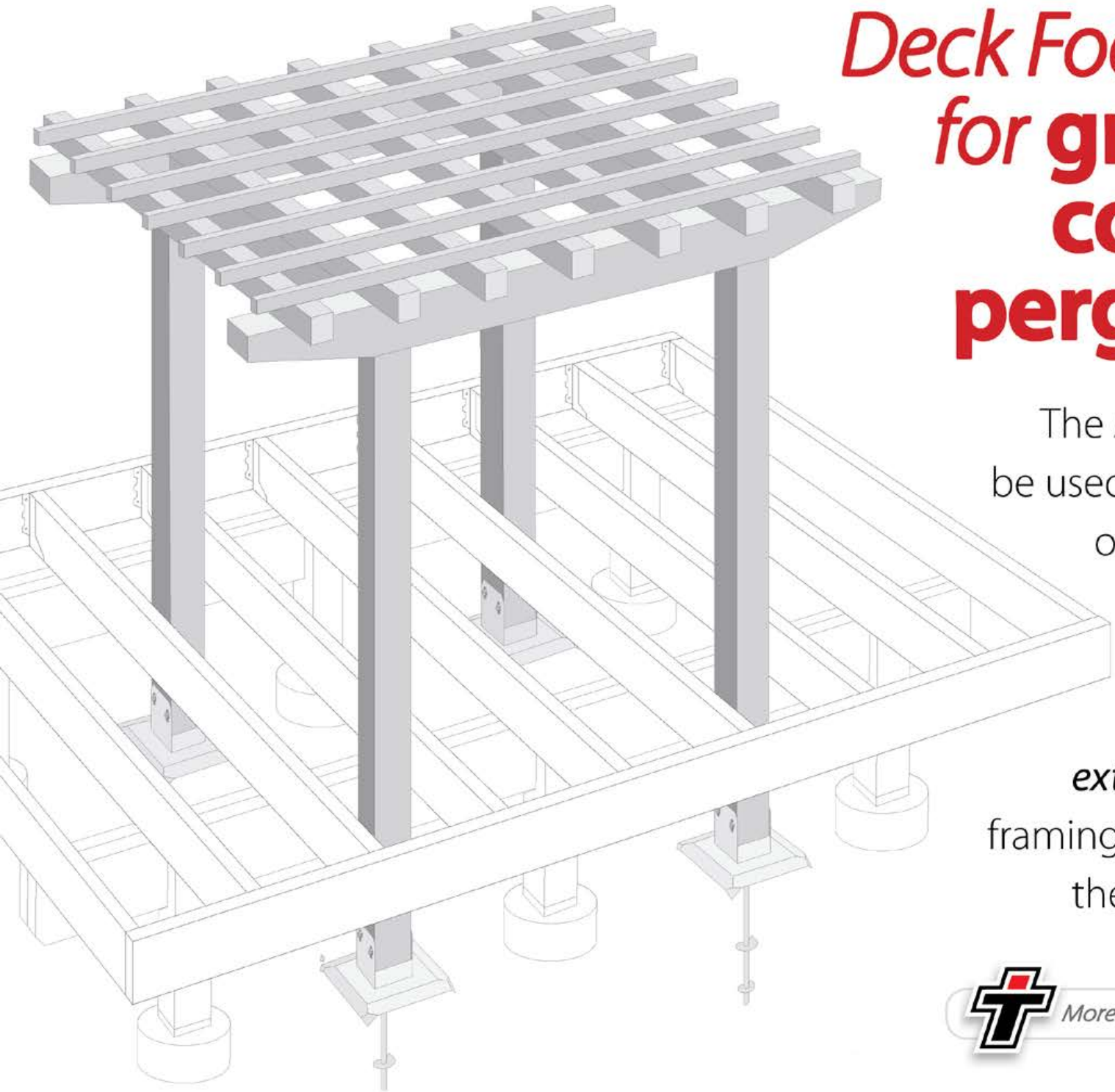
TRY LONGER POST... IT'S BACK LEVEL



Remove support post and install
a longer support post.

To avoid all this just build on soil that's settled (undisturbed soil).


Why Not Build a Pergola Like I Did?



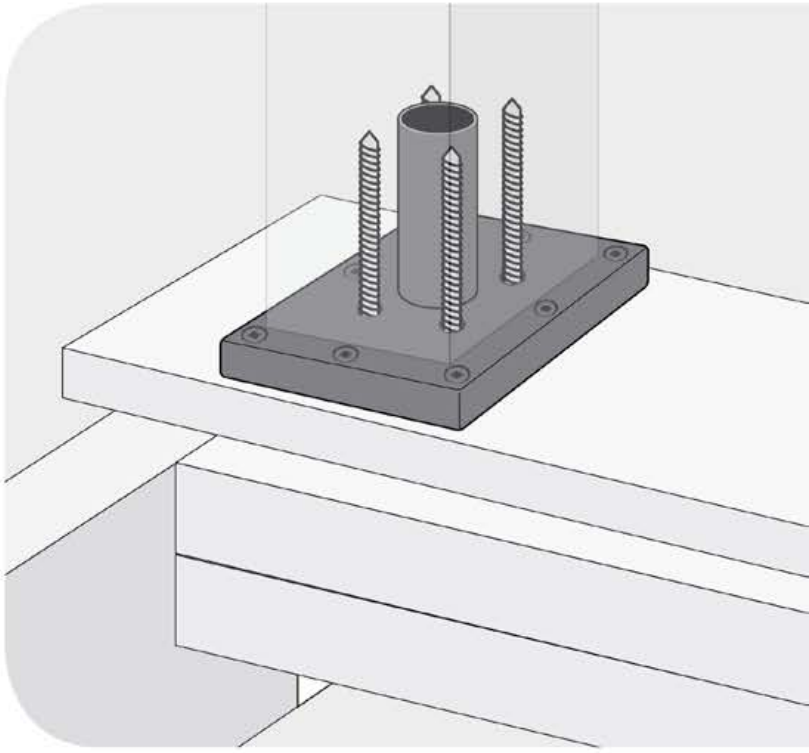
Deck Foot Anchor for **ground connected pergolas.**

The ***Deck Foot Anchor*** can be used to ***support a pergola*** on the ground ***without having to dig pergola footings.*** The posts for this pergola ***extend through the deck*** framing to the ground where the Deck Foot Anchor is.

More beautiful decks... Real easy.

Or try a **surface mounted solution** *to the deck...*

Did you know you ***can easily surface mount the support posts*** of a pergola to a deck like this using a couple of my post anchoring solutions? ***Surface mounting saves you a lot of hassle and labor*** because all you have to do is ensure that there is sufficient blocking in the joist bay below each post.



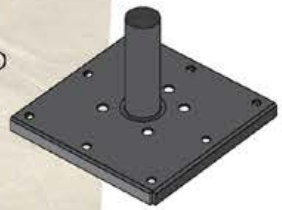
SOLUTION: 1

Surface Mounted Titan Wood Post Anchor.

You may already be familiar with this post anchor. It's our entry level post anchor and is a real work horse. It's also the easiest and fastest to install. Most of the anchor is hidden inside the post and all that is visible is a low profile base.

RICH'S PRO TIP

I really like to use the ***6x6 post anchor for pergolas*** because it does ***provide more lateral resistance*** to the posts. Plus the 6x6 posts have the right weight and size to them and ***the proportions of the pergola look just right.***

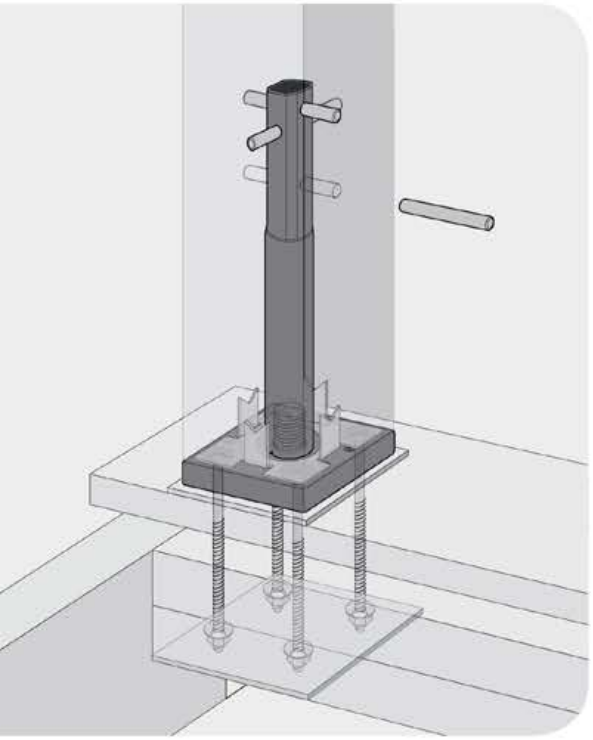


6X6

More beautiful decks... *Real easy.*

SOLUTION: 2

Surface Mounted Structural Wood Post Anchor Kit.



If you have bigger plans and need the structure to be stronger than you can normally achieve by bracing the posts to the beams and roof joists, then you might want to consider our ***Evolution Structural Post Anchor.*** This is the smallest but strongest surface mounted post anchor on the market. It fits entirely under the base of the post with no visible fasteners. Be sure to get the ***Wood Install Kit*** with it.

More beautiful decks... ***Real easy.***

Upgrade your **Wood Railings Faster** *and* **Easier** *with an* **Elegant Aluminum Baluster System.**

Aluminum balusters are a ***low maintenance*** and ***stylish option for any wood deck***. Unfortunately installing the traditional plug style systems are a hassle. But I have a sideways installed system called the ***Snap 'n Lock™ Baluster Kit*** that installs twice as fast, looks luxurious and makes future maintenance a breeze. Be sure to check it out.

Sideways installation... faster than any other system!

More beautiful decks... *Real easy.*

KIT INCLUDES 20 CONNECTORS
AND FASTENERS FOR 10
SNAP 'N LOCK BALUSTERS.
COVERS 4 LINEAR FEET.

PATENT PENDING

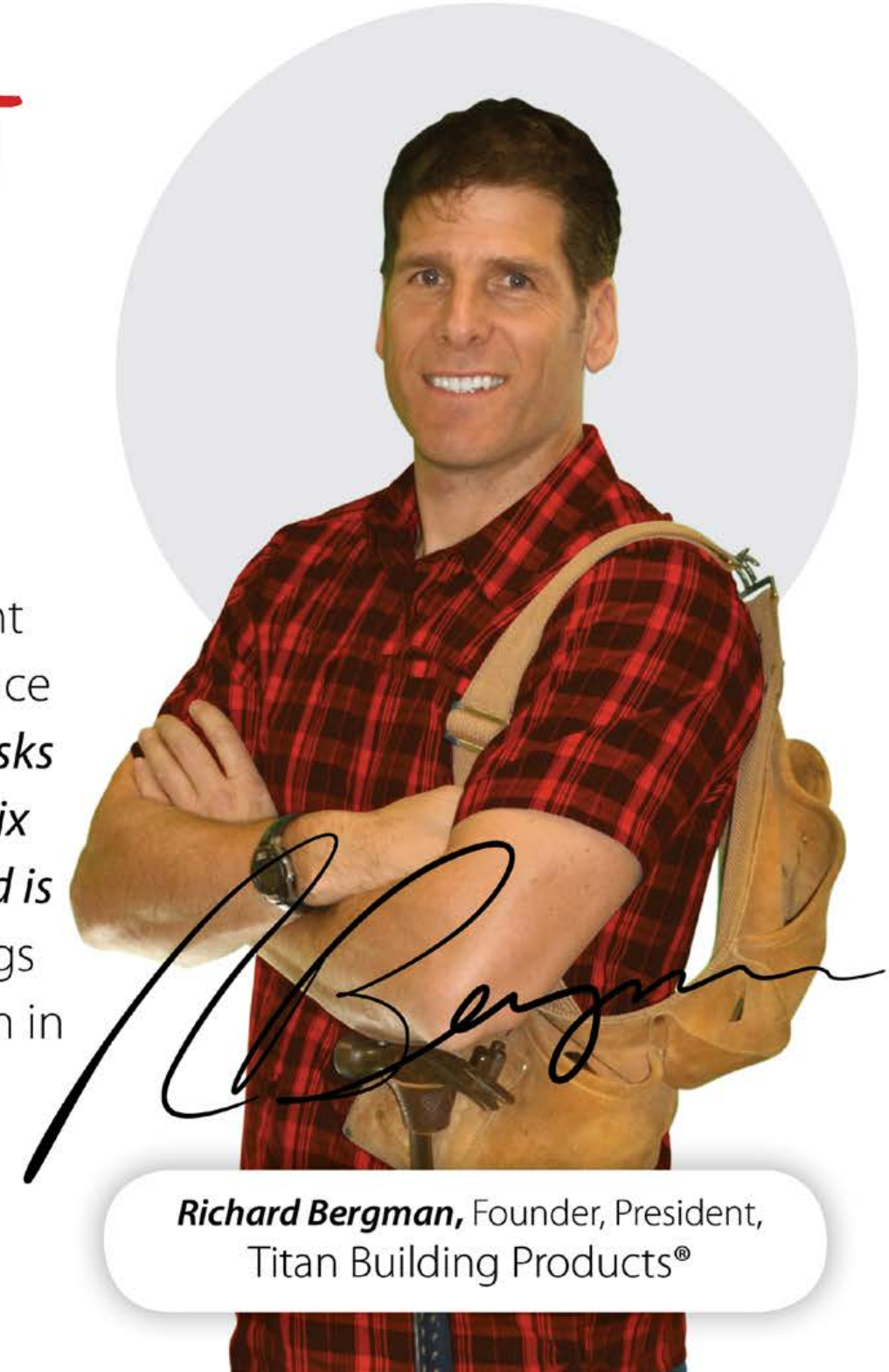
SNAP 'N LOCK BALUSTER KIT™

PRO

More beautiful decks... Real easy.

You're All Set.

If you follow these tips and use the right tools you will have a wonderful experience using them. I have tried to explain ***the risks and the pitfalls like not using a proper six point socket*** or ***finding out your backyard is full of rocks or roots.*** These are the things that can go wrong. And the only solution in that scenario is a lot of elbow grease.

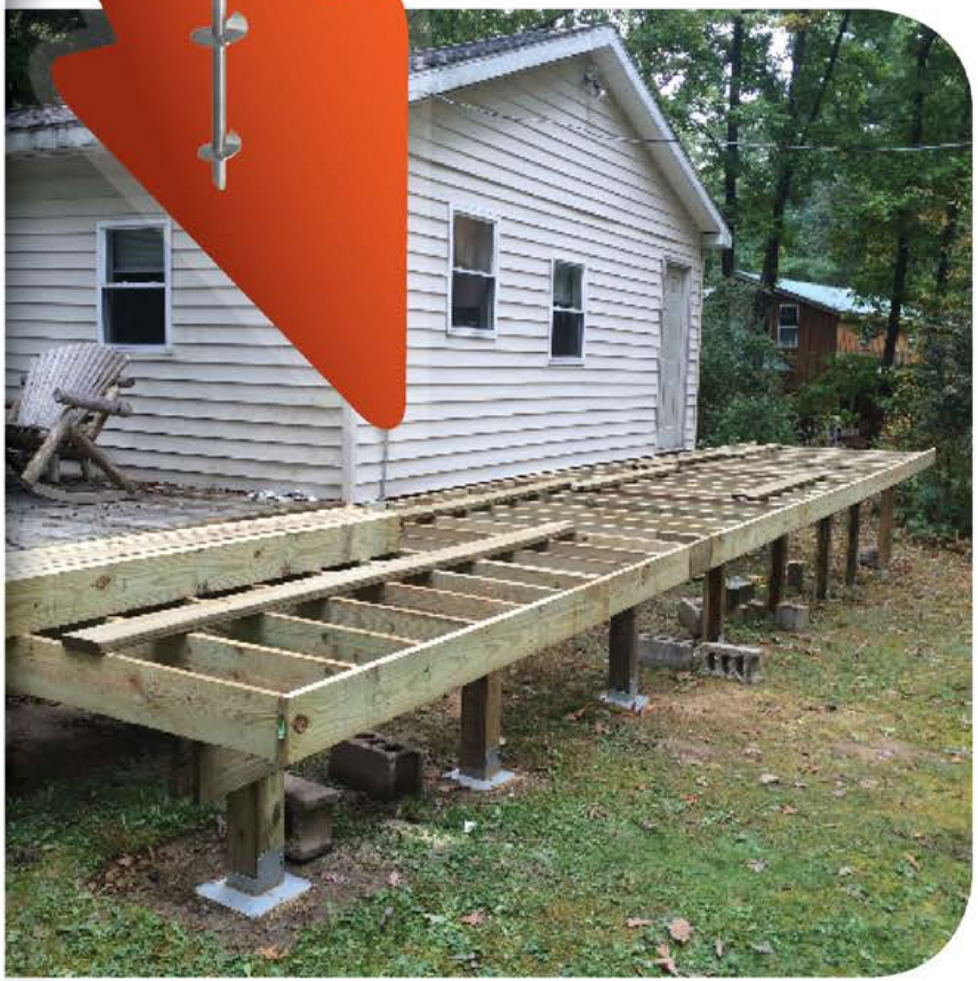


Richard Bergman, Founder, President,
Titan Building Products®

TITAN BUILDING PRODUCTS® THE ART OF BUILDING

But more than likely you will end up like many of my very happy customers

LIKE THIS FELLOW...



"Your Titan anchors are awesome to work with. I wanted to wait a full year before reviewing, and I can say it's the best post anchoring system I've ever used. Even in my younger years the fastest I could drill 32 holes and set 32 posts with concrete would have been 4 or 5 days. I did all 32 with your product in one day, allowing me to knock out the beams and joists in the same weekend."

"Couldn't be any more satisfied. Rarely does a product do exactly what you think it will do, but your does. It allowed me to finish my project in record time, and it is solid as a rock."

Tim Doyle - *Pittsburgh, PA*

More beautiful decks... Real easy.

Compare footing and installation costs with The Deck Foot Anchor and SAVE!*

--- EXPECT TO PAY ---

$137.80 PER FOOTING

QTY	ITEM	UNIT PRICE	SUB TOTAL
22	21" DIA. BELL SHAPE FORMS	20.00	440.00
22	10" DIA. -3 FT. SONOTUBE PIER FORMS	2.75 PER FOOT	181.50
22	6X6 U SHAPE POST ANCHORS	25.00	550.00
16	PRE-MIX BAGS CEMENT - 190 CU. FT.	4.00	760.00
	MIX ALL THE CEMENT AND DIG 22 HOLES YOURSELF >	SUB TOTAL	1 931.50
22	21" HOLES DUG BY CONTRACTOR	50.00 PER HOLE	+1 100.00

TOTAL $3 031.50

--- *BASED ON 22 FOOTINGS.---

$63.00 PER FOOTING

QTY	ITEM	UNIT PRICE	TOTAL
22	TITAN DECK FOOT ANCHORS	63.00	$1 386

UP TO 55% LESS.