
866.332.2403 (TOLL FREE); 7am – 7pm Pacific Time, Monday-Saturday

STAINLESS STEEL ANCHORING OPTIONS



CONTENT

I. PAVILION/PERGOLA POST ANCHORING	1
A. Option 1: Standard Anchor Kit	1
B. Option 2: High-Wind Anchor Kit	4

I. PAVILION/PERGOLA POST ANCHORING

All posts should be attached to the ground. Below are the most common scenarios.

To anchor the posts, you need metal anchors and bolts. Our anchor kits, whether for concrete or wood decks come with everything you need to attach your structure securely.

A. Option 1: Standard Anchor Kit

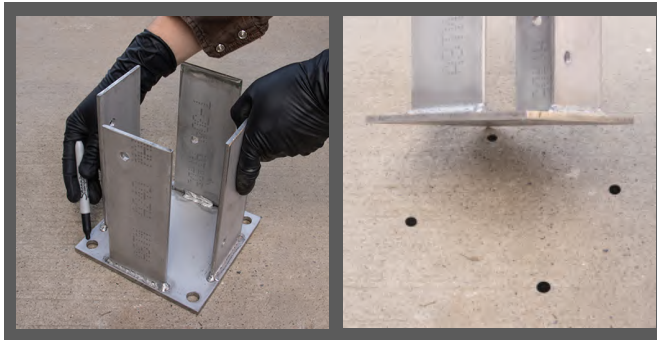
The stainless steel anchors sit on the surface and attach using either 4 expansion anchor bolts (for concrete) or 4 lag bolts (if attaching to a wood deck). The posts sit in the anchors and are attached to the anchors with lag bolts provided. A wood trim box is included to hide the metal from view (see anchor kit installation images below).

For paver, stone or flagstone patios we don't recommend attaching directly to these surfaces because you may have cracking or movement long term. Instead, we recommend installing footings (concrete foundations for the posts) to make sure you have zero issues long term.

For most applications, we recommend digging holes 30" deep (in snow areas adjust depth to go below the frost line by 6"), place cardboard Sono tubing in the hole up to ground level (see anchorage table 1 to know the diameter). Then pour concrete flush to ground level (or level with the walking surface area of your paver or flagstone patio). Allow up to 3 days for the concrete to cure before attaching metal anchors at the top of the concrete pour (see below). You can use fast drying concrete if you don't want to wait.

If you do not want the posts in the weather, pour the concrete half an inch above ground level. The trim boxes will still drop to the floor.

STEP 1: Place the anchor where it will be installed; mark the ground as shown



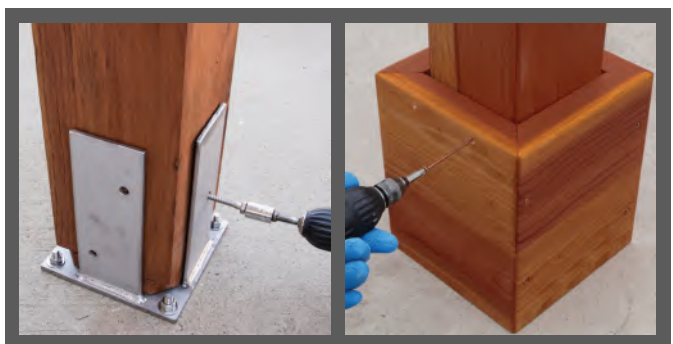
STEP 3: Place and attach metal anchor (with 1/2" x 4" anchor bolts) then place the post



STEP 2: For anchor bolts, drill holes 1/2" wide and 4" deep, then embed the bolts with a hammer. Remove the nut before placing the metal anchor (wood decks use lag bolts in this step)



STEP 4: Attach post to metal anchor with lag bolts (5/16" x 3"). Place the wood trim boots to hide the metal anchors, fix in place with screws



The photos on the previous page show the 5 simple steps to follow once your surface below the Structure is in place. Choose the anchor kit for the appropriate surface:

- **Stone, Brick or Concrete - Anchor Bolts** (1/2") for attaching to stone, brick, or concrete.
- **Wood (e.g., Wood Deck) - Lag Bolts** (3/8") for attaching to a wood deck.

Read more about anchoring your Pavilion in our [FAQ, including the best grade of wood to choose for your climate.](#)

More technical details:

Ideally Confirm your Structure Drawings prior to laying foundations – especially for paver or flagstone patios.

By confirming your Structure drawings first you may realize that you overlooked something or you may want to make a change that will affect the length or width. For example, for a standard 10' x 12' Arched Pergola Kit, the posts are recessed back 12 inches from the edge of the roof. This places your posts at 8' x 10' to the outside 4 corners of the posts and at 7' 6 1/2" x 9' 6 1/2" on center. If you are certain this is what you want, you can do the footings before ordering your Structure and before you receive your drawings for your order (all Structure orders receive drawings within 5 business days for your review to give you the time and tool to make adjustments before building). Often, when customers see their drawings, they decide to change some detail like adding more space between the posts or going taller.

If you are in the process of laying a foundation for a Structure that will require footings (recommended for flagstone or paver patios), it is best to have the design finalized so that you or your contractor can place the footings in the exact location. Once footings are installed you will not be able to move the post positions causing yourself an unnecessary headache.

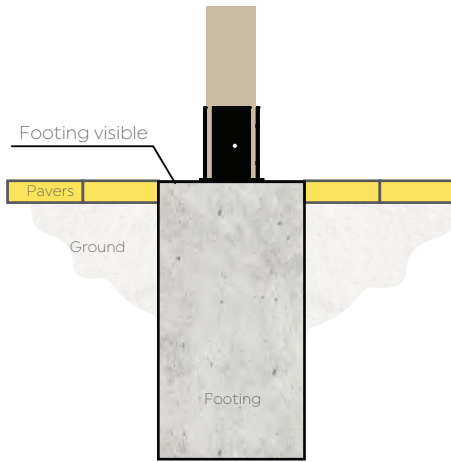
Paver or Flagstone Patio Installation details - If you are placing your Structure on a paver patio, pour the concrete to be level with the finished pavers. This way, after adding the trim, the bottom of the trim will rest atop the pavers seamlessly. Since the paver patio is usually a few inches above grade, you may have to pour a bit higher than on undeveloped ground to get the post height to line up exactly with the paver height. The design engineer that will be assigned to your project will detail the footings work needed as part of your design work. In the next page is a typical set up:



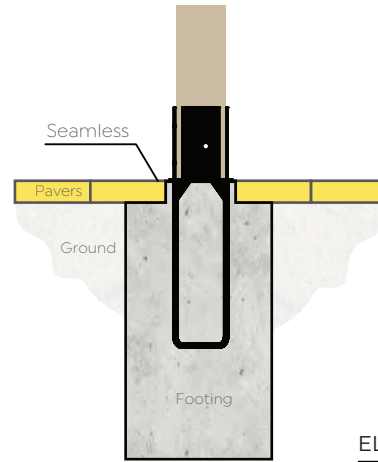
STEP 1: Attach metal anchors (made with 1/4" thick steel) to concrete with anchor bolt (1/2" x 4").

STEP 2: Attach post to metal anchor with lag bolts (5/16" x 3").

VISIBLE FOOTING

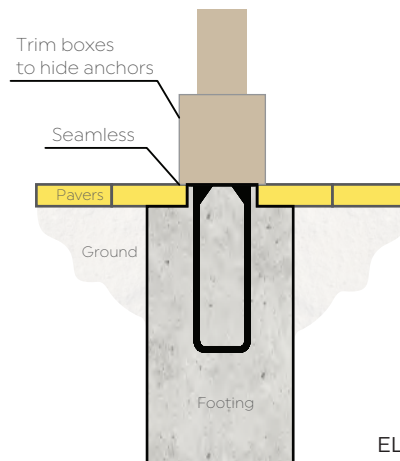
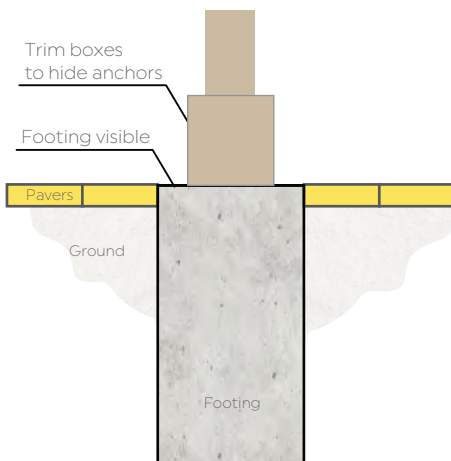


SEAMLESS FOOTING

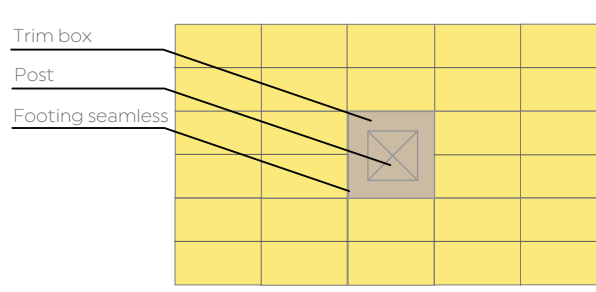
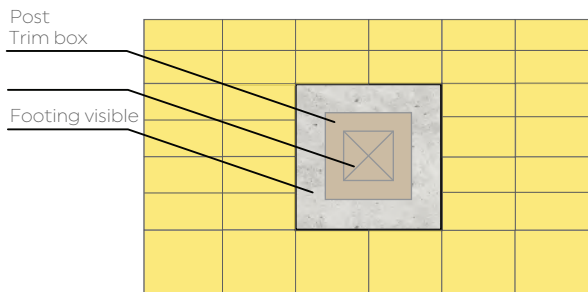


ELEVATION VIEW 1

STEP 3: Add wood trim to hide metal when finished.



ELEVATION VIEW 2



TOP VIEW

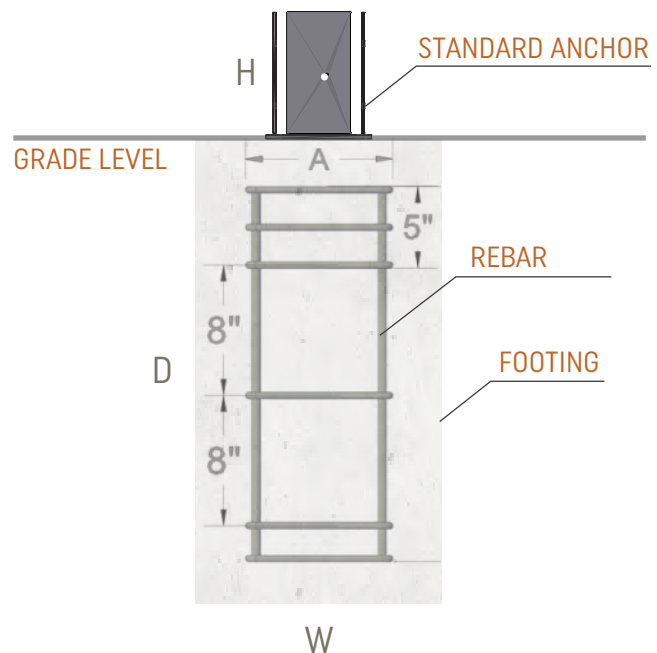
Post Dimensions	Anchor Bases		Footing	
	Base	Steel Gauge	H	W D
4 x 4 (3 3/4" x 3 3/4")	1/8"	6"	14"	30"
6 x 6 (5 1/2" x 5 1/2")	1/8"	8"	16"	30"
8 x 8 (7 1/4" x 7 1/4")	1/8"	8"	18"	30"
10 x 10 (9 1/4" x 9 1/4")	1/8"	10"	20"	30"
12 x 12 (11 1/4" x 11 1/4")	1/8"	10"	24"	30"

If you decide to order the Anchoring Kit, you'll have all the hardware you need and will not need anything from the hardware store if you are attaching to an existing deck. If building on undeveloped ground, just add the concrete and a bit of rebar as described above. Choose the anchor kit for the appropriate surface either wood decking or stone, brick or concrete surfaces.

STANDARD ANCHOR FOOTING DETAILS

Dig holes 30" deep (in freeze areas, adjust depth to go below the frost line by 6") and place cardboard Sono tubing in the hole up to ground level or higher, if desired (See table and diagram for proper footing dimensions). Add rebar if necessary, then pour concrete. Allow up to 7 days for the concrete to cure (or the next day if using fast-drying concrete) before following the Standard Anchor Kit Installation steps in the sidebar at right.

Larger shade structures sometimes require rebar cages to be embedded within the footing along with the anchors. If your order requires rebar cages and is being assembled by Forever Redwood's own teams, we will ship the rebar cages from the shop to facilitate our teams' on-site work. If you are having the installation done locally and determine you will need rebar cages and your local team doesn't have the ability to make them, reach back to us for a quote.



B. Option 2: High-Wind Anchor Kit

The High Wind anchor is rated to withstand winds of up to 150 mph. They are made from 100% Stainless steel. See chart above for typical recommended footing depth, but the final footing design will be part of your final approved working drawings that you will receive as part of the ordering process. They are normally installed at a 30 to 42 inch with a significant portion of the anchor in concrete underground as shown in the drawings above. For best results, we recommend doing the concrete work at least 3 days ahead of the Structure install so the concrete will cure prior to attaching the Structure to it. You then place the wood posts in the cradle and bolt the wood to the anchor. We supply wood trim pieces to hide the hardware so the bottom of the posts look like they have a wooden boot around them when installation is complete.

Note: If your Structure is placed in a snow area, the concrete must be 6 inches below the frost line.

Notes About Concrete and Pavilions

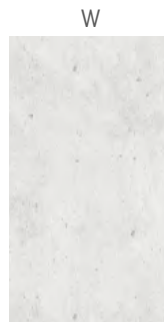
Concrete pads are best poured after setting your footings, since if hardscape work is done prior to installing your high wind anchors, you wind up having to cut into that hardscape to set them, which results in a joint around the posts. Even when it is concrete next to concrete.

Digging the footings and setting the anchors ahead of time allows it to be done in a way that leaves the last 4 inches of the footing unpoured. The anchor has plenty of steel under the saddle so it is still firmly set in place, and the final concrete patio contributes to the overall structural stability. You can then pour your new pad right over the footing and have no seams around the posts.

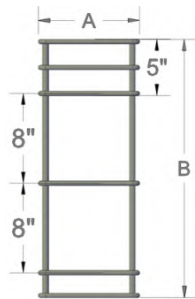
Below: Footing detail showing High Wind Anchors with steel cage. Rebar steel cage size depends on structural recommendations and surface conditions.



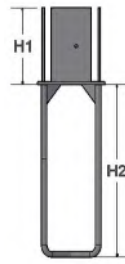
High Wind Anchors installed before concrete pad is poured



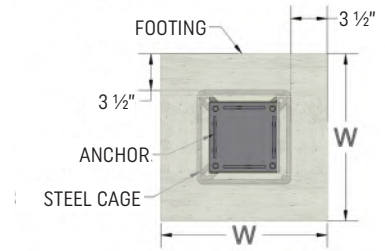
FOOTING



STEEL CAGE



HIGH WIND ANCHOR



PLAN VIEW



STEP 1

STEP 2

STEP 3

STEP 1: Dig footing hole per size shown on your drawings. Add a 3 1/2" concrete base to then place the rebar cage as shown.

STEP 2: Place the high wind anchor level (you can use some timbers as shown to keep it in place). Make sure all the anchors are level to one another and square to one another.

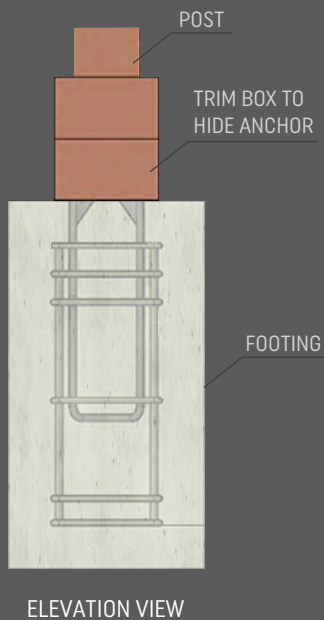
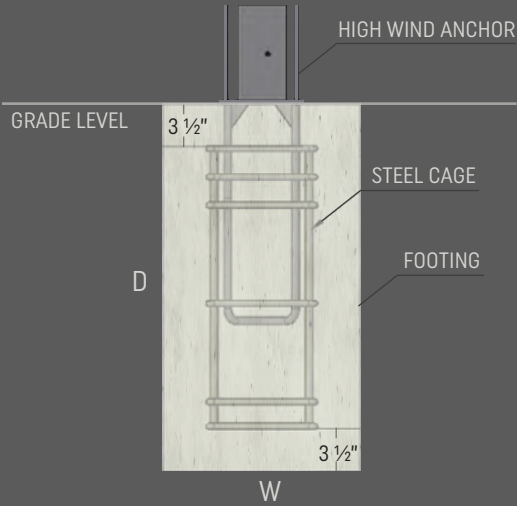
STEP 3: Pour concrete to a few inches below grade as shown. This way you can place your final hardscape over most of the footing so it will never be visible.

Post Dimensions	Anchor Bases				Steel Cage		Footing	
	Base Gauge	H1	H2	Steel Bar	A	B	W	D
4 x 4 (3 3/4" x 3 3/4")	1/8"	6"	12"	3/8"	7"	23"	14"	30"
6 x 6 (5 1/2" x 5 1/2")	1/8"	8"	18"	3/8"	9"	29"	16"	36"
8 x 8 (7 1/4" x 7 1/4")	1/8"	8"	18"	3/8"	11"	29"	18"	36"
10 x 10 (9 1/4" x 9 1/4")	1/8"	10"	20"	1/2"	13"	35"	20"	42"
12 x 12 (11 1/4" x 11 1/4")	1/8"	10"	24"	1/2"	17"	35"	24"	42"

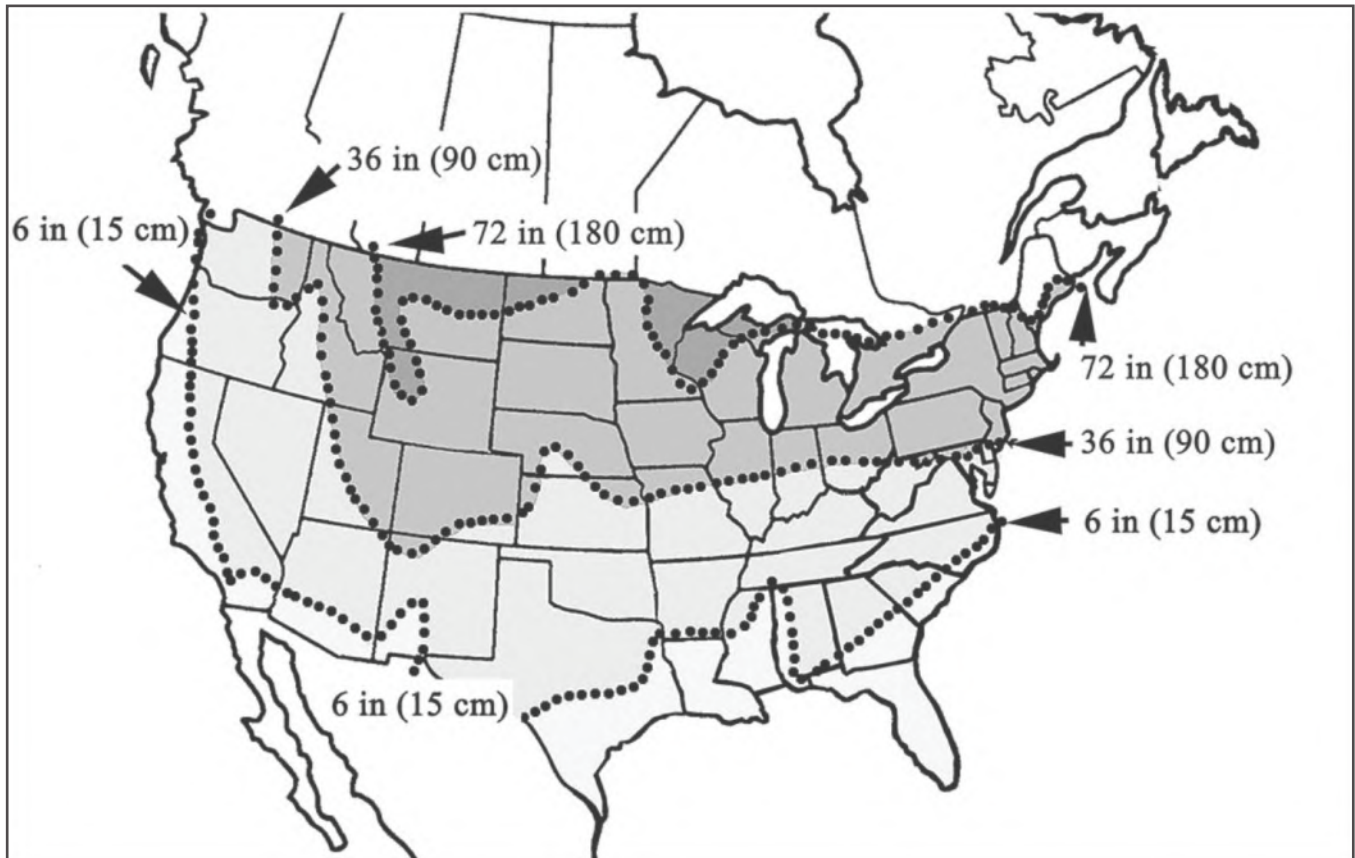
Each structure order includes drawings for concrete installation instructions. The High Wind Anchors are normally installed in a 30" deep concrete pour. Footing size is based on post dimensions. Table shows the size of footings and steel reinforcement that we recommend for every post size.

PAVILIONS

All Pavilions require High Wind Anchors because the closed-roof design creates more wind resistance. Unless the pavilion is relatively small, (under 150 sq ft) and in a low-wind area year-round, we recommend the High Wind Anchors for all designs and sizes. In hurricane prone areas, the High Wind Anchors and large footings are required to make sure your pavilion stays planted in your yard when the next storm blows in.



Frost Line Map Across the United States



This map is from the National Snow and Ice Data center and shows the frost line map across the United States. Note how it moves down from 72-inches depth to a 6-inch depth.